

**SOCIO ECONOMIC IMPACT OF GEOGRAPHICAL INDICATIONS TAG
ON SELECTED PRODUCTS IN KERALA**

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UNIVERSITY OF CALICUT
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DOCTOR OF PHILOSOPHY IN COMMERCE
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By

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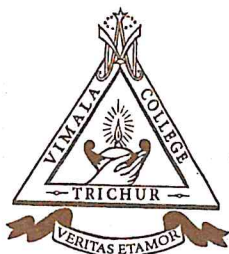
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This is to certify that the Human Research Ethics Committee of Vimala College (Autonomous) Thrissur, Kerala, reviewed and evaluated the ethical suitability of the research undertaken by Rekha Menon P, PhD research scholar in Commerce titled 'Socio Economic impact of geographical indications tag on selected products in Kerala' and the committee granted ethical approval of the research protocol which was presented before the committee with supporting documents.

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Rekha Menon P

ABSTRACT

Socio Economic Impact of Geographical Indications Tag on Selected Products in Kerala

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Geographical indications (GI) are intellectual properties that protect the reputation of products originating from a specific place. GIs are similar to trademarks with the exception that GIs are collective marks. GIs play a significant role in ensuring fair competition and supporting rural development in economies dependent on agriculture, handicrafts and traditional food. The GI products with distinct geographic origins can 'de-homogenise' and 'de-commodify' the products and bring out their uniqueness in the market. Many researchers have pointed out that the protection of the GI can promote social and economic growth and bring greater economic returns. The perceived economic benefits from the GI are price premiums, exports, increase in demand and tourism prospects. The social benefits include protection of traditional knowledge, community empowerment, reducing urban migration and increase in employment.

One of the successful elements that is highlighted in the studies which brought out the positive effect of GI is the working of the collective organisation of the producers. For the producers' association to be successful in promoting GI, the member producers should be aware of the concept and benefits of GI. Hence, an assessment of the level of awareness of producers about GIs and the contribution of producers' associations in promoting GIs was made. The ultimate purpose of GI is to provide marketing benefits to producers. The assessment of GI as a product differentiation tool and its influence along the supply chain were explored. The uniqueness of GI from other IPRs lies in the fact that it is a collective IPR and can bring about economic and social benefits to not just one individual or firm but to an entire geographical area. The socio-economic evaluation of the GI tag is not complete without understanding the challenges that the producers face in the successful utilisation of GI.

The present study was both descriptive and analytical. Multi-stage sampling method was used, and data were collected from 400 producers of four agricultural GIs of Kerala, namely, Kaipad Rice, Tirur Vettala, Chengalikodan Nendran and Marayoor Sharkara using a structured interview schedule.

Being a collective mark, the contribution of the producers' association from the producers' perspective was analysed, and it showed that the producers' association did play an active role in the registration and spreading awareness about GI among the public. But it was found that the producers' association did not have a dispute resolution system and was not doing enough to bring the producers together. The evaluation of the awareness level of producers revealed that the producers were aware of the general concept of GI but did not have much knowledge regarding the legal procedures to be followed in the case of GI Act violation. The significance of GI in fostering economic growth was established with the producers gaining a price premium and price stability. By granting producers exclusive rights to use the product's name based on its origin, GI serves as a powerful tool for preserving cultural heritage while promoting sustainable development. The analysis underscores various challenges associated with the GI, especially enforcement and organisational support issues.

Despite the challenges, GI can be a valuable mechanism for ensuring product authenticity. In an increasingly globalised world, where authenticity and provenance hold growing importance, GIs will continue to shape economic and cultural landscapes.

Key Words: Geographical indications, Intellectual Property Rights, Socio Economic Impact, Producers' Association, Awareness Level.

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സംഗ്രഹം

കേരളത്തിലെ തിരഞ്ഞെടുത്ത ഉൽപ്പന്നങ്ങളിൽ ഭൗമ സൂചികകളുടെ സാമൂഹിക സാമ്പത്തിക സ്വാധീനം

രേഖ മേനോൻ പി: പാർട്ടി-ടൈം ഗവേഷണ സ്കോളർ, റിസർച്ച് & പിജി ഡിപ്പാർട്ട്മെന്റ് ഓഫ് കൊമേഴ്സ്, വിമല കോളേജ് (ഓട്ടോണമസ്), തൃശ്ശൂർ.

സുപ്പർവൈസിംഗ് ഗൈഡ്: ഡോ. വസന്തകുമാരി പി, അസോസിയേറ്റ് പ്രൊഫസറും ഹെഡും (റിട്ട.), പിജി ഡിപ്പാർട്ട്മെന്റ് ഓഫ് കൊമേഴ്സ്, എൻ.എസ്.എസ്. കോളേജ്, ഒറ്റപ്പാലം.

ഭൂമിശാസ്ത്രപരമായ സവിശേഷതകളെ മുൻ നിർത്തി ഒരു ഉൽപ്പന്നത്തിന്റെ പ്രസക്തിയും തനിമയും സംരക്ഷിക്കുന്ന ബൗദ്ധിക സ്വത്തിനെ സൂചിപ്പിക്കുന്ന പദം ആണ് ഭൗമസൂചിക. ഭൗമസൂചികകൾ കൂട്ടായ്മകളുടെ അടയാളമാണ് എന്നതു ഒഴിച്ചാൽ അവ വ്യാപാരമുദ്രകൾക്ക് സമാനമാണ്. കൃഷി, കരകൗശല വസ്തുക്കൾ, പരമ്പരാഗത ഭക്ഷണം എന്നിവയെ ആശ്രയിക്കുന്ന സമ്പദ് വ്യവസ്ഥയിൽ ന്യായമായ മത്സരം ഉറപ്പാക്കുന്നതിലും, ഗ്രാമീണ വികസനത്തിനെ പിന്തുണക്കുന്നതിനും ഭൗമസൂചികകൾ നിർണായകമായ പങ്കു വഹിക്കുന്നു. ഭൂമിശാസ്ത്രപരമായ വ്യത്യസ്തത ഉത്ഭവം ഉള്ള ഭൗമസൂചികക്ക് ഉൽപ്പന്നങ്ങളെ 'ഡി-ഹോമാജനൈസ്' ചെയ്യാനും, 'ഡി-കമോഡിഫൈ' ചെയ്യാനും, വിപണിയിൽ അവയുടെ പ്രത്യേകത പുറത്തു കൊണ്ടുവരാനും കഴിയും. ഭൗമസൂചികയുടെ സംരക്ഷണത്തിലൂടെ സാമൂഹികവും സാമ്പത്തികവുമായ വളർച്ച പ്രോത്സാഹിപ്പിക്കാനും കൂടുതൽ വരുമാനം നേടാനും കഴിയുമെന്ന് പല ഗവേഷണങ്ങളിലൂടെയും തെളിയിക്കപ്പെട്ടിട്ടുണ്ട്. ഉയർന്ന വില, കയറ്റുമതി, ഡിമാൻഡ് വർദ്ധനവ്, ടൂറിസം സാധ്യതകൾ എന്നിവയാണ് ഭൗമസൂചികയിൽ നിന്നുള്ള പ്രധാന സാമ്പത്തിക നേട്ടങ്ങൾ. പരമ്പരാഗത വിജ്ഞാനത്തിന്റെ സംരക്ഷണം, സാമൂഹിക ശാക്തീകരണം, നഗരങ്ങളിലേക്കുള്ള കുടിയേറ്റം കുറയ്ക്കൽ, തൊഴിൽ വർദ്ധനവ് എന്നിവ അതിന്റെ സാമൂഹിക നേട്ടങ്ങളായി ചുണ്ടിക്കാണിക്കപ്പെടുന്നു.

ഉത്പാദക സംഘങ്ങളുടെ കൂട്ടായ പ്രവർത്തനം ഭൗമസൂചികയുടെ ഗുണഫലങ്ങൾ പുറത്തുകൊണ്ടുവരുന്നതിൽ പ്രധാന പങ്കുവഹിക്കുന്നുണ്ട് എന്നു പല പഠനങ്ങളും തെളിയിച്ചിട്ടുണ്ട്. ഉത്പാദകരുടെ കൂട്ടായ്മ വിജയിക്കണമെങ്കിൽ അംഗമുത്പാദകർ (മെമ്പർ പ്രൊഡ്യൂസർസ്) ഭൗമസൂചികയുടെ ആശയത്തെക്കുറിച്ചും, നേട്ടങ്ങളെയും, കുറിച്ച് ബോധ്യമുള്ളവരായിരിക്കണം. ഭൗമസൂചികകളെ പ്രോത്സാഹിപ്പിക്കുന്നതിൽ ഉത്പാദക സംഘങ്ങളുടെ സംഭാവനയും ഈ പഠനത്തിൽ വിലയിരുത്തപ്പെട്ടു. മാർക്കറ്റിംഗ് ആനുകൂല്യങ്ങൾ നൽകുക എന്നതാണ് ഭൗമസൂചികയുടെ ആത്യന്തിക ലക്ഷ്യം. ഉൽപ്പന്നങ്ങളുടെ വ്യത്യസ്തത നിർണയിക്കുന്നതിനുള്ള ഉപകരണം എന്ന നിലയിൽ ഭൗമസൂചികയുടെ വിലയിരുത്തൽ, വിതരണ ശൃംഖലയിൽ അതിന്റെ സ്വാധീനം എന്നിവയും പഠനവിധേയമാക്കി. ഭൗതിക സ്വത്തവകാശ സംബന്ധമായ മറ്റു മേഖലകളിൽ നിന്നും വ്യത്യസ്തമായി ഭൗമസൂചികകൾക്കുള്ള സവിശേഷത ഇതു ഒരു കൂട്ടായ്മയുടെ ബൗദ്ധിക സ്വത്താണ് എന്നുള്ളതാണ്. ഒരു വ്യക്തിക്കോ സ്ഥാപനത്തിനോ മാത്രമല്ല ഭൂമിശാസ്ത്രപരമായ മുഴുവൻ പ്രദേശത്തിനും സാമ്പത്തികവും സാമൂഹികവും ആയ നേട്ടങ്ങൾ കൈവരിക്കാൻ കഴിയും എന്നതാണ് ഇതിന്റെ ഗുണഫലം. ഇതിനെ വിജയകരമായി ഉപയോഗിക്കുന്നതിൽ ഉത്പാദകർ നേരിടുന്ന വെല്ലുവിളികൾ മനസ്സിലാക്കാതെ ഭൗമസൂചികയേ കുറിച്ചുള്ള സാമൂഹിക സാമ്പത്തിക പഠനം പൂർണ്ണമാവില്ല.

ഈ പഠനം വിവരണാത്മകവും വിശകലനപരവുമായിരുന്നു (ഡിസ്ക്രിപ്റ്റീവ് ആൻഡ് അനലറ്റിക്കൽ) മൾട്ടി സ്റ്റേജ് സാമ്പിൾ രീതി ആണ് ഉപയോഗിച്ചിരിക്കുന്നത്. കേരളത്തിലെ നാലു കാർഷിക ഭൗമസൂചിക ഉൽപ്പന്നങ്ങളായ കൈപ്പാട് റൈസ്, ചങ്ങാലിക്കോടൻ നേന്ത്രൻ, തിരുർ വെറ്റില, മറയൂർ ശർക്കര എന്നീ ഉൽപ്പന്നങ്ങൾ കൃഷി ചെയ്യുന്ന 400 വ്യക്തികളിൽ നിന്നും മുൻകൂട്ടി തയ്യാറാക്കിയ ചോദ്യാവലി ഉപയോഗിച്ച് വിവരങ്ങൾ ശേഖരിച്ചു.

നിർമ്മാതാക്കളുടെ വീക്ഷണ കോണിൽ, അവരുടെ സംഘനയുടെ പ്രധാന സംഭാവന, രജിസ്ട്രേഷനിലും, ഭൗമസൂചികയേ കുറിച്ച് പൊതുജനങ്ങൾക്കിടയിൽ അവബോധം വളർത്തുന്നതിലും ആണ് ഉണ്ടായിട്ടുള്ളത്. എന്നാൽ അവർക്കു തർക്ക പരിഹാര സംവിധാനം ഇല്ലെന്നും, നിർമ്മാതാക്കളെ ഒരുമിച്ചു കൊണ്ടുവരാൻ വേണ്ടത്ര പ്രവർത്തനങ്ങൾ നടത്തുന്നില്ലെന്നും കണ്ടെത്തി. ഭൗമസൂചികയുടെ പൊതുവായ ആശയത്തെ കുറിച്ച് ഉത്പാദകർക്കു അറിയാമായിരുന്നുവെന്നും എന്നാൽ ഭൗമസൂചിക സംബന്ധിച്ച നിയമലഘനം ഉണ്ടായാൽ പാലിക്കേണ്ട നടപടിക്രമങ്ങളെ കുറിച്ച് അറിവില്ലെന്നും ഉത്പാദകരുടെ അവബോധനിലവാരത്തിലെ വിലയിരുത്തലിൽ നിന്നും വ്യക്തമായി. ഉത്പാദകർക്കു ഉയർന്നതും, സ്ഥിരതയുള്ളതുമായ വില ലഭിച്ചതോടെ സാമ്പത്തിക വളർച്ച പ്രോത്സാഹിപ്പിക്കുന്നതിൽ ഭൗമസൂചികയുടെ പ്രാധാന്യം സ്ഥാപിക്കപ്പെട്ടു. ഉല്പന്നത്തിന്റെ ഉത്ഭവ സ്ഥലം അടിസ്ഥാനമാക്കി അതിന്റെ പേര് ഉപയോഗിക്കുന്നതിനു ഉത്പാദകർക്കു പ്രത്യേക അവകാശങ്ങൾ നൽകുന്നതിലൂടെ സുസ്ഥിര വികസനം പ്രോത്സാഹിപ്പിക്കുന്നതിനും സാംസ്കാരിക പൈതൃകം സംരക്ഷിക്കുന്നതിനും ശക്തമായ ഒരു ഉപകരണമായി ഭൗമസൂചിക പ്രവർത്തിക്കുന്നു എന്നു കണ്ടെത്തി.

ഭൗമസൂചികയുമായി ബന്ധപ്പെട്ട വിവിധ വെല്ലുവിളികൾ വിശകലനം ചെയ്തതിൽ ഭൗമസൂചികയുമായി ബന്ധപ്പെട്ട നിയമ നിർമ്മാണത്തിലെ സങ്കീർണ്ണതയും, ഇൻസ്പെക്ഷൻ ബോഡി ഉൾപ്പെടെ ഉള്ള സംഘടന പിന്തുണയിലെ വീഴ്ചയും പ്രധാന വെല്ലുവിളികളാണെന്ന് കണ്ടെത്തി.

വെല്ലുവിളികൾക്കിടയിലും ഉൽപ്പന്നത്തിന്റെ ആധികാരികത ഉറപ്പാക്കുന്നതിനുള്ള മൂല്യവത്തായ ഒരു സംവിധാനമാണ് ഭൗമസൂചിക. ആഗോളവൽക്കരിക്കപ്പെട്ട ഒരു ലോകത്തു ആധികാരികതയുടേയും ഉത്ഭവ സൂചനയുടേയും അടയാളങ്ങളായി പ്രവർത്തിക്കാൻ ഭൗമസൂചികകൾക്കു സാധിക്കും.

പ്രധാന വാക്കുകൾ: ഭൗമ സൂചിക, ബൗദ്ധിക സ്വത്തവകാശം, സാമൂഹിക സാമ്പത്തിക സ്വാധീനം, നിർമ്മാതാക്കളുടെ അസോസിയേഷൻ, ബോധവൽക്കരണ നിലവാരം

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ABBREVIATIONS

ANOVA	Analysis of Variance
APEDA	Agricultural and Processed Food Products Export Development Authority
AU	Authorised User
AVA	American Viticultural Areas
AVE	Average Variance Explained
CAGR	Compound Annual Growth Rate
CFA	Confirmatory Factor Analysis
CIPAM	Cell for IPR Promotion and Management
CoP	Code of Practice
CR	Composite Reliability
DGFT	Direct General of Foreign Trade
DIC	District Industries Centre
DiD	Difference in Difference Method
EU	European Union
FTA	Free Trade Agreement
GDP	Gross Domestic Product
GI	Geographical Indication
GoI	Government of India
IPR	Intellectual Property Rights
KAU	Kerala Agricultural University
LSG	Local Self Government
MANOVA	Multivariate Analysis of Variance
MI	Modification Indices
MoSPI	Ministry of Statistics and Programme Implementation
MSME	Micro Small and Medium Enterprises
NABARD	National Bank for Agriculture and Rural Development
NGO	Non-Government Organisation

NIPAM	National Intellectual Property Awareness Mission
PCA	Principal Component Analysis
PDO	Protected Designation of Origin
RGI	Registered Geographical Indications
SEM	Structural Equation Model
SLR	Systematic Literature Review
TK	Traditional Knowledge
TNC	Transnational Corporation
TRIPS	Trade Related Intellectual Property Rights
WIPO	World Intellectual Property Organisation
WTO	World Trade Organisation

Chapter 1
Introduction and Research Methodology

1.1 INTRODUCTION

“The enduring competitive advantages in a global economy lie increasingly in local things – knowledge, relationships and motivation that distant rivals cannot match.” - Michael E. Porter (*Clusters and the New Economics of Competition*, n.d.)

Over the centuries, human civilisation has been driven by the desire to have unique premium-quality products from specific regions of the world; these included silk from China, textiles from India, teak from Burma and wines from Europe. This pursuit of region-specific high-quality goods uncovered new trade routes around the world. The uniqueness of these products became so significant that certain regions started specialising in the production of such distinct commodities. This led to the global recognition of the regions, and the products started getting addressed along with their region of origin. Growing popularity of these products, on the downside, resulted in the proliferation of counterfeit products in the market, which started damaging the credibility of the original product. Consequently, the countries started seeking protection for their prestigious premium products. The concept of protecting region-specific premium products with law emerged in 1919 when France implemented the concept of ‘appellation of origin’ to protect the French wine. Later, after the establishment of the Trade-Related Intellectual Property Rights Agreement (TRIPS), these region-specific products with unique qualities started getting legal recognition through a form of Intellectual Property Right (IPR) named Geographical Indication (GI).

IPRs are the rights conferred to persons over their intellectual creations. These rights provide the originators an exclusive privilege on the use of their creation, which is obtainable for a specified period. The protection of IPRs is gaining importance in the changing global trade scenario characterised by rapid technological innovation, huge research and development expenses, the need for skilled human capital and a swift shift in consumer preferences. The TRIPS Agreement has recognised seven IPRs, one of which is the Geographical Indication. The protection of IPRs aims to provide the creators with returns for their investment of resources such as time, labour, and money. IPRs can promote creativity and its application; they are also useful in promoting the economic interest by providing a fair-trade environment (Medeiros et al., 2016).

India has been remarkable in providing due recognitions to IPRs; this is evident in the latest statistics relating to IPRs published by the World Intellectual Property Organisation (WIPO). India has made it to the top twenty-five countries for patents, trademarks, industrial designs, and geographical indications registrations as per the World Intellectual Property Indicators Report 2024. India's patent-to-GDP ratio, which discloses the economic impact of the patent, grew from 144 in 2013 to 381 in 2023. The nation's determination to foster a knowledge-based economy could explain the surge in the patent registrations and their positive contribution towards the economic growth. The dominance of India can also be seen in the case of industrial design application as well as in trademark registration. The reports for the year 2023 revealed that India ranked fourth in the world for trademark registration and witnessed a 36.4% increase in industrial design applications. These developments present the growing emphasis of the country on protecting the innovations, creativity, design, etc. and leveraging it for economic development (Doc20241116435801.Pdf, n.d.).

GIs are intellectual properties that protect the reputation of products originating from a specific place. This type of protection is intended to ensure the product's quality and authenticity and prevent its imitation. The WTO has made it a mandate for its member countries to implement the TRIPS Agreement. This Agreement covers legal protection provided to IPRs, which includes GIs. The need to protect intellectual property like GIs arises since they are prized intangible assets. India, being a member nation of the WTO, enacted a separate law for the protection of GIs in the year 1999.

According to the TRIPS Agreement, "Geographical Indications are, for this Agreement, indications which identify a good as originating in the territory of a member or a region or locality in that territory, where a given quality, reputation or other characteristic of the good is essentially attributable to its geographical origin."

Even though the formal concept of GI registration is of recent origin, the practice of addressing the name of the product along with the place of its origin dates back to the 4th century B.C., when the Greeks and the Roman traders often referred to goods along with the place of origin. History reveals that almost all countries follow this practice because they believe that products from certain countries have unique qualities on account of their place of origin. Referring to products by their geographical origins was the earliest form of trademark used by traders (Bramley et al., n.d.). Globalisation has increased the relevance of place and provenance (Gangjee,

2016). The logic behind providing legal protection to GI is that it can solve two major issues of market failure of products, one being the information asymmetry and the other being the free riding of reputation (Belletti et al., 2011).

GI can help the producers in this competitive world by highlighting the product quality, thereby creating an advantage of product differentiation and proliferation. The growing demand for quality products, especially in the field of agriculture, can be seen as the outcome of the concerns of the consumers about the food safety standards. The customers during the process of purchase decision always search for information relating to the quality of the product. If the information relating to quality is not properly communicated to the customers by the producers, it can result in market loss. The producers can avoid the loss of market due to information asymmetry with the help of the GI tag, which is a marketing tool with legal significance signalling quality and ensuring unique production mechanisms. Thus, GI tags deliver institutionalisation of reputation for distinct products. GI tags can also help the producers in triggering emotions in customers, such as nostalgia, cultural association, and social status. There are studies which reveal that the customers are increasingly giving importance to the place of production and the unique means of production; these interests of the customers can be capitalised on by the producers by highlighting the uniqueness of the products and the production process associated with it through GI tagging.

The GI tags are portrayed as having social, economic, and marketing benefits. The economic benefits often associated with GIs are price premiums, price stability, increases in demand and exports, and access to new markets. The protection of tradition, environment, and culture often highlights the social significance of GIs. The marketing benefits associated with GIs are enhanced bargaining power and product quality signals. There are various studies which highlight the role of GI in rural development. The GI, unlike other IPRs, does not confine itself to a single legal owner but belongs to an entire community that practises the production of a specific product; hence, the benefits reaped from it can be enjoyed by all from that community. This can eventually lead to the development of the particular region where the GI belongs.

1.1.1 An Overview of Geographical Indication

The following paragraph provides the detailed statistics of GIs in a global and Indian context.

1.1.1.1 Global Scenario

As per the data released by WIPO in World Intellectual Property Indicators 2024, there are an estimated 58600 GIs protected worldwide. Among these 58600 registered GIs, the registrations from upper middle-income economies accounted for 52.2% of the global GI registrations, and the low-income economies accounted for only 0.1% of the global GI registrations. The region-wise classification reveals that the highest GI registration is from Europe, accounting for half of the global registrations, followed by Asia, having 39.5% of the registrations globally. The fewest registrations are from the African nations, contributing to 0.2% of the total global registrations. China has the highest number of GI registrations, with over 9700 GIs as of 2023, followed by Germany, Hungary and the Czech Republic. India is among the top 25 countries having the highest number of GI registrations globally. The GIs are protected worldwide under various legal means, such as establishing separate national legal systems, through the Lisbon Agreement and through separate international agreements. Globally, wines and spirits account for 48.1% of the total GI registrations, followed by agriculture and foodstuff at 44.8% and handicraft at 4.2%. Generally, GI registration is presented to goods, but China, Brazil, Macao, Serbia and the US have extended the protection of GI to services also (World Intellectual Property Organization, n.d.).

1.1.1.2 Indian Scenario

As per the annual report of the Office of the Controller General of Patents, Designs, Trademarks and GIs for the year 2023-2024, the IPR application filing for all types of IPRs has shown an increase as compared to the previous years. India follows a national system of GI protection like Brazil, Malaysia, and the Republic of Korea. In India GI protection is provided only to goods and not services. Handicrafts (including textiles) have the highest number of registered GIs, with 337 registered GIs, followed by agriculture, having 197 registrations. Together they account for more than 80% of the GI registrations as of March 2024. The GI Registry, Chennai, received an amount of eleven lakhs sixty-nine thousand one hundred and five rupees from fees for GI applications and related activities for the year 2023-2024 (*Annual_report_23-24_En*, n.d.).

1.1.2 Means of Protection of Geographical Indications – Different Legal Approaches

The outline for the protection of GI is provided in the TRIPS Agreement. The nations can follow their own method for the protection of GI by complying with the standard requirement of TRIPS. Nations protect GIs primarily through sui generis systems and trademark legislation.

Three main systems of protection are generally distinguished; they are:

- i. Sui Generis System: In this form of protection special protection or rights are given to GIs which are separate and independent of other forms of intellectual property rights. Here separate legislation is passed for the protection of GIs. The EU, China, Brazil and India are some of the countries to follow this system.
- ii. Trademark Legislation: In this form, the GIs are provided protection through the registration of collective marks or certification marks. Countries like the US and South Africa follow the Trademark Legislation along with the Competition Act to protect GI, and no separate Act was passed. Canada and Japan too do not have a separate Act for the protection of GIs, and there the GIs are protected through Certification Mark Law.
- iii. Other Legislation Protection: Some countries provide cumulative protection by allowing the protection of GI through multiple systems. Venezuela has given protection to GIs by the provisions in its Industrial Property Law. All the registered GIs of this nation are owned by the Government (Hughes, 2012).

The legal protection provided to GIs can be further categorised as a permissive system or a prescriptive system. A permissive system is a less formal approach with rough specifications and little role for the State. A prescriptive system, on the other hand, is very detailed about the product specifications and is developed to be within the framework of public policies (Belletti et al., 2011).

France was the first nation to protect GIs through separate legislation. The GI protection system was created in response to a perceived need for a remedy against dishonest economic practices affecting the provenance of agricultural products. GIs are protected around the world through a combination of national and international Laws and Agreements. The number of GIs registered globally is increasing as more countries recognise the importance of protecting their traditional products and their

reputation. The different approaches vary in the level of involvement of the Government, the level of monitoring followed by the system and the degree of usage of the system (Bramley et al., n.d.). The law relating to GIs in a particular region decides the criteria that are to be satisfied to get protection, the level of protection and the extent to which the protection is provided to a particular GI (Gangjee, 2016).

Overall, the protection of GIs around the world is an important aspect of IPR Law and helps ensure the quality and authenticity of traditional products while also promoting and protecting the interests of local producers and communities.

1.1.3 Geographical Indication Protection in India

India has established a separate system for the protection of GIs. In India, GIs are protected under the Geographical Indications of Goods (Registration and Protection) Act of 1999. The Act provides legal protection to goods that come from a specific geographical origin and have reputations or characteristics that are attributable to that origin.

In India the GIs are classified into two categories: goods that are produced or manufactured in a particular territory itself and goods that are manufactured in another region using raw materials procured from a specific region. Some examples of Indian GIs include Darjeeling tea, Kancheepuram silk, and Basmati rice.

GI registrations in India are done through the Geographical Indications Registry, located in Chennai. The Registry maintains a database of the registered GIs and is responsible for enforcing the rights of their owners.

The GI registration process in India contains seven steps, which include filing of application, preliminary scrutiny, examination, show cause notice, publication in the GI journal, opposition to registration application and finally, the official GI registration. The GI registration has a validity of ten years and needs to be renewed.

In India the producers of GI products can take Authorised User (AU) registration, which provides the producers with individual recognition as the producers of GI products. At the time of GI registration, an inspection body is formed and registered. The responsibility of the inspection body is to monitor the production process followed by the producers. The inspection body has to ensure that the

producers stick to the traditional Code of Practice (CoP). The inspection body confirms the consistency, integrity and quality of the GI products.

Overall, the protection of GIs in India is an important aspect of the country's intellectual property regime and helps to promote the interests of local producers and communities.

1.1.4 Rationale for the Protection of Geographical Indications

The rationale behind the protection of geographical indications is:

- i. Protection of traditional products: GIs help to protect traditional products that have a specific geographical origin and reputation or characteristics that are attributable to that origin. By obtaining GI registration, producers can prevent others from using their product name and reputation.
- ii. Promotion of quality and authenticity: GIs provide a basis for promoting the quality and authenticity of traditional products. By using a registered GI, producers can assure consumers that they are buying a product that meets specific quality standards and has a specific geographical origin.
- iii. Recognition of local communities: GIs provide recognition for the local communities who produce traditional products. By obtaining GI registrations, producers can demonstrate the cultural and historical significance of their products and help to preserve the cultural heritage of their communities.
- iv. Increased market value: GIs can increase the market value of traditional products by promoting their quality, authenticity, and cultural significance. This can benefit local producers and communities by providing them with a competitive advantage in the marketplace.
- v. Legal protection: GI registration provides legal protection for traditional products. This includes protection against unauthorised use, imitation, and false representation of GIs.

Overall, the objectives of obtaining GI registration are to protect and promote the quality, authenticity, and cultural significance of traditional products and to provide recognition and benefits for local producers and communities (*Modules4_e.Pdf*, n.d.).

1.2 STATEMENT OF THE RESEARCH PROBLEM

A worldwide adoption of the homogenisation of products by creating variations in the production technique and distribution pattern was popularised during the period of the Industrial Revolution. This process of standardisation removes the uniqueness of products, thereby limiting the diverse options available to the customers. GI-tagged products hold significance in this context as they concede the unique qualities of a product. A GI is a product differentiation tool that associates the place of origin of the product with the unique characteristics and qualities the product owns on account of its origin. These products with distinct geographic origins can be the reasons behind the ‘de-homogenisation’ and ‘de-commodification’ of the market (Hughes, 2012). Thus, GI tags signal the originality and uniqueness of the product, thereby creating a niche market for the producers.

Various government institutions worldwide have acknowledged the significance of GIs as a tool for development. The European Commission perceived GI as a legal and commercial tool that can bring development to the region where it belongs. The Commission also believes that the GI can preserve cultural heritage and promote small and medium firms. The GIs are seen as an alternative to expensive producer support programmes such as subsidies (Hughes, 2012). In India, the Foreign Trade Policy statement specifies the significance of promoting GIs as a commercial and branding tool, which in turn increases the export (*Ftpst17-051217 (3).Pdf*, n.d.). Recently, during the EU-India FTA negotiations, GIs and their benefits in international trade received special mention (*Geographical Indications amidst the EU-India FTA*, n.d.). These instances underscore the fact that GIs are no less important than other IPRs.

The uniqueness of GIs from other IPRs lies in the fact that it is a collective IPR, and if successfully utilised, GIs can bring about economic and social benefits to not just one individual or firm but to an entire geographical area. The two key categories where GI registrations are prominent in India are agriculture and handicraft. The contributions of agricultural and handicraft sectors to our socio-economic development are immense, as per the recent statistics released by the GoI. The report by MoSPI reveals that the agricultural sector, considered the backbone of our economy, employs 45.76 % of the total workforce in the Nation and as per the reports of the Ministry of Textiles, the handicraft sector employs over 6 million artisans, the

majority being women. The proper evaluation of the GI tag can reveal the benefits and issues in the successful use of GIs and can guide towards better utilisation of the tag for community development (*About Us | Official Website of Development Commissioner (Handicrafts), Ministry of Textiles, Government of India*, n.d.; Sabha, n.d.).

One of the success elements that were highlighted in the previous studies that brought out the positive effect of GIs was the working of the collective organisation of the producers (Paus, 2010). GIs, being a collective mark, cannot be capitalised individually; it requires a superior level of institutionalisation and collective action from GI producers. The producers should agree upon minimum production requirements and should be willing to adopt common marketing policies; these are achievable only with the support of a functioning producers' association. The producers' association can be in the forefront for identifying and fighting infringements of GIs (*Geographical Indications amidst the EU–India FTA*, n.d.). These associations can also act as a platform for the producers to discuss common production and marketing issues. A weak producers' association can lead to inefficient governance, fragmented decision making and unequal access to benefits, especially for marginalised farmers. These associations act as an anchoring point for all the producers of a particular commodity, the absence of such institutional support can restrict the potential of the GI to enhance socio-economic and marketing benefits. Hence, it is very pertinent to assess how far the producers' associations are working towards bringing together the producers and facilitating the utilisation of the GI tag.

The main stakeholders of GI registration are the producers of GI products. According to a research publication by the Swiss Federal Institute of Intellectual Property on GIs, the awareness level of the producers about the concept of GI, use of GI, registration procedure, legal procedure, the logo, etc. forms the first-order effect of GI registration (Belletti et al., 2011). The varying level of awareness about GI among the producers can undermine the effective utilisation of GI, compliance with the CoP, and participation in the collective governance of GI. This brings to light the fact that the evaluation of GI is incomplete without assessing the awareness level of GI among producers and the effort taken by the producer's association in supporting the producers. Even though there are studies that highlight the need for and advantage of having an active producers' association, there are no studies in the Kerala context that

address the contribution of producers' associations in the utilisation of GI and assess the awareness level of producers about GI.

The building up of identification marks for products with unique qualities makes sense in the world of imperfect information. The term imperfect information means that consumers cannot judge the product's quality before consumption. GI is seen as a mark of quality that is derived from the geographical location of production. In India, the CoP traditionally practised by the producers and the inspection body responsible for ensuring the practice of CoP by the producers are taken into record during the registration of GI. This can facilitate the removal of imperfect information, as the consumers of the product have information about the minimum level of quality that is to be expected from a product with GI (Benavente, 2013). GIs are a corollary of institutionalising shared reputation, which can resolve the issues of information asymmetry and free-riding (Bramley et al., n.d.). GIs are similar to trademarks in that they help GI producers in signalling the uniqueness of their products from other similar products. Literature evaluating GIs as a marketing tool from the perspective of customers is available, which explores the influence of GIs on the purchasing decisions and buying behaviour of customers. But there is a dearth of research evaluating the marketing benefit of GIs from the perspective of producers. Research from this angle can supplement the significance of GI as a marketing tool and how the GI producers can benefit from it.

GIs are becoming more popular from an economic and social perspective due to the increased international competition on the level of product quality differentiation, where quality is defined as all characteristics, including emotional ones, that make products stand out in the market, thereby dodging price-based competition (Belletti et al., 2011). Researchers have identified numerous economic, social, cultural, and heritage values for GIs. Many researchers have established through their empirical studies that the protection of GIs promotes social and economic growth and brings greater economic returns (Jena & Grote, 2012). Some of the perceived economic benefits from the GIs are price premiums, exports, and an increase in demand. The social benefits include protection of traditional knowledge, community empowerment, reducing urban migration and increase in employment, among others. These professed socio-economic benefits of GIs need to be assessed to understand the real position of the effects and challenges in utilising the GI tag. Even though there are studies

evaluating the socio-economic benefits of GIs in other countries, especially from the countries of the European Union, not many studies are available in the Indian context. The results of the studies conducted in the European countries are not generalisable to the developing world context (Mancini, 2013). Besides, the socio-economic evaluations in earlier research are not comprehensive in nature. The available research is usually focused around a few aspects of the socio-economic benefits of GI; some studies have covered socio-economic aspects of GI, such as tourism, allied jobs and land value, while some have covered aspects such as demand, exports and access to new markets. Still others carried out studies from the perspective of environmental protection. Hence, a comprehensive evaluation approach covering identifiable factors of social, economic and environmental benefits of GI is essential for understanding the overall significance of the GI tag.

The socio-economic and marketing evaluation of GI tags is not complete without understanding the challenges faced by the producers in the successful utilisation of GI. Some studies on GIs in India have pointed out that the registered GIs are often found to be underutilised (*Geographical Indications amidst the EU–India FTA*, n.d.). This can be due to several issues that the producers face while using the GIs. A clear understanding of the challenges in the productive use of the GI tag will help the Government design policies and interventions to remove hindrances in the active use of GI. Once the success of GI tags becomes popular, there can be a substantial increase in registrations, facilitating socio-economic prosperity and raising the popularity of the products nationally and internationally. In short, for taking informed policy decisions, it is worth examining both the economic and social benefits of GIs along with the challenges and the strength of producers' associations.

The Indian Government gave GIs recognition by establishing a separate law in the year 1999 as per the requirements of the TRIPS Agreement. Since then, a total of 643 GIs have been registered in the country as of April 2024. Kerala has to its credit 36 GI registrations. It is almost 20 years since a robust policy on GIs was established by the GoI for the protection and promotion of GI. Every policy needs to be evaluated to verify how far it has succeeded in achieving the desired objectives.

Many researchers have brought out the need for the evaluation of GI registrations. Medeiros in his research has stated that GIs are not only looked into as an economic tool but also of cultural and social significance; in this sense it is

important to understand the impacts attributable to the IPR (Medeiros et al., 2016). Belletti believed that many goals are expected to be achieved as a result of the GI registration, and regardless of the goals, there is a need for evaluation as to the extent to which these goals are achieved (Belletti et al., 2011). The WIPO round table on The Economics of Intellectual Property pointed out that the empirical evidence of the economic and social impact of GIs is limited, due to which policy decisions in the developing world remain imprecise, which causes inadvertent welfare impacts (Hughes, 2012).

Even though India has 643 GI registrations as of April 2024, the position lies behind compared to other countries such as Germany, China, Italy, Hungary, and Bulgaria. The value of Chinese GI products is estimated at 82 billion euros in 2020, which brings to light the massive economic potential of GIs. Given India's cultural heritage and uniqueness, the number of GI tags registered is negligible, and there are still a lot of products which are eligible for getting GI tags. An assessment of the existing products with GI registrations can bring out the positive benefits of GIs and the issues faced by the producers in successfully utilising the tag. The evaluation will help the producers in better understanding the GI tag and putting it to good use. This will encourage more GI registrations, which will be beneficial to the producers in particular and society at large.

Kerala is in the top five among the states with the highest number of GI registrations in the country, making it worth the effort to study and analyse what effect the GI registrations have brought about among the producers. This study was an attempt to examine the awareness level of the producers in understanding GIs, how useful the producers' association is in utilising the GI tagging, the socio-economic effects of GI tags, the marketing benefits of GIs and the issues in the successful utilisation of GI tags.

1.3 RESEARCH GAP

The GI represents a unique form of IPR that links products to their specific geographic origin, wherein the qualities, reputation or characteristics of the goods are essentially attributable to that location. Despite extensive research on GIs, gaps remain in assessing the overall effectiveness of GI and challenges in the utilisation of GI, especially in the Indian context. Most of the available research has been conducted

in the European countries and the American nations, the results of which are not generalisable to the context of developing countries. The research assessing the awareness level of GIs among the producers is very scant. Understanding the awareness level of producers is essential, as it directly influences the producer's ability to effectively utilise GI. There are no studies in Kerala which specifically analysed the contribution of producers' associations in promoting GI. The contribution of the producers' association in facilitating collective efforts and maximising the benefits derived from the GI to its member producers has been emphasised by many researchers in their studies (Belletti et al., 2011; Hoang et al., 2020; Pick & Marie-Vivien, 2021; Quiñones-Ruiz et al., 2015). This signifies the need to assess the contribution of the Association in promoting GI. The socio-economic effect and marketing benefits of GI were evaluated in a few studies in Kerala, but those studies were not comprehensive in nature and did not address the different specific dimensions of the socio-economic effects and marketing benefits of GI. The researcher here studies the economic impact of GI by evaluating both qualitative and quantitative data. Previous studies on GI have pointed towards its underutilisation which can be on account of various challenges faced by the producers in its utilisation. Hence, it is essential to identify the challenges in the use of GI to suggest ways to identify the barriers that hinder the producers from fully realising the socio-economic and marketing benefits of GI. Understanding these obstacles enables the formulation of targeted policy interventions and support mechanisms to enhance the effectiveness of GI. Therefore, the present research also examined the challenges that the producers faced in the successful use of GI.

1.4 RESEARCH QUESTIONS

This study was a quest to find answers to the following research questions:

1. How far are the producers of the GI-tagged products in Kerala aware about GI?
2. How is the producer's association aiding the utilisation of the GI tag?
3. What are the social and economic impacts of GI registrations?
4. What are the marketing benefits received on account of the GI registration?
5. What are the problems experienced by the producers of the GI-tagged products in utilising the GI tag?

1.5 OBJECTIVES OF THE STUDY

The assessment of the socio-economic impact of the GI tag on selected products in Kerala is the primary objective of this study. For achieving the said objective, the following specific objectives are set by the researcher.

1. To analyse the perception of producers about the contribution of producers' associations in promoting GI.
2. To ascertain the awareness level of producers about GI.
3. To evaluate the socio-economic impact of GI.
4. To analyse the producers' perception about the marketing benefits of GI.
5. To identify the challenges faced by the producers in the successful use of GI.
6. To examine the relationships among the contribution of producers' associations in GI promotion, producers' awareness of GI, their perceived socio-economic impacts, marketing benefits, and the challenges in the successful use of GI.

1.6 HYPOTHESES OF THE STUDY

The objective-wise hypotheses for the study are listed below:

Objective 1

H₁: Perception about the contribution of producers' association in promoting GI significantly differs between producers of different GIs.

H₂: Perception about the contribution of producers' association in promoting GI significantly differs between the producers of different domiciles.

Objective 2

H₃: Awareness level about the general aspects of GIs significantly differs between the producers of different GIs.

H₄: Awareness level about the general aspects of GIs significantly differs between the producers of different domiciles.

H₅: Awareness level about the GI registrations significantly differs between the producers of different GIs.

H₆: Awareness level about the GI registrations significantly differs between the producers of different domiciles.

H₇: Awareness level about the legal aspect of GI significantly differs between the producers of different GIs.

H₈: Awareness level about the legal aspect of GI significantly differs between the producers of different domiciles.

Objective 3

H₉: Perception about the price effect of GI significantly differs between the producers of different GIs.

H₁₀: Perception about the price effect of GI significantly differs between the producers of different domiciles.

H₁₁: Perception about the market and finance effect of GI significantly differs between the producers of different GIs.

H₁₂: Perception about the market and finance effect of GI significantly differs between the producers of different domiciles.

H₁₃: Geographical Indications certification leads to significant increase in the area of cultivation of the GI product.

H₁₄: Geographical Indications certification leads to significant increase in the quantity of production of the GI product.

H₁₅: Perception about the organisational and employment effect of GI differs significantly between the producers of different GIs.

H₁₆: Perception about the organisational and employment effect of GI differs significantly between the producers of different domiciles.

H₁₇: Perception about the development mechanism effect of GI significantly differs between the producers of different GIs.

H₁₈: Perception about the development mechanism effect of GI significantly differs between the producers of different domiciles.

H₁₉: Perception about the protection and valorisation effect of GI significantly differs between the producers of different GIs.

H₂₀: Perception about the protection and valorisation effect of GI significantly differs between the producers of different domiciles.

Objective 4

H₂₁: Perception about the product differentiation benefits of GI significantly differs between the producers of different GIs.

H₂₂: Perception about the product differentiation benefits of GI significantly differs between the producers of different domiciles.

H₂₃: Perception about the supply chain and value benefits of GI significantly differs between the producers of different GIs.

H₂₄: Perception about the supply chain and value benefits of GI significantly differs between the producers of different domiciles.

Objective 5

H₂₅: Perception about the registration and Government support challenges of GI significantly differs between the producers of different GIs.

H₂₆: Perception about the registration and Government support challenges of GI significantly differs between the producers of different domiciles.

H₂₇: Perception about the organisational support challenges of GI significantly differs between the producers of different GIs.

H₂₈: Perception about the organisational support challenges of GI significantly differs between the producers of different domiciles.

H₂₉: Perception about the procedural challenges of GI significantly differs between the producers of different GIs.

H₃₀: Perception about the procedural challenges of GI significantly differs between the producers of different domiciles.

Objective 6

H₃₁: The contribution of producers' associations in promoting GI significantly influences the awareness level of GI among producers.

H₃₂: The awareness level of GI among producers significantly influences the economic impact of GI-tagged products.

H₃₃: The awareness level of GI among producers significantly influences the social impact of GI-tagged products.

H₃₄: The economic effects of GI-tagged products significantly influence the marketing benefits of GI products.

H₃₅: The social effects of GI-tagged products significantly influence the marketing benefits of GI products.

H₃₆: The challenges in the successful use of GI tags significantly influence the marketing benefits of GI products.

1.7 SCOPE OF THE STUDY

The research on the topic ‘Socio Economic Impact of Geographical Indications Tags on Selected Products in Kerala’ was undertaken to explore the benefits enjoyed and challenges faced by the producers of GI-tagged products. The study was carried out from the point of view of the producers involved in producing GI-tagged agricultural produce. Agricultural GIs were selected as they constituted the highest number among the GI goods registered in Kerala. The study anchors on primary data collected from 400 producers committed to producing selected GI-tagged agricultural products in Kerala. Only those agricultural GIs specific to Kerala which have completed 5 years of GI registration and have a registered producers’ association and inspection body were considered for the study. Hence, from among the GI-tagged agricultural produce, the present study was confined to four products, namely Chengalikodan Nendran, Tirur Vettila, Marayoor Sharkara and Kaipad Rice.

The assessment of GI was covered in three perspectives: the territorial perspective, the sector perspective, and the territorial capital perspective. The territorial perspective refers to the territorial spread of the present study. The diffusion of GI registration was analysed by taking secondary data relating to GI registration at the national level, and the primary evaluation of GIs was conducted using data collected from the agricultural GI producers of Kerala. The sector perspective covers the agricultural sector, and the territorial capital perspective covers economic and social aspects. The present study adopts the assessment guidelines mentioned in the book ‘The Effects of Protecting Geographical Indications: Ways and Means of Their Evaluation’, a publication by the Swiss Federal Institute of Intellectual Property, as the book provides comprehensive measures for assessing the effects of GI registration (Belletti et al., 2011).

The present research covers aspects of GI evaluations like measuring the awareness level of producers about GIs, the contribution of producers’ associations in utilising GI tags, the socio-economic impact of GI, marketing benefits of GI and the challenges faced by the producers in using GI tags.

1.8 RESEARCH METHODOLOGY

The researcher has finalised the research methodology of the study, keeping in mind the relevance of the study along with the objectives and the hypotheses set.

1.8.1 Research Design

The researcher adopts both descriptive and analytical research approaches. The present research describes the demographic characteristics of the GI producers and their perceptions of various effects of the GI tag. Analytical research explores the relationship between variables and differences in perception between the GI producers based on hypothesis testing.

1.8.2 Sources of Data

The data required for the present study were from secondary and primary sources.

1.8.2.1 Secondary Data

Secondary data for the study were taken from the publications of the Geographical Indications Registry, Chennai. The number of GI registrations, number of authorised user registrations and details relating to the GI products are taken from the official website of Intellectual Property, India. The number of producers in the producers' association was taken from the producers' association register of the respective product. Secondary data were also taken from the websites of WIPO, APEDA, NABARD, the Department of Economics and Statistics, Thiruvananthapuram, Karshika Keralam, the Directorate of Agriculture Development and Farmers' Welfare and the Ministry of Industry and Commerce, GoI. Secondary data relating to the area as well as the quantity of production of agricultural products were collected from the office of the Principal Agricultural Officer and Krishi Bhavan. Study reports, research publications and periodicals were also referred to for the conduct of the present study.

1.8.2.2 Primary Data

Primary data were collected from GI-tagged agricultural producers in Kerala using a structured interview schedule. The interview schedule was designed to collect data relating to the demographics of the GI producers, their level of awareness about GI, their perception about their producers' association's contribution towards promoting GI, the socio-economic effects of GI, its marketing benefits and the challenges faced by the producers in using GI.

1.8.3 Sampling Design

The samples that meet the specifications of the current research were chosen using the sampling design described below.

1.8.3.1 Population of the Study

Kerala started registering its goods as GIs ever since the GI Act was enforced in the year 2003. The first product registered from Kerala was Aranmula Kannadi. There are 36 GI registrations in Kerala as of April 2024. Twenty-four of the recognised GI goods come from agricultural products, while twelve come from handicrafts.

For the present study the registered agricultural GI products were selected, as they constitute the highest number from among the registered GIs in Kerala.

All producers of the selected GI-tagged agricultural products form the population of the study.

1.8.3.2 Sample Size Determination

As the population is finite, Cochran's formula for finite population (1977) was used for sample size determination.

$$N_0 = \frac{(z^2 \times p \times q \times N)}{e^2(N - 1) + z^2 p \times q}$$

Where N_0 is the number of samples required for the study

Z^2 = Static value ascertained with the help of the normal distribution table

Confidence interval = 95%

Z score = 1.96

Margin of error (e) = 0.05

p = 0.5

q = 1 – p = 0.5

$$\begin{aligned} N_0 &= \frac{(1.96^2 \times 0.5 \times 0.5 \times 5137)}{0.05^2(5137 - 1) + 1.96^2 \times 0.5 \times 0.5} \\ &= 365.5 \end{aligned}$$

Therefore, the minimum number of samples required for the present study as per Cochran's formula is 366.

When Krejcie and Morgan formula was applied to estimate sample size the value was 366. This derived sample size, under the two sample size estimation methods, was rounded to an upper value of 400. The 400 samples are divided among the GI products proportionately based on the number of producers in the producers' association.

1.8.3.3 Sampling Technique

The Multi Stage Sampling technique was applied for selecting the samples from whom the data needed for the study were to be collected. The various stages of sample identification and selection are explained in the following sections.

1.8.3.4 Sampling Procedure

It is seen from Table 1.1 that in Kerala there are two main product categories of GIs: one is the agricultural GI products, and another is the handicraft GI products. The highest number of Geographical Indication registrations is in the category of agricultural product. Therefore, in the first stage of sample selection, the agricultural GI products were taken.

Table 1.1

Classification of Geographical Indications Registrations in Kerala

Category of Geographical Indications	Total Number of Registrations
Agriculture Products	24
Handicraft Products	12
Total	36

Source: Journal, Geographical Indications Registry

In the second stage, for selecting the GI-registered agricultural products to be included in the present study, the following inclusion criteria need to be satisfied.

The inclusion criteria are

- a) The agricultural product should have completed at least five years since the date of award of the GI tag as of 2023.

- b) The geographical location of the selected GI product should be exclusive to Kerala state.
- c) There should be a producers' association for the producers of the product, and
- d) The registered GI product should have an inspection body.

Table 1.2 shows that Onnattukara ellu, Kuttiattoor manga, Attappadi aattukombu avara, Attappady thuvara, Kanthaloar Vattavada veluthulli, Kodungaloor pottuvellari and Edayur chilli have not completed five years of registration as of the year 2023; hence, they are not included in the sample.

Table 1.2

List of Registered Agricultural GI Products from Kerala

Name of GI	Year of Reg.
Navara Rice	2007
Palakkadan Matta Rice	2007
Pokkali Rice	2008
Monsooned Malabar Arabica Coffee	2008
Monsooned Malabar Robusta Coffee	2008
Alleppey Green Cardamom	2008
Malabar Pepper	2008
Vazhakulam Pineapple	2009
Wayanad Gandhakasala Rice	2010
Wayanad Jeerakasala Rice	2010
Central Travancore Jaggery	2010
Kaipad Rice	2013
Chengalikodan Nendran Banana	2014
Nilambur Teak	2017
Marayoor Jaggery (Marayoor Sharkara)	2018
Tirur Betel Leaf (Tirur Vettila)	2018
Wayanaad Robusta Coffee	2019
Kuttiattoor Mango (Kuttiattoor Manga)	2021
Edayur Chilli	2021
Attappady Aattukombu Avara	2022
Attappady Thuvara	2022

Name of GI	Year of Reg.
Kanthalloor Vattavada Veluthulli	2022
Kodungallur Pottuvellari	2022
Onattukara Ellu	2022

Source: Journal Publication, GI Registry, Chennai

The five-year criterion was fixed because the current research intends to measure both the immediate outcomes and some of the longer impacts of GI registrations.

The scope of the present study is geographically restricted to the GIs specific to the State of Kerala. Due to this reason, Monsoon Malabar arabica coffee, Monsoon Malabar robusta coffee, Alleppey green cardamom and Malabar pepper were not considered for the study, as the geographical jurisdiction of these GIs are not restricted to Kerala alone. Moreover, the registered proprietors of these GIs are the Coffee Board and Spices Board, and not producers' associations.

The role of the producers' association is of importance to the success of GI, as it is a collective IPR. For this reason, Wayanad robusta coffee was not taken for the study, as the registration did not include or involve any producers' association; the initiative for GI registration was taken by the Coffee Board. Nilambur teak was also not taken, as the product is managed by the State Forest Department, and its sales are through the sales depot of the Forest Department, which is different from other GIs.

An Inspection Body is essential for ensuring that the producers followed the Code of Practice (CoP) as mentioned at the time of registration. In the case of Palakkad matta rice, Pokkali rice and Navara rice, an inspection body was not established to ensure compliance with the GIs' CoP; therefore, these products were not taken for the study.

The above inclusion criteria brought down the number of products to be considered for the study to eight products, which are given in Table 1.3.

Table 1.3*List of Agricultural GI Products that Satisfies the Inclusion Criteria*

Name of GI	No. of Producers in the Producers Association	Name of Producers' Association
Rice		
Kaipad Rice	2755	Malabar Kaipad Farmers' Society
Wayanad Gandhakasala Rice	788	Wayanad Jilla Sugandha Nellulpadaka Karshaka Samithi
Wayanad Jeerakasala Rice	1546	Wayanad Jilla Sugandha Nellulpadaka Karshaka Samithi
Fruit Varieties		
Chengalikodan Nendran Banana	524	Chengalikodan Banana Growers Association
Vazhakkulam Pineapple	461	Nadukkara Agro Processing Company Ltd and Pineapple Farmers Association
Leafy Crop		
Tirur Betel Leaf (Tirur Vettila)	912	Tirur Vettila Ulpadaka Sangam
Sugarcane		
Central Travancore Jaggery	290	Madhya Thiruvithamcore Karimpu Vikasana Samithi,
Marayoor Jaggery (Marayoor Sharkara)	946	Anchunadu Karimbu Ulpadhana Vipana Sangham

Source: Member list of Producers' Association

The eight agricultural GI products in Table 1.3 belong to four different crop categories as per the categorisation of the Indian Council of Agricultural Research. Kaipad rice, Wayanad Gandhakasala rice and Wayanad Jeerakasala rice belong to the rice category. Chengalikodan nendran and Vazhakulam pineapple belong to the fruit category. Central Travancore Jaggery and Marayoor Jaggery belong to the sugarcane category and Tirur Vettila is the lone product in the leafy crop category. Although the eight agricultural GI products satisfied the inclusion criteria, in the third stage of sample selection, one agricultural product from each crop category having the highest

number of registered producers in the producers' association was selected for the final data collection. The four GI products selected for the present research are Kaipad Rice from the rice category, Chengalikodan Nendran from fruits, Marayoor jaggery from sugarcane and Tirur Vettila from the leafy crop category. This brings down the number of GI-tagged agricultural products included in the final stage to four. Selecting GI products with a larger number of producers improves the feasibility of random sampling and enhances the robustness of findings. The selected products are shown in Table 1.4.

After the three-stage sample selection procedure, the GIs selected for the research are Kaipad Rice, Chengalikodan Nendran, Tirur Vettila and Marayoor Sharkara. The number of producers registered in the producers' association in each of the GI products selected is shown in Table 1.4.

Table 1.4

List of Agricultural GI Products Selected for the Study

Name of GI	No. of Producers in the Producers Association	Name of Producers' Association
Kaipad Rice	2755	Malabar Kaipad Farmers' Society
Chengalikodan Nendran	524	Chengalikodan Banana Growers Association
Tirur Betel Leaf (Tirur Vettila)	912	Tirur Vettila Ulpadaka Sangam
Marayoor Jaggery (Marayoor Sharkara)	946	Anchunadu Karimbu Ulpadhana Vipanana Sangham

Source: Member List of Producers' Association

In the fourth stage, sample respondents have been randomly chosen from each of the selected agricultural GI products in direct proportion to the number of producers in the producers' association. Table 1.5 reveals the final allocation of samples among the selected GI-tagged agricultural products. Interview schedules were prepared, and data were collected from the producers of Kaipad rice, Chengalikodan Nendran, Tirur Vettila and Marayoor Sharkara.

Table 1.5*Allocation of Samples in GI-Tagged Agricultural Products*

Name of GI	No. of Producers in the Producers' Association	Sample Size
Kaipad Rice	2755	215
Chengalikodan Nendran Banana	524	41
Tirur Betel Leaf (Tirur Vettala)	912	71
Marayoor Jaggery (Marayoor Sharkara)	946	73
Total	5137	400

Source: Member List of Producers' Association

1.8.4 Methods and Instruments Used for Data Collection

The primary data were collected using a pre-tested structured interview schedule prepared by consulting experts in the field of marketing and IPR.

1.8.5 Period of Data Collection

The primary data were collected from the producers of GI tagged agricultural product with the help of an interview schedule from December 2023 to May 2024.

1.9 PILOT STUDY

As a preliminary step for final data collection, a pilot study was conducted by collecting data from 60 producers doing Chengalikodan Nendran and Tirur Vettala farming. The pilot study was conducted to ensure the reliability and validity of the interview schedule. The results of the pilot study can help in understanding how far the schedule has captured the relevant variables which fulfil the research objectives of the study. The pilot study facilitates the enhancement of the research instrument by detecting latent confounding variables that were not known previously (Lowe, 2019). Necessary modifications were made to the interview schedule which could have otherwise caused limitations to the study, after consultation with academicians and experts in GI.

1.10 RELIABILITY OF THE INTERVIEW SCHEDULE

The internal consistency of the interview schedule was checked using Cronbach's alpha (Cronbach, 1951), as it is considered an effective measurement when it comes to having a Likert scale in survey questions. An alpha value of 0.70 and above is the criterion for strong internal consistency (Nunnally, 1978).

Table 1.6

Results of Reliability Analysis

Variables	Items	Cronbach's Alpha
Contribution of producers' association in promoting GI	12	.803
Awareness level of producers about Geographical Indications	21	.802
Economic Impact	12	.753
Social Impact	23	.747
Marketing Benefits	11	.824
Challenges in the use of GI	20	.816

Source: Computed from primary data

After checking the reliability of the interview schedule with the pilot survey data, certain modifications were made to the interview schedule. To improve the reliability of the research instrument, certain questions were removed, such as questions relating to value-added products and by-products in the case of the economic impact dimension. Discussions were made with the experts in GIs, and their suggestions were also incorporated in the final interview schedule. Table 1.6 reveals that all the dimensions have final Cronbach's alpha values above 0.7 which confirms the internal consistency and reliability of the interview schedule.

1.11 NORMALITY OF THE DATA

Normality test was conducted to ensure that the data collected for the study follows normal distribution. For conducting the parametric test, the normality of data is a prerequisite, which was verified using the Kolmogorov-Smirnov test and the Shapiro-Wilk test.

Table 1.7*Result of Normality Test – Product Wise*

Name of the GI	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Chengalikodan Nendran	.124	41	.113	.950	41	.071
Tirur Vettala	.593	71	.160	.983	71	.447
Marayoor Sharkara	.077	65	.200*	.968	65	.087
Kaipad Rice	.927	213	.354	.990	213	.160

Result of Normality Test – Domicile Wise

Domicile of the GI	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	df	Sig.
Urban	.103	53	.200*	.859	53	.266
Rural	.146	266	.090	.948	266	.138
Semi Urban	.157	81	0.51	.941	81	.091

*This is a lower bound of the true significance.

a. Lilliefors Significance Correction.

Source: Primary Data

Table 1.7 provides the results of the normality test conducted for the study. The normality assumption should be rejected if the p-value is less than 0.05. Since p-values are higher than 0.05 in the present study, the data were considered as normally distributed.

1.12 VALIDATION OF THE INTERVIEW SCHEDULE

The validity of the research instrument is crucial to confirm that the instrument accurately measures what it is intended to measure. Establishing the validity of the research instrument ensures that the data collected using the interview schedule were credible. This maintains the validity of the data interpretation and the conclusions that are eventually reached. There are various validity measurements, such as content validity, face validity, construct validity and convergent validity.

Content validity ensured that the interview schedule adequately covers all the aspects of the concept relating to the research subject. Face validity is another

subjective measurement of the research instrument. This ensured the clarity, relevance and appropriateness of the interview schedule for the intended audience. The face validity ensured that the intended audience finds the questions in the interview schedule easy to understand and relevant to them.

A construct is an unobservable / latent variable or concept that cannot be directly measured but can be inferred through observed variables or indicators. Construct validity identifies the extent to which the interview schedule measures the theoretical construct that it is intended to measure. Construct validity is often established through convergent validity and discriminant validity. Convergent validity is one of the pieces of evidence for construct validity. This test confirms that the measures of the same construct converge with each other. The convergent validity provides evidence that the interview schedule accurately captures the construct it is intended to measure. In other words, convergent validity measures the degree of correlation between the variables that are used to measure a particular construct. In this study Average Variance Explained (AVE) is used for ensuring the convergent validity. The test results showed an AVE of 0.577, which is higher than the minimum requirement of 0.5; hence, it supports convergent validity. Another criterion for ensuring convergent validity is to have NFI > 0.9, which is confirmed through confirmatory factor analysis; in the present study, NFI is 0.926. Discriminant validity refers to the extent to which measures of constructs are unique. It ensures that the research instrument measures different and unrelated constructs. The correlation value exceeding 0.85 indicates that the two variables are having multicollinearity problems. In the model tested for the study, none of the correlations between variables exceeded 0.85, which ensured discriminant validity.

1.13 TOOLS FOR DATA ANALYSIS

The data collected for the present study were analysed using SPSS Version 25, R 4.4.1 and AMOS 21. The descriptive statistics were performed using mean, Standard Deviation, Mean Percentage Score, Approval Rate and CAGR. The inferential statistics were performed using MANOVA, ANOVA and Bonferroni Post Hoc Test. The quantitative economic impact assessment was conducted using Difference in Difference Method and the software R 4.4.1 was used for conducting DiD evaluation. The proposed model of the research was tested using Exploratory

Factor Analysis, Confirmatory Factor Analysis and Structural Equation Model (SEM) for which AMOS 21 software was used.

1.14 VARIABLES IDENTIFIED

The interview schedule prepared has eight sections; these sections are intended to assess various objectives stated in the study. The first two sections of the interview schedule include demographics, general information, and perception of producers about GI. The next six sections include the dependent and independent variables that are used to assess the producers' association's contribution towards GI promotion, the level of awareness of producers about GI, the economic impact of GI (subjective measurement), the social impact of GI (subjective measurement), the marketing benefit of GI and the challenges/issues in the successful use of GI.

Table 1.8

Variables Identified for the Study

Purpose	Variables Identified
The demographic profile of the producers of GI tagged agricultural produce	1. Gender 2. Age 3. Area of residence 4. Educational qualification 5. Annual income of the family 6. Type of Family 7. Land used for cultivation 8. Scale of farming
General information and perception of producers towards GI	1. Mode of GI registration 2. Years of getting GI registration 3. Perceived benefit from GI registration 4. GI registration abroad 5. Nature of GI product 6. Mode of selling the produce
Contribution of producers' association in promoting GI	1. Active during registration process 2. Spread awareness about GI among the public. 3. Organise events to promote GI products 4. Aids producers in authorised user registration

Purpose	Variables Identified
	5.Ensures producers' practices CoP 6.Assists producers in sticking to the CoP 7.Ensures management of GI by inspection body 8.Dispute redressal 9.Raises GI related issues with the government 10. Membership increased the confidence of the producers 11. Holds meetings for discussing producer problems 12. Membership boosted the interpersonal links among producers
Level of Awareness of Producers about GI	1.Concept of GI 2.About the GI logo 3.Own product having a GI logo 4.Attachment of GI logo to products for brand identity 5.National level logo and tagline 6.Use of national level logo and tagline 7.Procedures for getting GI registration 8.Individual AU registration 9.Validity of GI registration 10. Renewal of GI registration 11. Pan-India protection of GI registration 12. Link between GI protection in India and abroad 13. Registration fee of GI 14. Renewal fee of GI 15. GI provides legal protection 16. GI rights can be transferred to legal heirs 17. Legal procedures for filing GI complaints 18. GI is a collective mark 19. GI provides collective monopoly 20. Non transferability of GI to external parties
Economic Impact	1.Power to fix price 2.Price stability 3.Increase in cost of production due to CoP 4.Price premium

Purpose	Variables Identified
	5. Increase in market value of the product (reputation) 6. Increase in demand for the product 7. Increase in access to new markets 8. Increase in exports 9. Increase in tourism prospects of the region 10. Credit support from financial institution 11. Increase in government grants 12. Increase in government schemes
Social Impact	1. Increase in coordination among the producers 2. Association became more active 3. Enhanced relationship between the producers' association and its members 4. Spreading awareness about GI to members 5. Increase in employment opportunities 6. More youth joining GI production 7. Strengthened the social identity of product 8. Encouraged younger generation settlement in home town 9. Decrease in rural drift 10. Increase in migration from outside the region 11. Increase in allied jobs 12. Increase in land value of the place 13. Protection of name of the produce 14. Protection of traditional knowledge 15. Environmental protection 16. Protection of indigenous species 17. Attract the attention of local self-government 18. Attract the attention of the media 19. Increase in popularity of the place among public 20. Increase in status of farming profession among public 21. Positive attitude of the youth towards farming 22. More recognition bestowed upon producers
Marketing Benefits	1. Product differentiation 2. Ensured originality of the product

Purpose	Variables Identified
	3.Ensured genuine quality of the products 4.Reduced information search cost of customers 5.Reduced unauthorised external intrusions 6.Reduced instances of counterfeit products 7.Stable relationship with market intermediaries 8.Greater bargaining power 9.Gaining long term contract 10. Stability of business 11. Equal benefit to traders and producers
Challenges faced by producers in successful use of GI	1.Inclusion of all genuine producers in GI registration 2.Inclusion of all eligible production area in GI registration 3.Affordability of Registration fees 4.Acceptance of CoP registered by the producers 5.Producers' willingness to follow CoP 6.Government initiative to spread awareness 7.Government initiative to promote GI 8.CoP practice ensured by inspection body 9.Quality assurance by the inspection bodies 10. Corrective actions taken by the inspection bodies 11. Producers' cooperation to reap GI benefits 12. Producers' initiative for GI protection 13. Increase in competition between the producers 14. Ease of the GI registration process 15. Possibility of GI registration without external support 16. Strength of GI Act in legal protection 17. Ease of filing legal suite 18. Producers' coordination during legal initiative 19. State support for initiating legal redressal

Source: Literature Survey

1.15 LIMITATIONS OF THE STUDY

1. Scope remains confined to agricultural products having GI tag.
2. The study has been limited to analysing the impact of Geographical Indications from the point of view of producers of GI tagged products.

3. Products that received GI tag after 2020 were not taken for the study.
4. GI registered products having active producers' association only were taken for the study.
5. GI products which do not have a registered inspection body are not considered.
6. The quantitative economic impact assessment was confined to area of production and quantity of production.
7. The quantitative impact assessment of Kaipad Rice was not conducted for want of comparison group.

1.16 CHAPTER SCHEME OF THE REPORT

Chapter 1: Introduction and Research Methodology

The chapter introduces the concept of IPR and gives a backdrop on GI. An explanation as to the need and relevance of the present study are given under the head statement of the problem. The chapter also covers the research questions, objectives of the study and the scope of the research. The methodology adopted for the study, including the research design, sampling, variables identified and tools used for data analysis are described in detail. Finally, the chapter discloses the limitations of the present study.

Chapter 2: Review of Literature

The chapter covers the literature relating to Geographical Indications. Literature review was grouped into five areas such as, importance of GI, building of GI system, impact assessment of GI, GIs as a marketing tools and Challenges in the successful use of GI.

Chapter 3: Theoretical Framework of Geographical Indications

Theoretical Framework includes the concepts and theories relating to GIs. The particulars covered in the chapter are the concept of GI, theories related to GI, the theoretical framework for the evaluation of socio-economic impact of GI and the theoretical framework explaining the relationship between the variables measuring the socio-economic and marketing benefits of GI.

Chapter 4: Analysis on the Contribution of Producers' Associations in Promoting GI

The chapter analyses the extent to which the producers' association was involved in promoting the use of GI.

Chapter 5: Analysis on the Diffusion of GI and Awareness level of Producers about GI

The diffusion of the GI scheme analyses the details regarding the GI applications and registrations. The awareness level of the producers was assessed in three dimensions, namely, awareness about the concept of GI, the registration aspects of GI and the legal aspects of GI.

Chapter 6: An Evaluation of the Socio-Economic Impact and Marketing Benefits of GI

The economic assessment was examined in the dimensions, the price effect and the market effect. The social assessment was examined under three dimensions, the organisational effect, the development effect and the protection and valorisation effect. The marketing benefits of GI were evaluated under the dimensions, namely, the product differentiation and supply chain benefits.

Chapter 7: Assessment of the Challenges in the Successful Use of GI

This chapter includes the evaluation of the challenges faced by the producers in using GI tag. The dimensions identified for measurement are challenges related to organisational support, Govt. support, registration and procedural.

Chapter 8: Composite Model Assessment of the Socio-Economic Impact and Marketing Benefits of GI

The relationship between the various variables influencing the socio-economic impact and marketing benefits of GI were analysed and explored in this chapter.

Chapter 9: Findings, Conclusion and Suggestions

The chapter depicts the results of the study and concluding remarks.

Chapter 10: Recommendations and Scope for Further Research

This chapter includes the policy recommendations that may be adopted for deriving optimum benefit from the GI tag, based on the research findings. The areas that are not covered in the present research and which are worth exploring are proposed in the scope for further research.

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Chapter 2
Review of Literature

2.1 INTRODUCTION

The review of literature provides a wide-ranging outline of the existing research relevant to a particular topic. It serves as the foundation of a study by identifying key theories, concepts, and empirical findings that shape the present research context. The reviews of previous studies carried out by various researchers in the area of Geographical Indications (GI) were conducted in order to set a knowledge base on which further research can be carried out. A solid understanding of the previous researches in the area facilitates more practical and meaningful research pursuit. In the background of this study, the literature related to GIs were extensively explored.

This chapter is structured in accordance with the objective set forth for the present study. The reviews on measuring the contribution of producers' association in promoting GI and measuring the awareness level of GI among the producers were scanty available hence the studies relating to these two objectives were included along with the reviews of studies relating to the building and managing of GIs.

For easy comprehension the reviews conducted for the present study were classified in to: (a) Building Geographical Indications system, (b) Importance of Geographical Indications, (c) Impact assessment of Geographical Indications, (d) Geographical Indications as a marketing tool and (e) Challenges in the successful use of Geographical Indications.

2.2 BUILDING GEOGRAPHICAL INDICATIONS SYSTEM

The studies relating to different approaches adopted world over by different countries for protecting and managing GIs are explored in this section. The following section examines the papers on how different nations are using GI as a trade negotiation tool, how countries are supporting GI management and what are the drawbacks of the GI systems adopted by different countries.

The role of GI was indispensable in the formulation of European Union Free Trade Agreements. The US also followed the path and has made it a prerequisite in their Free Trade Agreements. The article by **(Cheng, 2023)** explored how the European Union and US conditions on Free Trade Agreement has affected the perception of Chinese towards GIs. The author is of the opinion that the bi-lateral and multi-lateral agreement with other countries have made the GI Rule requirements

more complex. The justifications given by the EU for stringent law requirements for the protection of GI was that, GIs can bring change to the developing economies and help to protect the interest of the customers and bring sustainable growth in these economies. The US and the EU follows two different system of protection of GIs. The EU follows Sui-Generis method and the US follows the US Trademark System. When a country enters in to agreement with the EU and the US, they must modify the GI protection requirement of their country to suite both systems. This can make the protection system of GI more complex. The Chinese GI regulations had to follow three different GI domestic regulation in order to comply with EU and US requirement which made the system more complex.

The reason for the heterogeneous spread of GIs in different countries was discussed in the paper by **(Ceï et al., 2021)**. The authors observed that the spread of GIs in the European Union is heterogeneous with some places having more GI registrations than others. The study explored the relationship between the socio-economic factors and the regional wise use of GI in three countries, France, Spain and Italy. Various factors that influence the registration of GI were analysed. The researchers found that the remoteness of the area, the attitude of producers to cooperate and the previous GIs registered from the area are the main factors that influence fresh GI registrations from an area.

Pick and Marie in their research explored the issues of representativeness and participation in GI systems in Vietnam and France **(Pick & Marie-Vivien, 2021)**. The factors analysed in the study are collective dynamics, stakeholder representation and legal frameworks that support the GI system. The research methodology adopted was comparative case study analysis, which compared the State-driven and producer group-led GIs. The objectives of the study were to find the relationship between collective dynamics and national legal frameworks in the protection of GIs. The data was collected through semi-structured questionnaires sent through e-mail during the period 2017-2020. The study reveals that in France the producer-led approach allows for greater representation and participation of local actors in the decision-making process, while in Vietnam the State-driven approach limits the involvement of the producers and leads to a lack of collective action. Another important finding of the study is that the producers are more aware of the concept and working of GIs in the case of producer-driven GI than State-driven systems.

In a study by **(Hoang & Nguyen, 2020)**, the role of GIs Policy in assuring quality in the case of agricultural produce in Vietnam was examined. The study was initiated as the Government's role in promoting GIs to improve agricultural product quality has not been adequately analysed. The study addressed whether the public policies adopted has helped in supporting the management of GIs. The article investigates the influence of public policy on GIs and the quality promotion of agricultural products in Vietnam. Three GIs of Vietnam Phu, Quoc fish sauce, Luc Ngan lychee and Moc Chau Shan Tuyet tea were evaluated to understand the institutional role and the supply chain effect of GI. The authors found that the GIs can be considered as an important tool in strengthening the agricultural policy initiatives. GIs can empower the local communities through collective action because of GI implementation. As GIs are of national relevance the strategies for their protection should be undertaken under the national level policies. The authors conclude that the GIs registered under the initiative of the Vietnamese Government often helped in the market expansion both domestically and internationally.

A research article by **(Fernández-Zarza et al., 2019)** explored the role of private and public institutions in the success of GIs. For the study the authors analysed two cases, one from Mexico and another from Spain. From Mexico spicy pork sausage was taken and from Spain Iberian ham was taken. A mixed approach was undertaken in order to understand the institutional framework in both the cases. Spain has various GI facilitating incentives by the Government which is not there in Mexico. The support mechanism in Spain by the Government enhances the technological advancement, entrepreneurial vision, heritage preservation and capacity building among the participants. Whereas in the case of protected GIs of Mexico the State support is absent. In Mexico private participation can be found in the management of GI. Another difference in the GI administration in the case of Mexico and Spain is that, in Mexico involvement of academic bodies in the administration of GI can be found.

The paper by **(D. Barjolle et al., 2017)** examined the role of the Government in assisting producers use GIs for promoting coffee. It was the National Coffee Growers Federation, a national body in Colombia, who took the initiative to get GI registration for coffee in Colombia. The institution assisted the management of GI in the European Union. In Kenya a similar approach was adopted for the registration of GIs for coffee.

The Coffee Directorate was responsible for registering the GI trademark named Coffee Kenya. The authors found that the registration initiative of the Government is of two types, one is the permissive way and another is the prescriptive way. In the permissive way, the Government is involved only in the registration process and is not extending management support. In the prescriptive way, the Government not only takes the initiative for the registration of the GIs but also assists the producers in managing the GI. In Kenya initially, the Government involvement was in a permissive way, but later post liberalisation the Government became more prescriptive by helping the producers of coffee in managing GIs. The authors concluded that the registered GIs can be of no use if the coffee producers who are the major stakeholders, do not know the management of GIs.

The efforts, risks and benefits of collective action in the registration of GIs were analysed by **(Quiñones-Ruiz et al., 2017)** in their research work. The study focuses on two registered GIs under EU legislation – the Sorana bean and Perry. The objective of the study was to identify the types of facilitators involved in GI registrations in the EU, to estimate and compare the efforts, risks and benefits perceived by the facilitators during the registration process and to identify the link between GI registration and the success of the GI initiative in terms of the GI use by the enterprise. The methodology adopted in the study was the case study method and the data were collected through qualitative interviews. The samples were chosen based on data quality, access to information and availability of key informants. The study's main findings are that there is a positive relationship between the effectiveness of collective action and the likelihood of achieving broadly accepted standards and social cohesion needed for successful GI implementation. Among the two GI cases analysed the Sorana Bean case involved collective efforts, including meetings, information gathering and negotiation, which led to conflictual debates. On the other hand, the Mostviertel Perry case had a smoother consensus and fewer collective efforts during the early registration phase. The study recommends there is a significant need for early collective action and effective organisation of interaction among the heterogeneous producer groups for the successful implementation of GI.

The researchers **(Chabrol et al., 2017)** conducted a case study on six products from the West and Central Africa. Oku white honey, Penja pepper, Ziama-Macenta coffee, Dogon shallots, Galmi purple onions, and Korhogo cloth were studied to

analyse consequence of establishing GI in a frail national institutional framework. The data for the study were collected through observation and direct participation. The case study found that it is possible to establish GIs in Africa without much help from the State. The African Intellectual Property Organisation made it possible to get GI registrations for the first three products without much support from the State. The researchers emphasised producer representation as a prerequisite for the success of GI. The producer representation can help develop organisational capacities of producers. The study also highlighted the need for incorporating GI into the agricultural and environmental policies.

A research work by **(Biénabe & Marie-Vivien, 2017)** investigated the role of State in GI. The paper analysed two GI cases, one being Basmati Rice and another the Rooibos tea. The comparison was between two well recognised GIs from two different countries, one from India and another from South Africa. Comparison between the GIs discloses that the State is at the centre in the case of Basmati Rice and Rooibos tea is an industry driven GI. More over the protection of GI in India is through a separate Act, where as in South Africa the protection of GI is provided as an extension of the Trademarks Act. The authors are of the opinion that the State should view GI as a hybrid tool revealing the public quality standard and a unique Intellectual Property Right which can protect the heritage and reputation of the product. The GIs are often seen as a tool which can enhance the export possibility of the product, in that case the countries across the globe should try to bring in uniformity in the institutional framework that regulate and promote GI. In this way it can be possible to harmonize the GI protection system internationally.

The role of national institutions in supporting and promoting GIs were addressed by **(Conneely & Mahon, 2015)** in their research. The study was conducted in Ireland. The reason for choosing Ireland was because it is the European nation with the lowest number of GIs and the researchers wanted to know whether it was due to the top-down governance followed in the GI management. The study found that the institutional support provided for the GIs in Ireland were from the Food Safety and Quality Certification Institution. These institutions were more interested in focusing on food safety and standards, and were less interested in promoting the GIs. This resulted in lack of interest on the part of the producers to apply for GI registrations. The researchers suggest more decentralised approach for managing GI, involving

regional and local organisations who are more aware about the importance of GIs. The formation of producers' organisation needs to be incentivised so that the GI tags can be managed by the producers' association themselves without external support. These organisations can better support the formation of collective groups and encourage GI registration.

Paus and Reviron in their study explored two approaches that can be used in building GI systems: the 'cluster approach' and the 'translation cycle' approach (**Paus & Reviron, 2010**). The study was done to identify the best strategy that can be adopted to successfully implement a collective system for the utilisation of GI. The authors undertook a case study approach where Coffee Pico Duarte, The Kajmak from KraljevoIn, Valais rye bread and raspberries from Arijle were taken as the cases. In each case, the researchers studied the initiators of the GI registration, the objective based on which GI registration was initiated, what type of products were chosen for the registration and how the members of the groups were identified. Each case study also identified the decision-making process in the GI community, the problems they encountered, and how well the GIs were used for the benefit of the community. The theoretical aspects used in the study are the cluster approach from industrial economics and the translation cycle approach from economic sociology. The authors found that many members in the collective group do not necessarily signal the group's efficiency. The authors recommended large information campaigns which ensured that all the group members are aware of the benefits of the GIs. Another recommendation was that the collective group should be well organised with a functional representative working group.

The administration of GI and its set up was evaluated in detail by (**Garcia et al., 2007**) in their study. The initial phase of the study describes the GI and its importance. The Kodagu region of the Western Ghats was the subject area of the study. The first case study analysed was Coorg Orange. The Department of Horticulture initiated the GI registration of the product. The main drawback of the GI registration was that no information about the quality of the soil was attached, there was no mention about the Traditional Knowledge (TK) attached to the product and the map indicating the geographical location of the production was not specific. The main objectives behind the registration of GI were to revive the traditional orange variety and to help protect the environment. The GI registration was initiated as a top-down approach, and the

horticulture department was finding it difficult to transfer the rights of the GI to the producers. The horticulture department is working in association with NGOs to spread awareness among the producers about the use of GI and is trying to form a producers' cooperative society so that the GI rights can be transferred to them.

The research by **(Josling, 2006)** compared the protection approach followed by the US and the EU. The article addresses the difference of opinion among the different nations about how the products with territorial advantage must be protected at the global level. The article was based on review and analysis of the literature relating to GIs and the TRIPS agreement. The article suggests that for the successful implementation of GIs at the global level, a register can be maintained listing all the recognised GIs of the world. In his opinion the register could be a voluntary one. If maintained the register can help nations in building bilateral or multilateral trade agreements. The authors opine that those countries like the US, which use trademarks to protect products with territorial significance, should try to reduce geographical terms in regular trademarks.

2.3 IMPORTANCE OF GEOGRAPHICAL INDICATIONS

Geographical Indications hold significant importance signalling the uniqueness of products. Literature on this theme emphasizes how GI contribute to the protection of culture, stimulate local economies and promote sustainable rural development. This section reviews studies highlighting the significance of GIs across different context.

The benefits from GIs and the barriers faced by the producers of GI are explored by **(Cardoso et al., 2022)** through a literature review article. The GI tag is said to contribute towards regional development. This unique tag can provide competitive advantage to the producers by adding value to their products. The results of the article are based on the Systematic Literature Review (SLR) conducted by the author. The SLR was conducted by analysing the articles available in two databases, the Web of Science and Scopus. The articles reviewed were from 2011 to 2021. The key benefits identified in the reviews were price premium, access to new markets and cultural significance. The reviews reveal that enjoying the benefits of GI is not free from challenges. The main challenges faced are inefficiency on the part of the institutions in providing support to the producers, exploitation by major market intermediaries and

lopsided power. The authors conclude that even though the GIs have advantages, the benefits are not uniform, and they vary between regions.

The article by **(Clodoveo et al., 2021)** addresses the importance of protected GIs. The study covered the extra virgin olive oil of Tunisia and its contribution to sustainable development. The study was the first of its kind in Tunisia and highlights the potential of PGIs to address various sustainability challenges such as poverty reduction, sustainable production model, biodiversity protection and gender empowerment. The objectives of the study were to evaluate the impact of GIs for EVOO in Tunisia. The study aims to bridge the gap between the research insights on GI and policymakers. The data were collected from the stakeholders with the help of semi-structured interview schedule. The study suggests that promoting EVOO should be carried on with long-term objectives, all institutional barriers need to be removed which hinder the development of GI, and the use of technology should be promoted which can help overcome the market isolation.

Appavoo and Korzun in their study explored the opportunities and challenges of GIs in helping indigenous communities to gain market access. The study was exploratory in nature. The study was conducted by **(Appavoo & Korzun, 2019)**, based on previous literature on local knowledge, land access, market access and legal protection. The researchers found that the GIs could provide community support across the world. But they also opined that GIs lack a democratic outlook as they only allow the registered persons to use the name. The authors recommend a GI system with significant Government intervention which makes it possible to make sure that there is sufficient market access for the vulnerable groups, like the indigenous communities.

The role of GIs as a tool for sustainable development was explored by **(Belletti et al., 2017)** in their research article. The subject matter of the study was the wine and coffee value chain. The paper examines how the private, collective and public interventions affect the GIs. The authors concluded that the GIs can trigger development in rural areas through sustainable development. This can be made possible by making regulatory changes in agricultural market policies, food safety, local resource preservation, environment protection and social policy. The authors remarked that the GI system could bring out the intended results if the GI legal system

is built in consultation with its stakeholders. The empowerment of stakeholders should be done regarding the characteristics of GI, its positive impact and facilitating quality assurance. The support should be provided for collective action and GI governance. If all these measures are taken by the State or supporting institutions then the benefits of GI can be appreciated by the stakeholders.

The role of GIs beyond the economic potential was explored in a research paper by **(Dagne, 2015)**. In the research work the author claims that GIs can be seen as instruments that can provide support to the indigenous and local communities. The local agricultural communities are facing challenge of homogenisation of agricultural produce and loss of biological diversity. The paper also explores various theories such as information asymmetry and utilitarian IP theory, cultural economy theory, embeddedness theory, rights-based approach to development and food security and food sovereignty theory in the light of protection of GIs. The paper concludes with a statement on the unequal level of protection given to the agricultural produce when compared to the spirits and wines under the Article 23 of the TRIPS Agreement.

In a research study by **(De Rosa, 2015)**, the researcher explored how the GI tag can help in enhancing food safety. The study claims that GIs can provide traceability to the product which can ensure the safety of the food product. The study also claims that GIs can help to protect the biodiversity, which signifies the effect of GI on de-commodification. The CoP registered at the time of GI registration and the compliance with the CoP assists in confirming the quality standards of the product and the food safety. The initiative of the producers to follow the CoP can further increase their cooperation and organising skills.

The influence of GIs in enhancing the environmental sustainability were discussed by **(Belletti et al., 2015)** in their research paper. The study analysed 107 olive oil GIs that were registered in the EU. The indicators used for the study were, tree varieties protected, production intensity, fertilisation level, water and soil management, techniques used in harvesting and post harvesting and environmental awareness. There are evidences that GI products help in sustainable environmental protection. The researchers are of the opinion that this outcome is not the result of a planned intervention for environmental protection, but rather an outcome of the activities performed for ensuring the specific qualities of the GI product. Producers

from France and Italy showed the highest level of environmental care. The authors concluded that though GIs are not a direct environment protection tool, it does play a positive role in environment protection by preserving the traditional farming practices.

In the study an analysis was made on the potential benefits of GIs for farmers in developing countries by **(Hughes, 2012)**. Two products, coffee and chocolate, were taken for the study. The author believed that previous discussions on GI have not considered how GI can be used as a marketing tool and how the farmers' income can be enhanced by using the GI as a marketing tool. He puts forward that making the legal regulations of GIs stronger alone cannot bring development through GIs, as it cannot result in automatic de-commodification of the agricultural produce. Spreading awareness about the GI among public is an important element that decides the success of the GI; this incurs a lot of cost, which compelled the farmers to rely on large corporates. The researcher mentioned that in some cases, such as Jamaican coffee, the government's involvement was crucial in maintaining quality. The study also explored the relationship between GI and the protection of Traditional Knowledge and found a positive relationship between the two.

Dogan and Gokovali conducted a study to investigate the application of GI and its importance in rural development in Turkey, **(Dogan & Gokovali, 2012)**. The study was initiated by the researchers, as there were no studies conducted on the GIs in Turkey; moreover, the researchers identified that there are only a few registered GIs in Turkey despite its climatic and cultural diversities. The study examined the legal framework available for the protection of GIs, its marketing prospects, and its effect on rural development. The study found that GIs can give customers information about the product's identity, quality and culture/tradition. The GI products can be given greater protection by including provisions in the Trademark Law, Laws on Unfair Competition, Consumer Protection Law, and special laws for the protection of GIs. The study found that internationally major GIs have benefited from GI registration as the before-after comparison of prices of products indicated price premium after GI registration. The researchers think that the protection of GI is vital for rural development as it increases economic activity and tourism. The study also highlights the importance of spreading awareness among various stakeholders regarding GIs.

Yeung and Kerr in their study tried to assess the potential economic benefits for agricultural producers in developing countries by implementing GIs and discussing the resource requirements to establish and maintain GI (**Yeung & Kerr, 2011**). The main research gap identified in the study was that although many studies claimed GIs were useful in bringing economic benefits to the producers, there were no clear evidence in those studies. The authors found that the previous studies failed to consider the additional costs associated with producing, establishing, and maintaining the GI. The main finding of the study is that there is little use in having GI if the same is not internationally recognised and protected. The management of GI is important for its success hence the target countries should be identified. The markets should be properly monitored to identify the instances of counterfeit products, the more successful the GI the more instances of counterfeit in the market. The legal expenses relating to GI implementation are also to be borne by the producers. The GIs cannot sell for themselves hence large-scale promotion efforts may be necessary for popularising the GIs. Managing the value chain is also important for the success of GI. All the parties along the value chain must understand the importance of GI.

The objective of the study by (**Rout, n.d.**) was to review the registration of GIs and to examine its impact on society. The article was theoretical, based on the reviews collected by the author. The findings of the article were, the main benefits of GIs are that they provide market differentiation, reputation, quality standards and cultural identity. The GI registration have helped in promoting the economic prosperity of the producers.

In the research study the authors (**Belletti et al., n.d.**) examined what role the GIs can play in internationalising the small and medium scale agricultural food from Tuscany in Italy. The researchers found that the main purpose of using GIs in international trade by the producers were to get protection against the misuse of GI names and from the stiff competition in the international market. The article mentioned that the use of GI can be seen as an information provider to the customers regarding the product. The study revealed a conflict of interest between the producers having their own brand with that of the producers who do not. The study found that producers who were interested in exporting their products showed a greater interest in using GIs. The study also highlights the importance of the producer's association in managing GIs at the international level.

The research paper by **(Bowen, 2010)** explored the potential of GIs to boost development and preserve local environment and cultural resources. The author was of the opinion that the capacity of the GI to promote regional development largely depends on the GI legislation and the territorial context in which the system is being implemented. The paper compares two GI products, namely tequila in Mexico and Comte Cheese in France. The difference found between the two GI products by the author was the manner in which the market intermediaries measure the quality of the product, the way GI valorises the territory and the strength which the collective organisation displays. The author observes that, for the GI to be successful, some level of State involvement is needed to support the small farmers to enjoy the benefit of the GI.

In a research paper, **(Dagne, 2010)** explored the importance of GIs in the protection of Traditional Knowledge (TK). The GIs are specific to goods; hence, it can extend protection related to the protection of Traditional Knowledge specific to the good. The paper indicated that the use of GI in protecting TK is a positive signal. A warning is also given by the author that the GI cannot be instrumental in contesting bio piracy. Another limitation of protecting GI is that it is product-specific and region-specific. Hence, the TKs which are not product-specific and transcend beyond the specific geographical region cannot be protected using GI.

In the research study, **(Blakeney, 2009)** explored how much the GIs are capable of providing protection to the Traditional Knowledge. The paper states that the objective of GI as per the WIPO regulations includes the protection of TK. There are two opinions within the WTO regarding the protection of Traditional Knowledge, one being the proposal to provide separate IPR status to TKs and another is to extend the protection under GI to TK also. The TKs are similar to GIs in that both preserve communal rights. GIs can extend the protection to TKs which are already in the public domain. But the author is of the opinion that it is better to provide separate IPR status to the Traditional Knowledge, as GI and TK belong to two separate domains.

The research report by the author **(Rangnekar, 2004)** was an attempt to conduct a social and economic exploration of the concept of GIs. The paper started with a note comparing the similarities of GIs and Trademarks. The author believes that the economic rationale for protecting the GIs is similar to that of the Trademarks. The

main input provided by the GI is providing information to the customers about the origin and qualities of the product. The report also addressed two major Policy concerns of GI, one being rural development and another being the protection of TKs. The author believed that there is a positive relationship between GI and rural development as well as between GI and the protection of TK. The last section of the report analysed the characteristics of GI as club goods. The GI Regulations result in the exclusion of producers outside the specified geographical location. Hence the producers of the GI within the geographical region are considered members of a club. The report discussed the above considerations in the light of various case studies such as Parmigiano Reggiano, Tuscany extra virgin olive oil and Parma ham. The report concluded by mentioning that for the GI to be a successful socio-economic tool all the information relating to the GI should be codified and there should be reorganisation of the supply chain.

The researchers (**D. D. Barjolle & Thevenod-Mottet, 2002**) examined the spatial and economic evolution in the case of Abondance Cheese. Two hypotheses were put forth: the first hypothesis was that GIs registration can result in the concentration of production area in the region and the second hypothesis was that GIs can result in economic development, such as the product becoming famous, the development of local tourism in the area and the minimisation of the transaction cost. The variable sales were analysed to measure the impact of the GI tag. The percentage of sales over the years from 1996 to 2001 was analysed which revealed that there was an increase of more than 50% in sales over 6 years. The researchers have found that the GI recognition has not only encouraged small producers to stick to their production of cheese but also encouraged the concentration of large cheese manufacturing units in the demarked production zone. The restaurants in the area serving cheese and the cheese museum promoted tourism in the region. The negative effect noticed by the researchers due to the growth and popularity of the GI was that the demarked geographical area was unable to handle the development proportion.

2.4 IMPACT ASSESSMENT OF GEOGRAPHICAL INDICATIONS

Assessment of the impact of GI registration is crucial for understanding the real-world benefits and limitations. Researchers have examined how GIs influence the income of the producers', the employment availability in the area, the effect on the

identity of the product and popularity of the region etc. This section reviews the studies that have evaluated the socio-economic outcomes of geo-tagging.

The paper by **(Bansal & Singh, 2024)** explored the impact of GI tag on agricultural exports. The data for the study were agricultural export data of GI products from the year 2004 to 2016. The results revealed that there is a significant increase in the exports of agricultural produce. The authors analysed the exports of the products over time relative to the GI registration date. The study showed that the GIs which were managed by the state were better off when compared to the privately owned ones. The study also observed that the GIs from States which have more developed infrastructure and transportation facilities outperformed others. The authors believed that even though the GIs can influence the exports positively there is a parallel need to focus on enhancing the institutional support and the infrastructure.

In their paper the authors **(De Filippis et al., 2022)** opined that GIs brought positive effects on GI tagged products. For reaching the conclusion the authors conducted a meta-analysis. The meta-analysis relating to the impact of GI tag on trade was analysed by collecting, consolidating and analysing related research publications. The authors are of the opinion that GIs should be highlighted in the international market by including them in the international trade agreement between nations. The authors finally concluded that the GIs can be of benefit to both the products, whose reputation is already established and those whose reputation is yet to be established.

A study conducted by **(García-Hernández et al., 2022)** assessed the impact of GIs tag in the cheese mountain area. The study explored how the GIs can contribute towards the environmental sustainability. The case study was specific to Cabrales mountains. The data for the study were collected from both primary and secondary sources. The researchers conducted 26 interviews with the help of semi structured interview schedule. The producers were also interviewed. The secondary data were collected from the Cabrales city council. The study revealed that the protection of the cheese produced in this area with GIs lead to the disappearance of small producers due to competition. The main advantage of GI was the resultant increase in demand.

A research article by **(Bicen, 2021)** puts on a discussion on the impact of GIs on the global trade competition. The study highlighted the significance of the GI and established the fact that GIs are a mix of physical and human related specialities. The

article focuses whether the Policies relating to GIs are capable of fostering the competition in the international trade. The author tries to explore this context in the light of Hunt's Resource Advantage Theory. The author concluded that the GI Policies are in favour of the competition in the international market. The GIs can provide the agrifood producers the competitive edge in the international market thereby helping in boosting the economic growth of the region.

A paper authored by Chilla and team analysed the economic effects of EU Policy, on the protection of origin, for three food products in Bavaria (**Chilla et al., 2020**). The study used both qualitative as well as quantitative methods for data collection and analysis. The quantitative data were related to sales, production and price, while the qualitative data were collected through interviews with the stakeholders. The major findings of the study were that the EU Policy on GI had a positive effect on the sales of beer in the international market. The Policy had positive effects on GI products in the local level too. The study highlighted the increase in funding by the EU for promoting GI products.

The impact of GIs on sustainable rural development in Vietnam was explored by (**Hoang et al., 2020**) in their study. The methodology adopted was a case study analysis of Cao Phong Orange. The researcher collected qualitative data through interviews and observations with producers and policymakers. The variables covered in the study were registration, administration and effects on the local environment, economic development, and social and cultural factors. The sampling method adopted was convenience sampling. The findings were that GIs contributed to the promotion of agricultural products and had a positive impact on sustainable rural development in all social, economic and cultural contexts. The study suggested that the Vietnamese Government should take necessary initiatives for the protection and promotion of GIs. The system for complying with the CoP should be established at the policy level. The National Office of Intellectual Property should offer support to producers for GI registration at the international level. There should be enhanced regulation for the control and monitoring of agricultural projects. The local authorities should continue with spreading awareness about GIs at the local and national levels and the producer's association should be encouraged to promote collaboration and networking on GIs.

The study by **(Maina et al., 2019)** examined whether the producers were willing to bear the cost associated with GI registration. Two different products were chosen for the study, Baringo Goats and Makueni Apple Mangoes. Two theories were addressed in the study, Lancaster Consumer Theory and Random Utility Maximisation Theory. The data for the study were collected from 36 randomly selected producers. The mango and the goat farmers were willing to bear the cost of GI registration because the mango producers were getting higher price for their produce while the goat farmers were enjoying long term contract with their supply chain participants.

An article by **(Cei, Defrancesco, et al., 2018)** tried to understand whether expected benefits from GIs registration are for real. The results were gathered through a systematic review based on the supply chain framework. The findings are that the GI registrations are capable of bringing value addition to customers and the retailers. But this economic benefit was not equally spread in the case of the producers.

In an empirical study by **(Cei, Stefani, et al., 2018)** on how far the GIs were successful in bringing rural development to the region were explored. For the rural development impact assessment, an index was developed. The researchers used Difference in Difference evaluation to assess the impact. The DiD is a regression-based assessment model. The expected outcome of the GI tag was Agricultural Value Added (AVA), this was measured taking the current agricultural prices per utilised agricultural area. The results of the study showed positive impact of GI on rural development.

In a research paper, the authors examined the potential of GIs to improve the position of small-scale producers in agro-food chains **(Tregear et al., 2016)**. The article followed a case study approach, where the Makó Onion, a Protected Designation of Origin (PDO) in Hungary was taken for the study. The study was undertaken to address two limitations in the existing works of literature one being the lack of conceptualising the GI system and the second was understanding the GI system from a different context, that was from the point of nascent GI system. Most of the existing studies were based on the GIs of the developed countries which already have an established GI system. The data collection method included in-depth interviews with stakeholders of the GI system. The study found that the GI systems were not capturing premium prices for the small-scale producers. There were no

instances of exports. None of the producers used the PDO label at the time of sale, while the retailers were using them. The officials of the producer's association reported minimal abuse of the label and that they are actively involved in the inspection of the CoP by the members. There are spill overs to other non-agricultural sectors like the development of a spa with an onion theme. The recommendations of the study were to have consortia which can work towards establishing a strong relationship with the buyers. The study also recommended that the consortia should build an effective network with regional actors external to the value chain to unlock external resources.

Medeiros analysed the functions and the impacts of GIs through a systematic review (**Medeiros et al., 2016**). The study was conducted by taking 26 publications related to GIs in the context of Brazil, from the CAPES journal portal. The articles in the systematic review were grouped into four function groups: legal protection instrument, marketing instrument, development mechanism and preservation mechanism. The reviews included papers referring to the impact of GIs. The socio-economic impacts included an increase in production, economy of scale, organisation in production, increase in property process, decrease in rural drift, creation of jobs, appreciation of culture, development of tourism and quality control of products. The market-related impact of GIs was protection from counterfeit products, promotion of other regional products, prospects of new markets, fostering trade, promotion of the region, stimulation of exports, and product differentiation.

An empirical study was conducted in India and Thailand by (**Jena et al., 2015**) in order to understand the impact of GIs. The data for the study were collected from 299 farmers selected on the basis of multi stage random sampling method. The results showed positive impact of GI as it decreased the rural poverty. The other impact relating to registered GIs referred to the preservation of cultural heritage and traditional knowledge. It was also found that the cost relating to GI management was fairly compensated by the returns gained from the product. Since the GIs have positive welfare effect, the authors exerts that the protection of GI should be enhanced.

The research work by Carbone and her team contributed to the GI knowledge system by focusing on three objectives (**Carbone et al., 2014**). One was to identify the policy outcomes of registering GI and how these policy outcomes can be

measured, the second was the ranking of the RGIs (Registered Geographical Indications) based on the policy objectives and the third was to provide alternate evaluation methods for RGIs. The researchers adopted a multi-criteria model for evaluation which was based on the ex-post model of impact evaluation. The policy objectives evaluated are i) promoting product differentiation, ii) providing reliable information for consumers on the origin and other quality attributes of typical products, iii) enhancing market performance, iv) enhancing producers' bargaining power, and v) promoting local development. The research was empirical and the evaluation method adopted was ex-post. The two products chosen for the study were thirty-one cheese PDOs (Protected Designation of Origin) and thirty olive oil PDOs from Italy. The cheese was taken for the study as it was the category having the highest number of PDOs and olive was chosen as it represents a new category among the PDOs. The study showed a promising impact of GI registrations in several areas. The researchers identified four different categories of products such as, PDOs having positive values in all five policy objectives, PDOs having positive values in case of bargaining power, local development, and differentiation but negative values in market performance, PDOs having higher results in market performance only and lower values in all other categories and PDOs having low ranking in all the 5 objectives. The researchers found that smaller PDOs were better rooted to their values and aligned more with the EU Policy objectives. The researchers believed that the GI as a single policy framework cannot provide full results and that for each policy target, there should be at least one specific policy tool.

The economic impact of GIs was analysed by **(Agostino & Trivieri, 2014)** in their research article. In the study, they examined whether the GI tag could bring positive changes in terms of higher export values, export volume and export presence in new markets. For the research, the export data of GI products of France, Italy and Spain from the year 1995 to 2009 were analysed. The findings of the study were that the GI tag was capable of increasing exports only to high-income destinations. These marks act like a strategic tool which can be used in both traditional and customary markets. The only doubt raised by the authors was whether all the producers equally benefited from the use of GI tag to the same extent.

The study by **(Besky, 2014)** states that the GIs provide protection to terroir. Darjeeling the place, often gets portrayed as an ideal garden place rather than an

industrial plantation space hence this tea variety gets an artisan touch. This makes Darjeeling tea more acceptable as an artisan GI product rather than industrial plantation product which was in existence since the British colonial period.

Jena and Grote in their research developed a detailed method for evaluating the impact of GIs (**Jena & Grote, 2012**). The study took Basmati as a case study to evaluate what benefits the GI would bring to the small-scale producers. The reason for choosing Basmati for the study was that its market share was huge. The questions addressed in the study were about the price premium earned by the producers and the welfare that producing basmati brings to its producers. The study conducted was the expected impact of the GI tag on Basmati as it had not yet received the GI tag at the time of the study. Multi-stage stratified random sampling was adopted to select 299 farmers for the study. In the study, the Basmati rice farmers are the treatment group and the non-Basmati rice farmers are the control group. The study found that the farmers cultivating the Basmati rice variety had a positive income effect and that the cultivation of the Basmati rice variety upsurges the welfare of the households. The study also concludes that the GI registration cannot bring further price increases to the produce as it was already selling at a very high price. The GI registrations will help to restrict counterfeit products and help the farmers get a fair market share and price for their produce.

The evaluation methods for assessing the effects of protecting GIs are at centre of the study by (**Belletti et al., 2011**). The book covers areas such as evaluation and impact assessment. Both qualitative and quantitative impact evaluation methods were discussed in the book. For the evaluation of GIs, a mixed approach combining qualitative and quantitative methods were identified in the book. The impact evaluation was covered in three stages, the first order effects namely the output, the second order effects namely the outcome and the third order effect namely the impact.

Bowen and Zapata in their research conducted a case study on tequila in order to examine the potential of GIs. The authors wanted to understand how the GIs were contributing towards socioeconomic and environmental sustainability. The tequila was registered as a GI by the Mexican Government; it was one of the oldest GI in existence. The study was an attempt to systematically analyse the impact of GI. The authors, (**Bowen & Zapata, 2009**) found that GI was not able to bring positive

socioeconomic changes to the region. The farm holds were still facing economic insecurity. The application of fertilizers was not reduced which had a negative impact on the environment. Hence the authors concluded that the GI has not brought the necessary positive change to the region or its producers.

The economic rationale for the protection of GIs was examined in detail in the paper by **(Bramley & Kirsten, 2007)**. The points addressed in the paper are information asymmetry, reputation, niche market, monopoly market and rural development. The authors were of the opinion that GIs can act as a quality signal which can remove the information asymmetry in the market. The authors also acknowledged the fact that GI can protect indigenous resources and geographical names associated with the product.

The value of GI from the perspective of real estate was evaluated by **(Blackwell, 2007)**. In the paper the author revealed the unique nature of GIs that makes it distinct from other IPRs. The quality of the GI product was linked to its territory this makes a direct link to the real estate property rights. GIs are a combination of Intellectual Property Rights and real estate rights. The issue with GI was that, when other IPRs can be traded GIs cannot be traded. GIs are fixed like the real estate and cannot be bought or sold separately. That is, if we purchase a land the value of the land can be enjoyed from where it belongs and cannot be transferred anywhere else.

In a study the authors **(D. Barjolle et al., n.d.)** focussed on the methods for evaluating the economic, social and environmental impact of the GIs. The economic, social and environmental impact was often called the territorial impact. The article has two sections the first section reviewed the various methods that were adopted for evaluating the impact of GIs. The second section discussed the findings of some papers which were presented in the European Research program named Siner-GI. The most common method adopted in studies relating to GIs were case studies. The results discussed by the authors revealed that the outcomes of the impact of the GIs differ with differences in their stages. This means that the results of the new GIs, progressing GIs and the developed GIs are different. The results also highlighted that the impact evaluation of GIs in the existing research studies was more concerned about the economic motives and was not much concerned about the social or environmental motives of the GIs.

In a research work (**Bramley et al., n.d.**) explored the economic justification for the protection of GIs. The article states that the main intention of registering GI was to get access to new market through product differentiation. The GI can contribute towards the formation of collective monopolies. The competitive advantage of the GI enhances with the strength of the link the product has with the territory to which it belongs. The authors were of the opinion that the GIs which are from small indigenous producers' tend to become more successful. The authors suggested that the empirical studies on GIs should cover the institutional support system. According to the author the main challenge in conducting impact analysis studies about GIs was the problem of getting reliable data, choice between subjective assessment and objective assessment and the choice of reference point.

The author (**Bramley, n.d.**) in a paper reviewed the socio economic benefits of GIs. The author supports that both objective method like synchronic method and diachronic method, as well as subjective methods like use of Liker Scale for opinion collection can be used for impact evaluation. The need for a stronger law for protection of GIs in the case of developing world was also addressed in the study. One of the main challenges in the case of GI was that the value of GI was not often shared with the producers of GI. Weaker institutional context also restricts the success of GI. For making the value of GIs more equitable it was advised to have a strong public intervention.

Thomas conducted a study on GIs by taking data from 50 farmers each from six rice varieties of Kerala having the GI tag namely Palakkadan matta, Navara, Jeerakasala, Gandhakasala, Pokkali and Kaipad rice (**Thomas, n.d.**). The study assessed the impact of GI on the income and welfare of the farmers. The impact was measured using average treatment effect analysis. The analysis was conducted for yield per hectare, net income, marketed income and marketed surplus. The findings were that the yield of Navara was lesser, but the net income, marketed income and marketed surplus were higher. The researchers point out that even though the GI status was used by the producers to get premium prices there were no institutional arrangements for the professional use of GI as a marketing tool.

A group of researchers in their paper explored the logic of including GIs in the international trade agreements. The authors, (**Erraach et al., n.d.**), worked on two

objectives. One was to find whether GIs are valued by the customers in international market and another was to analyse whether the GIs have any trade implications. The data set used for analysis were derived from the firm-product level data of the French customs. The results showed that the GI products were perceived to be of higher quality than non-GI products, and often received a price premium of over 11.5% higher than non-GI products. The study concludes by stating that GIs are capable of bringing access to new markets.

2.5 GEOGRAPHICAL INDICATIONS AS A MARKETING TOOL

Geographical Indications serves as a powerful marketing tool that enhance the competitiveness of products by signalling its originality and quality. The present section reviews the literature discussing how GIs create market differentiation and value, thereby offering the producers a sustainable competitive advantage in domestic and international markets.

The aim of the study by **(Cassago et al., 2021)** was to authenticate the involvement of metabolomic studies to the marketing field. The article was a literature review and the results were based on the output by VOS viewer software. The articles from Scopus database were reviewed by entering suitable keywords. A total of 314 articles were collected. The authors concluded that the chemical finger print linking in the case of GI can contribute towards the development of GI as a quality product. This can also increase the consumer confidence.

In a study **(Chilla et al., 2020)** analysed the economic benefits of the GI label. The study was conducted on three food products, the beer, asparagus and the carp. The study was based on secondary data and the insights given by the experts in the area. The results of the study showed that the use of GI label was capable of giving positive growth in sales as well as price of the products. The study also points out that although there was a positive effect they differ widely in their intensity across the area. The carp and the asparagus enjoyed more of price benefit than sales benefit, whereas the beer enjoyed more sales including exports.

The authors **(Hoang & Nguyen, 2020)** in their study stated that GIs play an important part in the agriculture sector in Vietnam. However, the government's role in promoting GIs to improve agricultural product quality has not been adequately analysed. The article investigated the influence of public policy on GIs and quality

promotion of agricultural products in Vietnam. The article covered three case studies – Phu Quoc fish sauce, Luc Ngan lychee and Moc Chau Shan Tuyet tea –to examine the institutional influence of GIs on the quality development of local products. The study found that the Vietnamese Government has done substantially well in promoting GI. The article provides recommendations on how to promote GI implementation to enhance agricultural product quality in Vietnam, like strengthening the legal provisions relating to GI and enhancing the management of product quality. As GIs are of national relevance the strategies for their protection should be undertaken under national level policies.

The attitude of customers towards ethnocentric products were explored by **(Fernández-Ferrín et al., 2019)** in the context of GI. The relationship between tradition and proximity are explored in the relation to ethnocentric attitude of customers. Data were collected from 167 customers of Extremadura. The study highlighted that the customers are dissatisfied with the food products that are produced in an industrial set up. The mass production of food stuff often leads to the creation of unhealthy food. The customers are now in search of healthy alternatives. The authors are of the opinion that the food stuff having GIs can be better healthy alternatives to the customers. The reason for the conclusion was that the GI products are often made by sticking to strict production practises and are often sustainable.

In his research article, Barbara **(Abegg, 2018)** stated that a new type of Trademark was initiated by the Swiss Government called the Geographical Trademark. The GIs in Swiss can be registered as a Geographical Trademark. This option was provided because the legislation found that the existing GIs System in the world was weak and was not potent enough to provide the required protection. The author examined this move of the Legislation and observed that this step towards granting GIs Trademark cannot provide much global advantage as no such mark was recognised globally. The alternate suggestion provided by the author was to sign into the Madrid System which gives the GIs global recognition.

How a registered GI can influence the participants of the supply chain was examined by **(Fernández-Barcala et al., 2017)** in their research paper. A case study method was adopted which compares products with GI with that of products without GI. The study found that when GI was registered it was under two-fold management,

an additional public level of governance gets added along the supply chain. The GIs once registered should have a collective governing body which is responsible for managing GI by enforcing the rules and regulations. Cobranding strategies can be adopted where both private brand name can be used in conjunction with the GI brand name.

In their book the authors (**Donner et al., 2017**) revealed how collective place brands support regional growth. Place brands are used by both public and private sectors to invoke a sense of valorisation among the participants. Two cases of place branding one from France and another from Morocco were taken for the study. The study results revealed that collective place branding can support the growth of agricultural and territory. All collective brands need proper management by responsible leaders and the cooperation of all the stakeholders to become successful.

The paper by (**Dokuzlu, 2016**) addressed the inexperience in the part of the developing countries in managing and utilising GI. The author undertook a case study analysis on Gemlik table olive. Gemlik olives are a special olive variety grown in Turkey. The producers of this olive variety were found to face unfair competition from olive produced in areas other than Gemlik. The author provided ways for tracking the GI systems in order to overcome this issue. In order to improve the traceability of products to its original location the authors suggest that there should be a control mechanism for GI. The authors highly recommend the use of a common national level GI logo with integrated QR code for improving the traceability of the product. The study provided a model for the implementation of GI starting from GI registration to the promotional activities of GI.

A research paper published by (**Ben Hassen & Tremblay, 2016**) examined the development of a specific GI label and the collective action initiated by the stakeholders. The data for the study were collected from previous literature and interviews with the producers using semi-structured interview schedule. The GI taken for the study was ice wine of Quebec. The authors were of the opinion that the GI tags can restrict the innovation side of production. The survey results from the producers came with two different opinions, some of the producers were of the opinion that the GI tag can restrict changes in the production techniques which can act as a hindrance. Whereas other producers believed that the structured production technique can

increase the traceability of the resources from the field to the market there by increasing its value.

In their study, **(Kim et al., 2016)** investigated how the viewers of an advertisement perceived the GI picture shown in the background of an advertisement. The results revealed that those who are already familiar with the GI picture perceived it more favourably than those who were seeing it for the first time. The key theory discussed in the paper was Construal Level Theory, which explains that the position of labels and pictures on the advertisement can influence the perception of the customers. Some customers may feel more attached to the product on seeing a specific picture on the advertisement. In the case of GIs, the familiarity of the place can also change the perception of customer, the more familiar a customer was towards a place the more the customer gets attached to the product. In the study ANOVA was used to analyse the difference in product evaluations under various conditions.

Anson and Pavithran in their study examined GIs from the perspective of the producers. The data for the study were collected from the producers of Pokkali Rice using a questionnaire. For data analysis, both univariate and multivariate analyses were conducted. The dimensions identified were the marketing factor, sustainability factor and intermediary influence factor. The authors **(Anson & Pavithran, 2014)** revealed that the producers were against the society model of marketing and preferred government-supported marketing. The producers also showed no interest in training the younger generation in rice cultivation which can result in the cultivation of the Pokkali rice becoming extinct in the next 10 to 15 years. The producers agreed to the third factor regarding market intermediaries which revealed that the producers felt that the marketing intermediaries were exploiting them and restricting their growth possibilities.

In the research work **(Aggarwal et al., 2014)** tried to compare the protection provided by the GIs with that of the protection provided by a brand which is a Trademark. The research work was qualitative and the data were collected from both primary and secondary sources. The primary data were collected from advocates and producers having registered GIs. The data collected were related to the legal, marketing, enforceability and monitoring of both GI and Trademark. The findings were that in the case of GI, the poor level of awareness was a major issue. The GI tag

was not sufficient to protect counterfeit products. The visibility of Trademark was strong due to the use of logo which is also not seen in the case of GIs.

The research team, **(Agnoli et al., 2014)** explored the effect of geographical brands and country of origin in China. The study with the help of a restricted source, differentiated the almost ideal demand system model and analysed the imports of wine by China. The main findings of the research were that the GIs could provide support in the competitive wine market. The GI can act in a dual role, one as an umbrella brand and another as a method of providing quality cues. Thus, GI can be used as a marketing tool by the new entrants in the Chinese wine market.

The study by **(Imene & Georges, 2014)** mentions the role of GI in ensuring food safety through the traceability of the product. The authors are of the opinion that the effect of GI was similar to sensory brands. The study was conducted on Dry-cured ham of France. The data were collected from eight focus group participants. The results showed that GI products are capable of bringing positive memories in the minds of the customers. The preference for GI products has two different motives, one is the sensory motive and another is the social motive.

A study by **(Mancini, 2013)** assessed whether the poor farmers are being excluded from the benefits of GI registrations. The research gap identified by the author was that the many of the studies relating to GIs are done in the European nations and those studies are not applicable in the developing world context. The variables analysed in the study are place, social ties, and public institutions. Semi structured interview schedule was used for collecting data from 31 Queso cheese producers. The study results confirmed that the marginalised farmers were excluded from the benefits of GIs registrations and that the state government was not experienced enough to handle the problems related to GIs.

The marketing power of GI, for products from Turkey was explored by **(Dogan & Gokovali, 2012)**. The authors state that, the GIs are often considered as a product differentiation tool. The highly differentiated GIs provided the producers with price premium. As the geographical area which come under GIs predominantly belong to the rural sector it can support rural development. This sustainable rural development can encourage the settlement of people in rural areas by bringing more employment opportunities. The promotion of GIs can also help in reducing the investments in

technology and advertisements. The authors concluded that Turkey even though has become conscious about the protection of GI the number of registrations is less compared to countries like France.

Whether new products can benefit from GI tags is the subject of research in the paper by **(Defrancesco et al., 2012)**. The authors through their literary reviews found that the reputed products are able to claim price premium for the products. The elder customers are quick in recognising quality standards in the products when compared to younger ones. The study was conducted on Malbec wine by using hedonic method which was a regression model which can identify the effects caused by various factors. The customers were willing to pay price premium for those wine whose label contained the name of the vineyard. When the customers face uncertainties as to the quality of the product, both the old world and new world customers rely on quality signalling tools like GI and are willing to pay more for those signals.

How GIs granted to handicrafts were helpful in brand making and creating trust in the market was examined by **(Albayrak et al., 2012)**. The authors found that out of all the GIs registered in Turkey 30% were handicrafts. The study examined the role of GI in providing protection and branding to handicraft products in Turkey. The study design was exploratory research. The researchers opined that if the level of awareness of the producers can be enhanced then the GI can be used as an important instrument, which can help to make Turkish handicrafts world brands. The researchers also acknowledged the socio-economic benefits of GI in addition to marketing benefits.

The authenticity of local eating and the identification of the term 'local' is the subject matter in the research article by **(Giovannucci et al., 2010)**. The study was carried out to find the rationale behind the use of the term 'local' in the food categories. The main method adopted in the US to ensure the authenticity of the local produce was to get GI registered as per Trademark Law. The authors further suggested that the use of GI can be more beneficial as it is less expensive due to its collective nature. Hence even small producers can afford the use of GI in establishing the market presence. The US currently provides GI protection as a part of the Trademark regime. The sui generis form of protection is more robust; hence the researchers recommend the US Government to provide sui generis form for protection to GI.

In an article by **(Bardají et al., 2009)** the authors examined the retailers' behaviour while selling products having GI tags. The study was based on the primary data collected from the retailers of the Spanish region. The tools used for analysing the data were logistic regression. The regression test results explained the decision of retailers to sell products with GI or not. The results of the study were that the GI could give the customers information relating to the origin and the quality of the product and this motivates the retailers in to sell products with GI.

In an article **(Carpenter & Larceneux, 2008)** explored how the consumers processes their decision making when they are purchasing products having value based labels. The study was based on an experiment where the customers were shown four different presentations of product. One was without any specific label, the second was with a regional label, the third was having both regional label and GI label and the fourth is having the regional label, GI label and an explanation note about the label. The customers had a purchase intention when they viewed the final presentation. This means that the customers were willing to purchase a product when they are explained about the importance of the product. The study stated that the GI label with description of the product can be better at persuading the customers to purchase the product, thus the study gives an idea about how the label should be used in the product so as to induce purchase intention in the minds of the customers.

The research paper by **(Albayrak, n.d.)** explored the GI registration practices in the European Union. The research was based on the secondary data retrieved from the 'DOOR' database in the EU. The results showed that out of all the GI-registered products in the EU, 24 % belonged to the agricultural produce group, 20 % to the cheese segment and 24 % to the meat and oil segment. The author also explained that in the EU products with GI are often used as instruments that can prevent unfair competition and promote rural development.

Grote in his study identified that there are two categories of people, one who are in support of GIs and the other who are against it **(Grote, n.d.)**. From the point of view of supporters, GIs can be considered as a long-term public initiative that support the rights of the producers. The GIs can provide protection in both domestic and international market. The international protection extended by GI promoted exports. On the other hand, those who oppose the GI, are of the opinion that GIs can act as

trade barriers. The management of GI is not a simple process and often involves cost. The GIs when properly managed can bring in advantages such as price premium.

2.6 CHALLENGES IN THE SUCCESSFUL USE OF GEOGRAPHICAL INDICATIONS

Despite the potential benefits of GI, there are several challenges that undermine the effective use and management of GIs. These challenges can range from the weak support from various institutions, the weak legal framework, low awareness among the stakeholders and enforcement of GI. This section reviews the studies that critically examine the barriers to the optimum realisation of the benefits of GI.

Lou and team in their research examined the effectiveness and problems of GI tag in the context of Pengshui County in China (**Lou et al., 2023**). The main findings of the study are that GIs can promote rural economic development, the number of GIs in the region is high but their brand equity and market influence were low, the production intensification of GI is low and the competitiveness of similar products in the market is weak compared to other regions. The authors opined that the effectiveness of using GI need to be improved rather than the number of GI claims. The study recommends the establishment of interregional GI industry alliances based on GI products, strengthening the management of GI through effective policies and government involvement and changing the focus of GI claim logic from quantity to effectiveness.

The article by (**Vinayan, 2017**) addresses the issues and challenges in the use of GI in India. According to the author the economic rationale for getting GI registration can be due to the role of GI as a tool which can convey product quality and reputation in the world of information asymmetry. The article addresses various procedural issues in the GI system such as long processing time and high legal cost. The role of State in the GI system in India was critically examined, where the author raised the concern about the genuineness of the State in representing the interest of the stakeholders. The major challenges raised by the author in the Indian GI system were ambiguities in the geographical map registered and true representation of the interest of the stakeholders. The article also highlights the issues in the international registration of GI and the cross-border GI registrations in the case of Basmati.

The paper by **(Le Goffic & Zappalaglio, 2017)** examined the role of the U.S. government in protecting designations of origin like, Champagne or Napa Valley wine, that highlight a product's geographical origin and associated qualities. In contrast to the more open, trademark-based system in the United States, GIs have historically been seen as a domain of the administrative, State-driven regime of the European Union. Nonetheless, the report contends that there are notable parallels between the EU's strategy and public engagement in the U.S. GI regime, such as certification marks and American Viticultural Areas (AVAs) for wines. The following points were made by the writers to reinforce their argument: The idea of a strictly private, self-regulated system is called into question by the widespread usage of certification marks for GI protection in the United States, frequently with substantial participation and investment from the State and Federal Governments. Similar to the European approach, the U.S. Government uses administrative decrees to control AVAs, defining areas with distinctive geographical traits for wine production by combining ideas like terroir. The United States system is more procedurally similar to the EU's than is generally recognized because, despite official narratives, it makes substantial use of public resources for GI protection. A reassessment of the alleged dichotomy between the two regimes is encouraged by the growing interest in safeguarding origin-linked products in the United States, which indicates an increasing alignment with EU norms. Although there are some distinctions, the research concluded that the U.S. system was not as different from the EU's as was previously claimed, particularly when it comes to administrative engagement and public policy goals.

The issues in the administration of GI system were addressed by **(Gangjee, 2017)** in the study. The study was initiated by the researcher as the previous research works showed that there is considerable amount of flexibility in the GI registration process that resulted in the loosening of the relationship between the product and the place of origin. The author argued that the presence of formal verification system for ensuring the originality of the product was not visible to the customers. The GI systems often lack proper inspection mechanism which also lowers the reliability of the mechanism. Product specifications should be at the centre of GI registration, in order to ensure product specification there should be formalisation of relationship through contracts which are legally enforceable.

GIs are IPRs which are often established with a lot of expectation from the part of the customers and the producers. The study by **(Di Fonzo & Russo, 2015)** reveals that there are possibilities for conflict of interest between various stakeholders of GI. The paper incentives are not perfectly aligned, adopts a game theory model for analysing the initial phases of designing GIs. The authors found that the optimum GI design requires trade-off between various objectives of GI. The authors also recommends that the flexibility in the production requirements can improve the efficiency of GI.

In the study the authors **(Galtier et al., 2013)** explored the constraints that the GIs face in de-commodifying the green coffee. The study adopts a case study mechanism where the Jarabacoa coffee production system was analysed. GIs are often seen as tools which are capable of de-commodification of products by bringing out the uniqueness in them. The study identified that the abandonment of International Coffee Agreement in the year 1989 led to issues relating to the commodification of Coffee. The coffee market which was previously a producer driven market is now a buyer driven market. The role of producers was minimal and it was the service sector which was providing value added to the customers by blending, mixing and marketing of coffee as a premium product. The three main constraints relating to the use of GIs in coffee sector was that, the roasters may not be interested in using GIs to market coffee as they blend coffee from more than one geographical area, another issue was the inability of the local actors to build a strong GI system and the third constraint was the inability of the local actors to bring in a CoP which was acceptable by all the coffee producers.

The paper by **(Bramley & Bienabe, 2012)** explored the context of GI in the developing countries. An examination of how the developing countries responded to the TRIPS agreement and how they implemented the GI was done. The authors are of the opinion that the developing countries can face considerable restrictions and constraints during the implementation of GI. GI benefits cannot be enjoyed by the producers of the product by merely providing a legal status to it. A well developed and locally supported approach was essential for the development of successful GI strategies.

The practical challenges faced by the stakeholders of GIs of India was assessed by **(Das, 2010)**. The paper has sections addressing the GI registration process in India, the challenges of GI implementation and how GI can facilitate the protection of traditional knowledge. The paper also examines the socioeconomics of GI from the perspective of handloom sector. For the case study Darjeeling tea, Pochampally Ikat and Chanderi fabric were taken. The major challenges mentioned by the author were the hindrances faced by the stakeholders in getting foreign registration due to diversified legal systems, the weak enforcement of the GI Act, cost involved in legal enforcement and brand promotion, lack of cooperation among the stakeholders and the limited awareness among the stakeholders. The case of Darjeeling tea signifies the importance of gaining international GI registration for protecting the imitations of the product abroad. The case studies of Pochampally Ikat and Chanderi fabric shows the power of organising the producers to stand together to reap the benefit of GI.

In the paper **(Damodaran, 2008)** argues that sui generis mode of protection was more effective form of legal protection. The paper addressed the lack of international reciprocity to protect IPRs which makes the national framework less effective. The other challenges mentioned in relation to the protection of TKs was that the protection of community resources require greater initiative than in the case of individual, period specific validity constraints should not be there in the case of TK as in the case of other IPRs and that the TK might be spread across different communities spread over a region, hence region wise restriction can affect the protection mechanism.

Different aspects relating to the protection of GIs were analysed by **(Raustiala & Munzer, 2007)** in their study. The need for the protection of GIs was to emphasize the position of local culture and tradition in the face of ever-intruding globalisation. The authors think that the introduction of greater protection for GIs through the TRIPS Agreement is the strategy of the European states to protect their agricultural producers from price-based competition in the post-war economy. The Doha round of discussion on the TRIPS Agreement has seen greater demand from the part of the member countries to extend the additional protection provided for the wines and spirits to all products and to have a multilateral system of registration for GIs so that a single registration can provide worldwide protection of GIs. But this demand for greater protection was objected to by the US and the New World countries. The GIs which are protected based on human factors such as handicrafts tend to lose their

significance as human factors are more mobile in today's world hence restricting it to geographical locations does not make sense. The issue of 'firstness' was also addressed in the article, that the group of producers who first register the GI can dominate other producers who produce similar products in the neighbouring place. Another problem addressed in the article was that if a long-term genuine producer moves out of the registered GI location to a nearby location having similar geographical conditions the producers are stripped of the right over the GI. The problems discussed in the article are significant in rewriting the GI regulations.

In a research paper by (Das, 2006), the researcher was of the opinion that, among the IPRs the most argumentative form is the GIs. The paper reveals that the TRIPS Agreement is not uniform in providing protection to GIs. The GIs covering the wines and spirits segment is getting additional protection under Article 23. The author argues that the additional protection under Article 23 should be extended to other GIs belonging to handicrafts, agricultural, natural, food stuff etc. This can further strengthen the international protection for GI tagged products.

The authors Menapace and Moschini discuss the latest developments in the field of GIs such as institutional support systems, the rationale in the protection of GIs and the limitations and unresolved problems of GI (*The Economics of Geographical Indications: An Update | Annual Reviews, n.d.*). The rationale for the protection of GIs are protection of cultural know-how and sustainable growth. The institutional support for the GIs is at the discretion of various economies where the government chooses to provide a sui generis nature of protection or merge with the existing system of IPR protection such as Trademark or Collective Marks. The degree to which GIs need to be protected was often the subject of international debate. The success of GIs depends on well-functioning support institutions. The various positive impacts of GIs include price premiums, increase in profit, sustainable development, cultural identity protection and local development. The barriers to the success of GIs included the additional cost of certification, innovation constraints, cooperation challenges, lack of support, bureaucracy and power imbalance.

Sanjeev and Barone in their article reviewed various aspects of GIs as a branding tool. The authors think that GIs are capable of protecting the name from becoming generic. With the increase in GI-based marketing strategies, the GIs can act

as an important asset for the producers as a means of competitive advantage. The GIs can increase the visibility of the characteristics of the product and exoticness by popularising the product through history, tradition and folklore. Some of the pitfall notified by (Agarwal & Barone, n.d.) relating to the use of the GIs is the threat of new entrants in the market and increasing the geographical boundaries of the market thereby increasing the supply. The GIs can also be registered as a Trademark by multinational companies in countries other than the country of origin. The original GI producers can find it difficult to gain protection for their products in foreign nations.

2.7 CONCLUSION

The volume of literature reviewed revealed that most of the studies relating to GIs were conducted on agricultural products, wines and cheese. The existing literature largely indicated positive socio economic outcomes from the GI registration. There are studies which highlights the contribution of GIs to rural development, enhance market access, environmental protection and supply chain management. Reviews also indicated the branding potential of GI as well as the regulatory challenges of GI. The studies addressing the socio economic and marketing aspects of GI are very scant in the Indian and Kerala context. Majority of the studies addressed only few dimensions of the socio economic effects and the marketing benefits of GI, hence the present study involving comprehensive assessment of GI evaluating several dimensions hold significance. Researches exploring the contribution of producers' association in promoting GIs and measuring the awareness level of GI among producers were very few even in the international scenario and there are no studies in the Kerala context. The present study focuses on an in-depth examination of the awareness level of producers about GI and the contribution of producers' association in promoting GI, both of which are significant in the success of GI. The theory building in GIs were extensively done by various researchers using systematic literature review and meta-analysis. The reviews helped in establishing a strong foundation for the present study by identifying key concepts, methodologies and theoretical frameworks. The insights gained from the literature guide the research approach of the present study, ensuring that the study addresses critical gaps and contributes to the policy discourse of GI. A clear understanding of GIs and their background is essential to contextualise the objectives of the study. Therefore, the theoretical framework supporting the research is presented in the following chapter.

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Chapter 3
Theoretical Framework of
Geographical Indications

3.1 INTRODUCTION

In today's world, major factors that are considered relevant for regional development are creativity and entrepreneurial competency. By providing legal protection to the creator's efforts, IPRs are often seen as a tool that promote and safeguard innovation, and consequently, competence. The creativity of minds is protected by granting the creators exclusive rights over their creation for a specific period. This assurance of protection often encourages innovations and creativity, as the creators can capitalise on their efforts. These rights are not only confined to economic growth but also promote social and cultural development by protecting various elements which are of cultural and environmental significance (Medeiros et al., 2016).

The emergence of IPRs as a legal form of protection can be seen as early as the 15th century. The Patents were the first form of IPR to get legal recognition back in the 15th century followed by the copyrights during the 18th century. Geographical indications and industrial designs are relatively newer forms of IPRs that have recently received legal recognition. It was during the Uruguay Round of talks that the European Union put forth the concept of GI into the international trade scenario. Introducing GI into the TRIPS Agreement was not smooth and had to face stiff resistance from the developed nations including the US. However, it was due to the persistent effort of the EU that the GI was included in the TRIPS Agreement and got legal recognition as an IPR (Török et al., 2020).

In the last twenty five years, GI protection has seen an increase in popularity, especially among the developing countries, where it is seen as a measure to safeguard traditional product (Jena & Grote, 2012). India too adopted Geographical Indications Regulations in the year 1999. GIs are often used as a combination tool which signals a variety of product qualities such as product differentiation, brand, standards, and technical aspects such as the production process undergone in the making of the product (Benavente, 2013).

This chapter has four sections. In the first section an in-depth discussion about the concept of IPR and GI is covered, the second section examines the theories related to GI, the third section covers in detail the concept of impact assessment of GI and the fourth section covers the theoretical framework for the socio-economic impact and

marketing benefit model of GI, this model is later assessed in the chapter covering Structural Equation Model.

3.2 INTELLECTUAL PROPERTY RIGHTS

The Intellectual Property Rights cover two major areas; one is the copyright and the other is the industrial property.

Copyrights are rights enjoyed by the authors of books and artisans of paintings, music and sculpture. The copyright also covers the software and films. The main objective of providing copyright protection is to promote creativity among individuals.

Industrial property covers IPRs such as trademarks, geographical indications, patents, industrial designs and trade secrets.

The first two industrial properties, trademarks and geographical indications ensure fair competition. These two IPRs also facilitate consumer decision-making and help them in making informed choices. Both are signs of product differentiation.

The other three IPRs the patent, industrial designs and trade secrets are primarily conferred to promote innovation. These exclusive rights can incentivise investment in developing new technologies.

3.3 GEOGRAPHICAL INDICATIONS

Registered Geographical Indications are GIs which are officially recognised through a formal registration process which may be either through a legal Act or by the decision of the court (Belletti et al., 2011). GIs apply to those products whose certain specific characteristics are on account of the place where they belong (Carbone et al., 2014).

According to the World Intellectual Property Organisation (WIPO), GI is a sign conferred to products that have a designated geographical origin and possess unique qualities or reputation that are owed to that origin (World Intellectual Property Organisation, 2023).

The legal protection for GI is sought as a means for fighting unfair imitations produced and made available in the market. These fake products are not produced as per the standard requirements and are sold at cheaper prices. This often leads to

consumers purchasing fake products with the false belief that it is genuine (D. D. Barjolle & Thevenod-Mottet, 2002).

3.3.1 Evolution of Agreements Protecting Geographical Indications

The first ever mention for an official recognition of GI was in the Paris Convention. The Paris Convention in the year 1883 recognised in its first Article the phrases ‘appellation of origin’ and ‘indications of source’. The treaty protected the false use of ‘appellation of origin’ and ‘indications of source’. In the year 1891 Madrid Agreement entered into force, it is an agreement which granted protection from deceptive indications of source. This Agreement recognised the registration of GIs both as a separate ad-hoc system and as a part of the existing Trademark Law. (Benavente, 2013)

The Lisbon Agreement was initially adopted in the year 1958, it focused on the protection of appellations of origin and GI. The uniqueness of this Agreement is that it recognises the international registrations of GIs, ensuring the protection of GIs in all the countries who are signatories to the Agreement.

Later in the year 1994 the WTO, as a part of the TRIPS Agreement, made it mandatory on the part of the member countries to protect GIs by adopting suitable legal regulations.

3.3.2 Trade Related Intellectual Property Rights (TRIPS)

The GI aspect of the TRIPS Agreement was the outcome of several rounds of negotiations which involved debate between the old-world countries of the Europe and the new-world nations, United States, Chile, Canada, New Zealand, Argentina, and Australia.

As per Article 22 of the TRIPS Agreement, “Geographical Indications are indications which identify a good as originating in the territory of a member, or a region or locality in that territory, where a given quality, reputation or other characteristics of the good is essentially attributable to its geographical origin.” (Belletti et al., 2011; *Modules4_e.Pdf*, n.d.).

3.3.2.1 Characteristics of Geographical Indications as per the TRIPS Agreement

The TRIPS Agreement recognized a wide variety of intellectual properties, but when it comes to GI tag the term ‘property’ can take a different turn. Unlike other intellectual properties, the GIs are not ‘property’ confined to an individual. The GIs do not have a single legal owner. Anyone within the demarked geographical area who can produce the goods as per the prescribed quality can have the right over the GI (Belletti et al., 2011). The following are the characteristics of GI.

1. GIs like trademarks have the function of identification, they indicate the quality of the product based on the origin of product.
2. The protection of GI is applicable to goods and not services.
3. The member countries can decide what products are to be covered under the GI system. GI system usually covers agricultural produce, foodstuffs, handicrafts, natural produce, etc.
4. GIs usually contain the name of the territory they originate from, but this is not compulsory as names that do not evoke geographical location can also be considered as a GI.
5. It is imperative for a GI to have a quality that is necessarily owed to the location of the origin.
6. The GI can be used in a particular product along with other IPRs like trademarks, copy rights, traditional knowledge etc.
7. GI and an indication of source are different concepts. Indication of source gives general information to the consumers that the product originates from a specifies place, whereas for a product to be eligible as a GI certain quality-specific features of the product should be on account of the origin of the product. ‘Swiss made’ is a GI whereas ‘Made in Switzerland’ is an indication of source (*Modules4_e.Pdf*, n.d.).
8. GIs provide a collective monopoly to the producers. The GI can provide an imperfect market which facilitates the producers to earn a super normal profit.

The GIs increase the chances of creating a collective monopoly through market entry restriction or product differentiation (Gangjee, 2016).

3.3.3 Geographical Indications as Club Assets

GIs are intangible assets like any other IPR which provide legal protection through special rights. They are collectively owned and hence cannot be transferred, rented, licensed or exchanged which is possible in the case of other IPRs.

It is the indication label and not the physical features of the product that gets protection as a GI. The tenure of protection granted to the GI is not restricted in the TRIPS Agreement but is mentioned in the laws regulating GIs in different countries. In India, the GI registration is valid for 10 years, after which it must be renewed.

3.3.3.1 Club Assets Characteristics of Geographical Indications

As per (Benavente, 2013) the following are the characteristics of GI as club assets

1. Collective nature of IPR - The benefits derived from the GI registrations are shared and cannot be kept as individual assets. All along the stages of production and marketing, the sharing of cost, value-addition and profit can be seen.
2. Confinement of production - The geographical territory to which the GI belongs is restricted during the process of GI registration and hence only the producers of the goods who belong to the demarked geographical area are authorised to use the GI tag. In India, during the process of GI registration, the applicants are required to attach the map of the geographical area with markings indicating the specific area to be earmarked as the geographical boundary. This indicates that the GIs are exclusive to only 'insiders' and the geographical map is the basis for the distinction between the insiders and the outsiders.
3. Excludability of benefits - The benefits of using the GI tag can be restricted to the producers of that particular region.
4. Non-rivalry of benefits – Once the producers become part of a particular GI the benefits to which they are entitled are the same. One producer of a registered GI is not entitled to any additional benefits compared to another.

5. Clective responsibility - To prevent the free riding of GI tags all the producers should take collective action.
6. State involvement - The State's involvement in subsidising registration costs is common in many countries. In India, the Micro, Small and Medium Enterprises Office has a scheme for reimbursing a part of the cost involved in the registration process.
7. Tool for rural development - GI tags are often acknowledged as tools for rural development. They are linked to the cultural heritage of a region. This gives the image of public goods to the GI products.
8. Enforcement - The GIs are enforced through the TRIPS Agreement and bilateral agreement entered by the member countries.
9. Club goods Vs. Public goods - The primary distinction between club goods and public goods is that membership in the club is voluntary. The member chooses to become part of the club in anticipation of certain benefits from the club. In India, the members of a particular GI registration are its producers. The producers belonging to a particular geographical location which is demarked as GI territory are free to choose to enjoy the benefits of the GI tag.
10. Adoption of CoP - The GI registration requires formal standardisation of the product and the production method. The CoP adopted by the producers covers the materials, methods, and results. The CoP aims to ensure specific quality for the product consistently among the producers.

3.3.4 Difference Between Trademark and Geographical Indications as per TRIPS Agreement

Both trademarks and GI provide information about the product and its reputation. In more specific terms, trademarks represent the company that produces the product whereas GI represents the product's geographical origin. Unlike trademarks, GIs are collective marks and cannot be held by individuals. Hence GIs can be used by a multiplicity of producers who fulfil the requirements of GI regulations.

GIs are protected in different ways in different countries. In some countries, a separate law is enforced for the protection of GI which is the sui generis mode of protection, whereas some countries like the US have protected the GI as an extension of the Trademark Law.

3.3.5 Protection and Rights of Geographical Indications

The Article 22.2 of the TRIPS Agreement provides GI the legal protection against use by others. This means that persons other than those who are authorised cannot use the GI tag in a way that may mislead the consumers to believe that the goods originate from a particular place and have special qualities attributable to the place.

GIs can have protection from unfair trade practices. Normally free riding on the reputation of the GI is regarded as an unfair trade practice and is prohibited under the GI system.

The GI registration gives protection against its use as a trademark. The TRIPS Agreement mandates that there should be legal means that prevent the registration or invalidate the registration of a trademark in the name of an already existing GI. This is insisted because the registration of trademark in the name of an already registered GI can deceive the customers from believing that the goods originate from that place of origin and carries its uniqueness. This action of protecting the GI from becoming a deceiving trademark can be taken by competent public authority on its own.

3.3.6 Purpose / Benefits / Uses of Geographical Indications

The preamble of the EU Regulation on GIs mentions several arguments in favour of GI registrations like protection of producers from unfair competition and the consumers from forged goods, to bring rural area progress, bondage among producers, protection of environment and culture, and supply chain advantage. The interest among developing nations in the protection of GI is on account of the perceived economic and social benefits from it (Belletti et al., 2011).

3.3.6.1 Economic Benefits of Geographical Indications

GIs offer sustainable economic advantages to the producers. The economic gains of GIs are derived from the value addition that the product enjoys on account of

product differentiation and market exclusivity. The exclusive economic benefits of GI registration are explored in the following section.

1. **Price premium** – It refers to the price the buyers are willing to pay for GI tagged products which is over and above the price paid for similar products without GI (Gangjee, 2016). The premium price received by the products is a result of producer's investment in reputation costs such as, certification and control costs which a seller does to obtain the trust of the customers (Shapiro, 1983). The supply of products with GI is limited due to the restriction in the geographical area in which it can be produced, this can also be given as a reason for the price premium (Benavente, 2013). The use of GI tags can restrict the leakage of price premiums by ensuring that the GI tags are used only by the producers having legal eligibility to use them (Profeta et al., 2010).
2. **Increase in sales/demand** – Researchers have long noted a positive connection between demand and quality (*BarjolleDamarySchaer-2010*, n.d.) . With the help of the certification marks like GIs the producers are able to develop a niche market where they gain higher demand from quality-conscious customers (Gangjee, 2016).
3. **Boosts exports** – The GI tag acts as a marketing tool which can help in increasing the export of the products. The degree of recognition and appeal that GIs give the product in a global context might raise demand for it in the global market, which can enhance exports (Gangjee, 2016). Studies have revealed that the GI tag can enhance the export of agricultural products(Bansal & Singh, 2024). These exports can be further enhanced by improving the institutional support and infrastructure backing from the State.
4. **Removes information asymmetry** - Protection of GI can provide accurate information about the product's origin and the specific qualities the GI possesses on account of its origin from a particular location. The GI mark thus removes imperfect information (Benavente, 2013). Information asymmetry between the buyer and the seller is seen as a reason for market failure by many economists (Gangjee, 2016). The market distortions as a result of information asymmetry can be prevented by the GI tag (Bramley et al., n.d.). These indications act as a device for indicating the quality of the product thereby minimising the

information lopsidedness between the sellers and customers. Thus GI tags can convey the superior quality attribute of the product to the customers (Jena & Grote, 2012; Tregear et al., 2016).

5. **Reduces transaction cost** – Transaction costs are often costs incurred to initiate and close a contract. This comprises the costs incurred during various stages of trade like searching for information about the product, negotiations, bargaining, legal proceedings etc. The reduction in transaction costs is often the result of the collective organisation of producers (Gangjee, 2016). The use of GI as a branding tool can also reduce the transaction cost. The more a brand contributes towards the reduction of transaction cost the more the brand value associated with it can be increased (Bramley et al., n.d.). Another instance of reduction in transaction cost is the influence it can create over the market intermediaries. The GIs can increase the trust of the market intermediaries, this relationship of trust makes the process of negotiation between the producer and the market intermediary easier and the search cost for genuine products minimal (D. D. Barjolle & Thevenod-Mottet, 2002).
6. **Supply effect** - The geographical limitation brought by GI certification can limit the supply of products with GI tag which results in getting price premium, increased market value for land and local wages (Benavente, 2013).
7. **Increase in production** - In a study conducted by Suh and MacPherson on Boseong green tea, a GI from Korea, identified an increase in the production volume of the produce from 500 tons in 1997 to 1200 tons in 2005. The authors have attributed this increase in production to GI registration (Suh & MacPherson, 2007). The increase in demand for the product due to GI certification can promote the production to the maximum extent possible within the geographical constraint.
8. **Higher income to producers** - The GI tag provides legal protection to the local production of the rural people, which helps them to acquire additional rent. The GI help to gain entry into the niche markets which can provide the producers with higher incomes (Bramley et al., n.d.). The European Regulations have also mentioned that the GI can provide higher income to the farmers (Belletti et al.,

2011). The higher incomes to producers can be on account of price premium, increase in demand, entry to new markets etc.

9. **Access to new markets** - The GI products have some unique territorial attributes which results in getting the producers access to new markets (Bramley et al., n.d.). GI is an indication of higher quality which facilitates easier access to new markets (Cardoso et al., 2022).
10. **Boosts tourism** – GI tagged products can attract tourists to the region, providing a boost to local economies. The GI received for foodstuff can bring in tourism prospects known as culinary tourism (Gangjee, 2016). The practice of participating in festive events by the producers of GI-tagged products can also boost tourism (Ollagnon & Touzard, n.d.) . The GI registrations are seen to contribute towards various aspects of tourism such as tourist routes, festivals, community events etc(Belletti et al., 2011).
11. **Supply chain advantage** - The use of GI tags can facilitate the emergence of relationships along the supply chain. This relationship further boosts the economic well-being of the GI producers (Tregear et al., 2016). The GIs, being a collective IPR, provide countervailing power, which in turn improves the ability to bargain among the small-scale producers in the value chain. The collective power of the producers if properly utilised can improve their position against exploitation. GIs can also enhance positive developments in the vertical integration of supply chains as these signs provide efficient information and communication (Cardoso et al., 2022; Quiñones-Ruiz et al., 2015).
12. **Cost of production** - For getting GI registration in India it is mandatory to have a Code of Practice (CoP). This CoP is documented and specifies the methodology adopted in the production of the GI product which gives it a unique quality. The CoP may be linked to the process of production, packaging, labelling etc.(Belletti et al., 2011). The adoption of CoP as a part of the GI registration may increase the production cost (Hauser, S. 1997).
13. **Product differentiation** - GI also acts as product differentiation instrument. Product differentiation is a standard approach to the process of creating economic value that is well-known in marketing. It focuses on pricing the product in a niche market because the product has a distinct quality that sets it

apart from the standard product. In GIs, the product quality is a result of the standard production process that is followed by the producers and the environmental conditions in the place of origin of the product (Gangjee, 2016). The territorial origin acts as a strategic tool for GI products in indicating product differentiation (Bramley et al., n.d.).

14. **Quality assurance** - GI registration assures quality as the product must meet certain standards to be eligible for the designation. It can provide better indication of the quality of the product as it is a State regulated quality sign. The unified CoP adopted by the producers ensures a minimum level of quality for the products with GI tags (Benavente, 2013).
15. **Legal protection** - GI registration gives legal protection to the product, making it difficult for others to use the same name for their products. The GI registration provides legal protection to products having territorial linkage and prevents misappropriation of benefits (Bramley et al., n.d.).
16. **Unique identity** - A GI tag gives a unique identity to the product, linking it to its place of origin and helping to distinguish it from similar products. The production of agricultural produce at an industrial scale led to the commodification and standardisation of products which enabled the availability of agricultural produce far and wide throughout the year. However, it did not preserve the uniqueness of the product. GI-registered products have unique qualities due to the geographical and climatic conditions in which it is grown (Hughes, 2012).
17. **Increased market value** – GI tagged products are considered premium products and command a higher price, increasing the value of the product and the income of the local producers (D. D. Barjolle & Thevenod-Mottet, 2002). The increase in the market value of the product and the ensuing price premium are the outcomes of institutionalising the reputation through GI registration (Bramley & Kirsten, 2007).
18. **Pricing freedom** - GI registration can provide the producers the advantage of a niche market. The difference between the commodity market and niche market lies in the fact that the later provides the power of price makers rather than being price takers. Thus GI status can open the possibility of the creation of a niche

market for the producers which empowers them to fix the price of their produce (Bramley & Kirsten, 2007).

19. **Protects against free riding by competitors** – The two key contributors to the creation of economic value to the product at the producer level are product attributes and IPRs. The producers' and sellers' efforts might be in vain if there are no IPRs. In the absence of IPR the producers may have to face product equivalence/similarity claims made by the rival companies, or even occasionally false claims (parasitism) made by those looking for profit without justification (Gangjee, 2016). The GI tag can provide protection from such act of free riding by the competitors.
20. **Protection from unfair competition** - GI facilitates the differentiation of the products from competitors, this can help in reducing unfair competition. Moreover, GI registrations provide legal protection to the producers from imitation and misuse (D. D. Barjolle & Thevenod-Mottet, 2002).
21. **Protection from imitation risk** - GI registrations can give protection from imitation risks (D. D. Barjolle & Thevenod-Mottet, 2002). They help in protecting the economic interest of the producers by saving it from phony products (Belletti et al., 2011).

3.3.6.2 Social Benefits of Geographical Indications

GIs are unlike any other IPRs which are registered for the benefit of a particular person or an individual company. GI registrations often uphold the principle of community development. Normally, the IPRs are not expected to have any socially desirable values. The uniqueness of GIs is that it is a collective property and is expected to provide social benefits along with economic benefits to an entire community. Usually, in the case of an economic impact assessment the benefits relating to social and environmental wellbeing are often considered as unintended but it is not in the case of GIs. Social and environmental benefits are equally important motives for GI registrations (Belletti et al., 2011). The social benefits expected on account of GI registrations are described as follows.

1. **Increase in the fame of the product** – GIs acts like a brand name which customers can easily recognise. This facilitates an enhancement of the product's popularity (D. D. Barjolle & Thevenod-Mottet, 2002).
2. **Increase in cooperation among the producers** – GI, unlike trademark, is a collective mark and cannot be employed individually. The process of GI registration can bring together the highly fragmented producer group which can facilitate cooperation among the producers (Gangjee, 2016).
3. **Strategic alliance** - The producer's association formed for GI registration can be considered a 'strategic alliance' between the producers which can facilitate the coordination of production and sales. For the efficiency of the Association, trust among the participants of the Association is very crucial (Gangjee, 2016).
4. **Bargaining power over market intermediaries** - In a marketplace with a high concentration of retailers' frequent instances of abuses are faced by the producers from the retailers. GI being a collective mark can increase the cooperation among the producers which increases their collective power. In this scenario having a legally valid GI protection can facilitate higher bargaining power to the producers (Gangjee, 2016).
5. **Improve rural livelihood** - The GIs not only highlight and defend the origin of the product but also the people and the process behind the product (Gangjee, 2016). GI tag has the potential to improve rural livelihoods which results in rural development (Bramley et al., n.d.).
6. **Protection of the name from becoming generic** - The GI registrations protect the name of the product from becoming generic (Gangjee, 2017). The registration of GIs restricts corporates or other firms from registering it as a trademark (Agarwal & Barone, n.d.). Thus, registration of GIs can prevent the name from being used for representing unrelated products, which can cause the product name to become generic.
7. **Environmental protection** - The GI tag can positively influence environmental protection. The producers of GI products often practice environmentally friendly and sustainable agricultural techniques. These producers are found to follow traditional farming methods which helps in environmental conservation (Belletti

et al., 2015). There are environmental factors which are external to and the reward for which are not received from trade. They are the protection of landscape and biodiversity. GIs are often represented as tools for sustainable development.

8. **Promotes cultural heritage** - GI registration helps to preserve traditional products and the cultural heritage of its place of origin. Increased protection of cultural heritage is seen in cases where collective management is efficient (Gangjee, 2016) (*Modules4_e.Pdf*, n.d.).
9. **Defends traditional knowledge** - A successful GI-based marketing promotes the protection and promotion of traditional knowledge involved in the GI. When GI protection is attached to goods, it extends to the traditional knowledge attached with that goods (Dagne, 2010; Hughes, 2012). The GI protection can result in territorial development, biodiversity preservation and cultural heritage recognition. It can preserve the local know-how against globalisation (Gangjee, 2016). The traditional knowledge accumulated over centuries related to the production of a particular GI can be preserved through GI registration (Albayrak et al., 2012). The CoP provided at the time of GI registration can facilitate the official documentation of the process, which can be preserved for future generations.
10. **Allied job opportunities** - Generation of direct and indirect employment opportunities in the region is often highlighted as one of the significant socio-economic importance of GI. (Medeiros et al., 2016) (Gangjee, 2016) (Ollagnon & Touzard, n.d.) (Belletti et al., 2011).
11. **Valorisation effect** - Social effects of GI adoption include an increase in ‘social cohesion and inclusion’ as well as a ‘sense of pride and identity’ in the minds of GI producers (Gangjee, 2016).
12. **Slows down rural exodus** - GIs are by far seen as tools for rural development, many researchers from the EU have recognised this advantage. These researches suggest that developing nations should embrace the concept of GI for achieving the rural development (Bramley et al., n.d.). As per the goals of the European Regulations the GIs can help in retaining the rural population in their place of origin (Belletti et al., 2011). By protecting GIs, sustainable rural development

can be achieved which can increase the settlements in rural areas(Dogan & Gokovali, 2012).

13. **Economic spillovers** – Registered GIs may provide economic spillover effects on other products from the area (Carbone et al., 2014).
14. **Protection of indigenous plant varieties** – The core of GI is the protection of uniqueness. The GIs are capable of protecting unique plant varieties, thereby preventing the loss of biological diversity (Dagne, 2015). The GIs conferred on specific agricultural products can help to protect unique habitat and species(De Rosa, 2015).
15. **Territorial marketing** - The GIs from a particular location increase the territorial marketing of the area too. The GIs often bring positive effects on the place from where it takes its name. The place can become famous over time which can further contribute towards tourism development (Carbone et al., 2014). The place from where the GI originates can receive greater visibility (Medeiros et al., 2016).

3.3.7 Challenges in the Use of Geographical Indications

Despite the numerous socio-economic benefits of GI their successful utilisations are restricted by various factors. The multi-dimensional challenges in the use of GI involve procedural, institutional and legal constraints. The understanding of the challenges in the use of GI is essential to formulate effective strategies for the governance and utilisation of GI.

1. **Stringent registration procedures** - The registration procedure for getting a GI tag is tedious involving a lot of paperwork. The need for proving the authenticity and uniqueness of the product requires the procurement, verification, and certification of old documents. Negotiations of acceptable production techniques, demarcation of geographical boundaries of regions and informing the consumers about the geographical boundaries are tiresome procedures (Gangjee, 2016).
2. **Cost of registration** - The GI registration process can be time-consuming and expensive, making it difficult for small producers and businesses to participate (Gangjee, 2016).

3. **Bureaucracy** - The GI registration process can be complex and involve multiple government agencies, leading to delays and difficulties in implementation. Bureaucracy can hinder the participation of the producers by burdening the process of GI registration and taking too much time for implementation (Cardoso et al., 2022).
4. **Disputes over geographical boundaries** - There may be disputes over the geographical boundaries of a particular GI product, making it difficult to determine who is eligible to use the designation. This geographical demarcation is the basis for the determination of ‘insiders’ and ‘outsiders’ in GI tag usage. The producer groups that are already strong may have the upper hand in deciding the GI region (Belletti et al., 2011). “Imperfect excludability and partial rivalry” occur when the GI implementation is not executed reasonably (Benavente, 2013). The efforts of non-local producers are not recognised who may also be the producers of the origin-labelled product (Bramley et al., n.d.). The demarcation of the geographical area of a registered GI should be based on classical geography and not based on administrative boundaries i.e. based on municipalities, departments, regions etc. in order to include all eligible producers (D. D. Barjolle & Thevenod-Mottet, 2002).
5. **Legal enforcement** - Even after obtaining a GI registration, enforcement of the legal protection provided by the registration can be a challenge. The procedural formalities in raising a legal dispute can be complex, which can result in producers refraining from taking legal action in the event of breach of the Act.
6. **Infringement** - There may be instances of infringement of GI rights making it difficult for producers to protect their products from unauthorized use.
7. **Lack of technical knowledge regarding GI protection implementation** – There exists a lack of technical knowledge regarding how the protection of GI can be ensured. There is a need for an institutional framework for the effective protection of GI (Belletti et al., 2011).
8. **Issues with product differentiation** - GI can provide product differentiation benefit to a product, from that produced elsewhere, but it does not differentiate the products produced within the geographical boundaries. This induces conflict among the producers of the product within the geographical zone (Agarwal &

Barone, n.d.). The producers' association should develop a sense of cohesion among the producers, otherwise the competition and rivalry among the GI producers can increase as the market develops.

9. **Issues with Code of Practice** - The success of the implementation of the standardised CoP is linked to the economic benefit that the producers who adopt it can receive (Gangjee, 2016). There may be producers who dilute the CoP by lowering the quality which can result in the dilution of GI and bring rivalry among the registered producers, this is termed as 'insider free riding' (Benavente, 2013). There may be producers who get excluded from the use of GI tags due to their inability to meet the standard CoP (Belletti et al., 2011). The extremely strict rules to comply with CoP may result in the exclusion of less efficient producers.
10. **Exploitation by market intermediaries** – The producers face instances where the market intermediaries exploit them. There are research reports which have revealed that the market intermediaries have reduced the strength of the producers in the market (Anson & Pavithran, 2014).
11. **Lack of awareness** - Many producers and consumers may not be aware of GIs and the benefits they provide, leading to a lack of participation in the GI registration process. This is particularly more in the case of the small vulnerable producer groups (Belletti et al., 2011). This lack of awareness about the GIs often results in the exploitation of the producers by larger players in the supply chain (Bowen, 2010). The lack of awareness of the producers affects the management and utilisation of GI in many ways. The producers may not understand how the GI works as well as the benefits that they can reap by using the GI tag. Low awareness about GI among the producers is one of the prominent reasons for the failure of the GI system (Cardoso et al., 2022)
12. **Cost of GI adoption** - The adoption of GI can result in additional costs for preparing packages and labels for the product. The cost incurred during the adoption of the unified CoP should be compensated with a price premium otherwise the producers cannot find it motivating enough to take the long route. The logic of reduction of production cost cannot be adopted here as the production has to be according to the CoP and in the place of origin (Gangjee,

- 2016). The introduction of GI cannot allow the producers to adopt new technology which can inhibit the reduction of production costs (Cardoso et al., 2022)
13. **Lack of international recognition** - Some countries may not recognize GIs from other countries, making it difficult for the producers to export their products to those markets by leveraging the benefit of GI. (*Modules4_e. Pdf*, n.d.) (Belletti et al., 2011) (Benavente, 2013) (Bramley et al., n.d.) (D. D. Barjolle & Thevenod-Mottet, 2002).
 14. **Lack of cooperation among the producers** - The producers who are members of the Association may have contradictory opinions which may lower the decision-making efficiency of the Association. This is often because the members of the Association often compete with each other within the same supply chain (Gangjee, 2016). Researchers in the field of GI believe that there should be coordination and collective organisation among the local actors to get positive outcomes from the GI registrations. The organisation (collective group of producers/ cooperative societies) has a prominent share in the governance and success of the registered GI (D. D. Barjolle & Thevenod-Mottet, 2002). GI, being a collective reputation, often become a common property resource. There is no assurance that all the producers ensure the same quality standards for the product, but all of them can make use of the GI identification (Benavente, 2013). For the successful implementation of GIs interaction and cooperation among the producers are inevitable (Cardoso et al., 2022).
 15. **Over-exploitation of resources** – The popularity of GI can result in the over exploitation of resources from a particular region. This can be because the uniqueness of the product can be on account of origin from that region. Here resources refer to aspects such as different varieties of species, landscape, production techniques adopted by the people to produce a particular product, the environment of the place and the culture practised in that particular region (Bramley et al., n.d.) (Belletti et al., 2011).
 16. **Risk of GI becoming a generic name** - Some researchers have pointed out that the chances of GI becoming a generic name are high in some cases where the market penetration of the product is high. The high visibility of these products

can result in the over usage of the name which results in the name becoming generic.

17. **Counterfeit products emerging from adjacent zones** – The emergence of counterfeit products from outside the production zone which does not comply with the standard CoP can damage the reputation of the GI product. Counterfeit products can result in income and market losses to genuine GI producers (Cardoso et al., 2022).
18. **Intrusion** - Once the GI branding become successful there can be an issue of new entrants entering the demarked geographical area to take advantage of the success of the GI brand (Agarwal & Barone, n.d.). As the production method of GI products can be replicated it may result in outsiders producing similar products and passing it off as ‘kind’, ‘type’, ‘style’ or even as imitation of GI products among the customers (Benavente, 2013).
19. **No standardised specification for product quality** - The definition of GI is globally heterogeneous. There is no standardised norm for the protection of GI around the world which is not the case with other form of IPRs (Belletti et al., 2011). The TRIPS Agreement also does not require any minimum standard for the products being produced under the GI tag. It only mentions that the quality of the product should be on account of its production from a particular geographical location (Benavente, 2013).
20. **Role of inspection body** - The success of GI as a marketing tool highly depends on whether there is a system or institution to ensure the localisation of the product and compliance with the CoP (Bramley et al., n.d.). Even though in India it is mandatory to have an inspection body for getting the GI registration, the functioning of the inspection system is not ensured inorder to confirm the quality of the product and compliance with the CoP among the producers. The weak institutional context can question the quality and reputation of the GI(Bramley, n.d.).
21. **No standardised law** - Products with unique qualities due to regional influence can be protected through GI registration as per the TRIPS Agreement. The drawback of GI registration is that the Law which enforces its protection is not uniform throughout the world (Hughes, 2012).

22. **Role of the State** – The State has a very important role in developing framework for protecting GI. The interest of the State can be either economic (protection of the market) or political (protection of culture and heritage) (Belletti et al., 2011). In India the role of the State is at its primary level, that is, the State needs to collaborate with other State agencies and even those from the private sector so that a functional GI framework can be established. Lack of incentives and support from the Government is mentioned by many researchers as hitches in the use of GI (Conneely & Mahon, 2015).

3.3.8 Role of Producers' Association in Managing Geographical Indications

The role of the producers' association is important when it comes to managing the GI registrations. GIs are collective IPR which makes it impossible for individuals to own it. GIs can kindle collective action among the producers as it is the only means by which the benefits of GI tag can be reaped.

Worldwide there are two forms of GI management, one being State-driven and another producer group-driven, both these styles can be found in India. Studies have found that the State-driven GIs lack the representation and participation of the producers of the GIs whereas producer group-driven GIs are more inclusive and ensure the involvement of the producers during the decision-making process. When it comes to understanding GIs, there is a lower level of awareness among the producers about GI in the State-driven system than in the producer-driven approach. This lack of awareness makes it hard to completely utilise the benefits of GI (Pick & Marie-Vivien, 2021).

Collective organisations can help in the management of GIs by organising the production systems, spreading awareness, managing registrations and other activities of the producer group (Belletti et al., n.d.). The producer's association can play an active role during the registration process by specifying the geographical boundaries and the CoP. Researchers have pointed out the need for early collective action for the success of GIs, hence the activities of the producers' association should start well before the registration of GI (Quiñones-Ruiz et al., 2015).

The collective action by the producers' association can protect the interest of small producers and improve their bargaining power in the value chain. This

collective involvement of communities through the producers' association for the management of GI often empowers the producers (Hoang & Nguyen, 2020).

The GI registrations can also bring about positive changes in the Association like improved interrelations, enhanced trust, and shared value among members. The success of the collective action depends on good internal governance. For virtuous internal governance, there should be strong leadership support, the members of the organisation should have a collective vision and the overall organisational functioning should be fair and democratic. Moreover, the Association should have a collective vision (Tregear et al., 2016). The collective action can also help the members gain market information, and market trust and strengthen the networks. The producers' association can thus enhance the ability of the producers to organise and coordinate the management of the GI system (De Rosa, 2015).

3.4 THEORIES RELATED TO GEOGRAPHICAL INDICATIONS

The following section explains the socio-economic theories which elucidate the characteristics of GI.

3.4.1 Theories Integrating Culture and Economics

The intersection of culture and economics has garnered increasing scholarly attention, leading to the emergence of interdisciplinary frameworks that examine how cultural factors influence economic behaviour.

1. Theory of Cultural Economy

The theory of cultural economy deals with the cultural aspects of an economic activity. This theory supports the economic prominence of a place through its cultural identity. The cultural economics emphasise that products which have cultural significance have intrinsic value which adds to its market value. These products attract added values on account of its linkage with the local resources and skills.

2. Theory of Embeddedness

The theory of embeddedness signifies the relationship between culture, especially the social structure, and economics. According to this theory the economic activities are not fully auto regulated but influenced by social relationships and

cultural norms. The economic decisions are influenced by the social networks which are based on trust, tradition and reputation.

3. Theories integrating Culture and Economics in the Context of GI

The socio-economic and cultural dimension of GI can be explained with the support of the above theories. These theories uphold the dual role of GIs as economic instruments and cultural assets. The theory of cultural economics states that the GIs are not mere branding labels, they carry the cultural heritage which are rooted to their locality. The theory of embeddedness explains the significance of institutional structures and social relations in GI. GIs are based on community-based knowledge that are practised by a group of producers. The cooperation and trust between the producers decide the success of the GI. These theories reveal that the success of GI products are based on the preservation of culture and the network strength of the producers.

3.4.2 Quality Theories

Quality theories provide systematic frameworks to assess, manage, and enhance value from different perspectives.

1. Juran's Trilogy

This framework was proposed by Dr Joseph M Juran to manage quality. It is also called the Quality Management Trilogy. The theory states that quality management revolves around three processes, which are, quality planning, control and improvement. The theory states that quality management is a close interplay of the above-mentioned three processes.

2. Crosby's Zero Defects

According to this theory, proposed by Philip B Crosby, quality is the confirmation of the requirements already specified and any deviation from the specifications cannot be accepted as it leads to defects. Crosby's zero defects motivate the producers to achieve a high level of quality by sticking to the specified quality requirements.

3. Quality Theories in the Context of GI

The two theories stated above are related to GI as these are marks which represent the quality and authenticity of products. Quality planning, quality control and quality improvements can be related to GIs. Quality planning relates to defining standards and specifications during the production process. GI systems are quality control mechanisms as there is registered CoP which ensures that the GIs carry the quality promised. The GI system also has an inspection body which confirms that the production process follows the CoP which is also an essential part of the quality improvement component. The producers of GI products are expected to comply with the CoP registered at the time of registration in order to ensure the quality standards of the product.

3.4.3 Theories on Information Search Cost

An understanding of information search cost through transaction cost theory is critical for analysing policy interventions aimed at reducing information asymmetry.

1. Transaction Cost Theory

Transaction cost theory was developed by Nobel laureate Ronald Coase and the theory was further developed by Oliver Williamson. The theory revolves around the transaction between individuals, firms, and organisations. It explains and predicts how firms organise and govern transaction to minimize the costs of exchanging goods or services. Transaction cost theory addresses variety of costs such as search and information cost, this cost is related to finding the right market intermediaries. Other costs related to transaction costs are bargaining and negotiation cost as well as monitoring and enforcement costs, both these costs are associated to entering contracts with market intermediaries.

Transaction cost covers a variety of aspects such as information on quality, the price and available quantity of product, conditions of sale, bilateral negotiation between the buyer and seller, and legal cost (reduces the legal cost during the happening of a dispute).

2. Transaction Cost Theory in the context of GI

Various researches states that GI tags can reduce transaction costs. GI tags can remove uncertainty in the minds of the market intermediaries about the product quality. GI tags confirm that the product follows a standardised CoP and maintains unique qualities. This assurance can save time by reducing the need for daily negotiations with intermediaries and by helping in entering long-term contract. Transaction cost in this case is reduced by taking advantage of the relationship of trust.

Eliminating or reducing transaction costs can result in saving time spent for negotiations with the market intermediaries and resolving the problems related to the execution of the contract.

The organisation that governs the GI-tagged products like cooperative societies, trusts, boards etc also plays an important role in reducing the transaction cost, these organisations allow the producers to act in the market as a ‘single company’ within a territory (D. D. Barjolle & Thevenod-Mottet, 2002).

3.4.4 Theory on Development Economics - Structuralist Theory

The structuralist theory focuses on the internal structure of the economies and acknowledges the role of the policy framework, institutions, and markets in the development process. This theory was developed by Raul Prebisch and Celso Furtado. Hans Singer a German British economist also assisted in the development of this theory.

The structuralist theory examines the structural characteristics of the economy and how the economy is affected by these structures. The theory proposes that the development process of an economy is affected by the industrial composition and social institutions existing in the economy. These economists opine that developing economies exhibit a dualistic nature and that such economies support both modern and traditional sectors. Unlike neo-classical theorists who advocate minimal intervention on the part of the Government, structuralist theorists recognise role of the Government in economic development. Structuralist theory mentions that government policies should be proactive and should address the instances of market failures and promote

industrialisation. The theory further states the importance of developing local industries for achieving economic development and removing regional disparities.

i. Structuralist Theory in the Context of Geographical Indications

The importance of developing GIs is related to Structuralist theory as it emphasises development of domestic industries. GIs help to develop the domestic industries and local producers. GI products can further help in removing regional disparities and bring rural development as most of them are produced in the rural areas. By promoting GIs, the developing countries can diversify their exports. In India, the State is involved in the development and promotion of GIs by allocating funds in the budget and hosting fairs for promoting GIs, the Structuralist theory acknowledges the intervention from the part of the State for the development of local industries.

3.4.5 Community-led Rural Development Theory

This theory is also known as the Murray Model. The theory was developed by Michael Murray during the 1980s. The core of this theory is about the local communities in the rural areas taking initiative for their development. The main features of this theory are community empowerment, bottom-up approach, asset-based development, capacity building and holistic development. Murray believed that sustainable rural development is possible only when the rural communities can identify their needs, set development priorities and participate in the decision-making process. Community-led rural development theory recommends a bottom-up approach where the local communities stand for themselves. Here the assets that result in development are local knowledge, traditions, and social networks. This means the capital involved is human, natural, social, and cultural.

i. Community-led Rural Development Theory in the Context of Geographical Indications

This theory is very close to GI as it emphasises the role of the community in rural development. GIs are collective marks which are conferred on the products originating from a particular region and the uniqueness of the product is on account of its origin. The producer group who are the residents of that place are among the primary beneficiaries of the GI tag. If the producer group can stand up for themselves

or once the producer group becomes self-reliant in managing GI, the whole region engaged in the GI production can achieve development. GIs are often seen as an IPR that can promote culture, indigenous knowledge, and rural development. The GI protects the producers' local knowledge and the associated skills. In India, most of the GIs are from rural areas and are practised by people holding to their traditional values and methods of production. Hence GI can act as a tool for community led rural development.

3.4.6 Territorial Dynamics of Geographical Indications

The economic consequence of limiting the geographical location and standardisation is often discussed in many studies to understand the impact of GI registrations. The territorial impact can be defined as all the positive and/or negative effects which are produced by an initiative on its territory (Marguerite & Sophie, 2010). The below mentioned are some of the drawbacks relating to limiting the territorial spread of eligible geographical location of GI.

Restricting the territory disqualifies the producers who are on the fringes of the demarked area from the merits of the GI registration even though the products produced by them are no less quality-wise when compared to the products manufactured within the demarked area (D. D. Barjolle & Thevenod-Mottet, 2002). One of the prerequisites for getting GI registration is limiting the production location of the product. The limiting of geographical location can reduce the further expansion of the business as it cannot move away from the specified location, this may also lead to an increase in transportation cost, rent in that location, decreased production volume, and difficulty in meeting the demand (Erik, 2002).

Even though territorial restrictions have many drawbacks the geographic specification of the area of production of a particular GI is very important. This is because the uniqueness of the product is an outcome of the environmental factors especially in the case of agricultural products. Hence the geographical location where the environmental benefits are ideal needs to be marked. The negative effect of geographical delimitation can be reduced by preparing the geographical map documented at the time of GI registration by including all eligible producers.

3.5 GEOGRAPHICAL INDICATIONS IMPACT EVALUATION CONCEPTS, MEASURES AND METHODS

The following section explains the concept of impact assessment, the different type of impact assessment and the measurements suitable for the impact assessment of GIs.

3.5.1 Meaning of Evaluation

The goal of evaluation is to pinpoint the relationships between a policy intervention and the changes to the policy object as well as the environment in which the policy is implemented. Evaluation aims to measure how far the policy has been successful in meeting its objectives and to detect any unintentional outcomes from the policy (Belletti et al., 2011).

3.5.2 Definitions on Impact Assessment of Geographical Indications

According to Barjolle “impacts are observed effects of a Geographical Indication system or protection scheme in three dimensions of the sustainable development such as economic, social and environmental”(D. Barjolle et al., n.d.). “Impacts are positive or negative, intended, or unintended, primary, or secondary, short-term, or long-term effects of stimuli. The impacts can be various like social, economic, cultural, institutional, environmental or technological.”(Belletti et al., 2011).

The effect of the implementation of GI on the economic and social development and protection of culture and environment which leads to the development of the territorial jurisdiction of the GI is often viewed as the impact of GI (Belletti et al., 2011).

Impact assessments are conducted before or after the program or policy is implemented. The ex-antae approach evaluates the impact of the policy before its implementation and the ex-post approach evaluates the impact after the program is implemented. Ex-post impact assessment is the method of assessing the benefit reaped by the beneficiaries on account of the policy implementation.

3.5.3 Meaning of Impact Evaluation

An impact evaluation evaluates how much a programme has influenced the intended audience in the expected ways. It is concerned with the overall effects of an intervention, solely related to that intervention, on households and institutions. Assessing results and, consequently, the short- or medium-term developmental change brought about by an intervention constitutes impact evaluation (Belletti et al., 2011). The policies and programs designed for implementation may seem to be promising before the implementation but may not bring the expected results. Effective impact evaluation is therefore necessary to find whether the desired results are realised from the program being implemented (Thomas, n.d.).

In the present study, the focal point of analysis pertains to the GI Protection scheme as the program intervention. The impact assessment undertaken examines the consequences brought forth by the intervention upon the producers of the initiative.

3.5.4 Quantitative and Qualitative Impact Evaluation Methods

Impact evaluation in most cases is done using quantitative data. A qualitative approach to impact evaluation can add to the quality of the results. A better understanding of the results of the quantitative impact evaluation can be attained by qualitative impact evaluation approach by revealing the cause-and-effect relationship of the interaction variables (Ezemenari et al., n.d.). Combining the quantitative and qualitative impact assessment methods can provide a broader depiction of the impact of the program or intervention being evaluated with an explanation as to the reason for the quantitative findings (Belletti et al., 2011).

3.5.5 Methods of Impact Assessment

Impacts can be defined as both negative and positive, intended and unintended, and primary and secondary effects often long-term term which can be economic, social, cultural or environmental (Belletti et al., 2011). In this research, the impact of GI registration is evaluated. The impact evaluation is largely specific to the territorial impact of GI registration. The territorial impact evaluates the economic impact of GI on the producers of the GI-tagged product and the social impact on the territory in which the GI is confined.

According to Cambridge Dictionary, Economic impact is referred to as the financial effect that something has on a situation. The economic impact of GI refers to the influence that GI registrations and its use have on the economic conditions of the stakeholders. In the present research the economic impact from the perspective of the producers is examined.

According to International Association for Impact Assessment, Social impact includes the processes of analysing the intended and unintended social consequences of planned interventions and the social change processed, raised by those interventions. The social impact in this research is assessed to understand the influence of GI on the social structure, relationships, development, access to resources etc.

Usually, the impact is measured in the objective method by measuring the income, employment, volume, industrial concentration, and investment differentials using the diachronic method. Objective studies are valuable as they have statistical significance because they are based on hard data. But in those areas where the availability of hard data is limited the study relating to the assessment of effectiveness can be done on a subjective basis. When it comes to measuring the territorial impact, it is ideal to use a mix of objective and subjective measurements as an objective measurement only cannot be in a position to measure a large number of complex variables.

Some of the variables identified by researchers to assess economic, social and environmental effects are:

- i. Economic Variables – the creation of added value, premium to the producer, market access, economics of fragile rural areas, maintenance of processing and trade tools in marginal areas, and tourism economy.
- ii. Social and Environmental Variables – typicality, confidence in food, healthy eating, landscape aesthetics, identity, integration of farmers, skills, sources of income, control of inputs, biodiversity, ecological awareness, protection of local species, maintenance of difficult spaces, and transportation (Marguerite & Sophie, 2010).

A. Objective Method

The objective method evaluates the impact of a particular phenomenon by assessing the impact differential between two states.

The differential can be the impact assessment for two different periods for the same product or the impact assessment of the same phenomenon on different products with similar characteristics.

The first approach is the diachronic approach where the impact of geographical indication is assessed by comparing the situations before the GI registration and after the GI registration.

The second approach is the synchronic approach where the impact of geographical indication is assessed by comparing a product with GI registration with a similar product which does not have GI registration.

In the synchronic method, the measurement is done by comparing the indicators that can be directly measured on a quantitative basis like the volume of sales, prices and number of employees.

B. Subjective Method

This method evaluates the impact by measuring the level of recognition of the positive and negative effects of the initiative. This can facilitate the measurement of a large number of indicators and the convergence and divergence in the opinion about the impact of the GI system.

For the evaluation of the effect of GI, the identification of a relevant set of indicators is necessary. Indicators are the variables that are needed to be processed to get information (Belletti et al., 2011).

Not all criteria relating to impact measurement can be done directly (objective method) it is due to this limitation that a subjective method of impact evaluation is developed. The subjective method allows for the measurement of numerous impact indicators. The studies conducted in the subjective method provide 'subjective quantitative data'. The subjective method of impact evaluation of GI helps to measure the stakeholders' opinion on the effects of GI (Belletti et al., 2011).

In the subjective evaluation of GI, the following issues are to be addressed. The subjective issues include, procedures adopted for the implementation of the GI system like, the CoP, the organisation system formed, the reason for the adaptation of the GI system, the problems faced during the adaptation of GI system, new opportunities explored in marketing the GI tagged products and the things that are lacking which restricts the exploitation of the GI to the fullest.

a. Participatory Vs. Conventional Method of Impact Evaluation

The participatory method of impact evaluation is based on the inputs received from the stakeholders or groups involved in a particular policy. In conventional evaluation methods, the opinion of the stakeholders is given little importance and the evaluation is purely based on the input received from the experts in the area. The participatory evaluation is based on the perception, perspectives, priorities and needs of the stakeholders, this method helps in understanding and assessing the positive and negative effects of the policy being evaluated.

b. Benefits of Participatory Method of Impact Evaluation over Conventional Method

In participatory impact evaluation, it is the community members and the facilitators who participate in the evaluation process. It is a form of self-evaluation where the community members respond to a set of indicators that they can identify as an outcome of the policy being implemented. The conventional method of impact evaluation is complex, uniform, delayed and the results of which are inaccessible to the stakeholders. Where as in participatory evaluation the stakeholders get full involvement in the evaluation process and hence there is immediate sharing of results. This makes the stakeholders more empowered and gives them a better understanding of the effectiveness of the project in which they are participating. (Belletti et al., 2011)

3.5.6 Impact Evaluation of Geographical Indications – Different Perspectives

Belletti et al have recommended the following three stage perspective for the impact assessment of GI (Belletti et al., 2011).

1. **Territorial Perspective** – In this outlook, the impact of GI is assessed at the National, Regional, Local/Community level.

2. **Sector/ Type of Activity Perspective** – In this viewpoint the impact of GI on different sectors like agriculture, processing, trade and commerce, retail etc are analysed.
3. **Territorial Capital View** - In this scenario the impact evaluation of GI is done in different segments such as economic capital, social capital, environmental capital and cultural capital.

Some researchers point out that the impact evaluation can be carried out on unintended outcomes of a particular intervention, it need not necessarily be confined to the direct and indirect outcomes of the intervention.

By choosing specific perspectives the researchers can orient their research to specific issues.

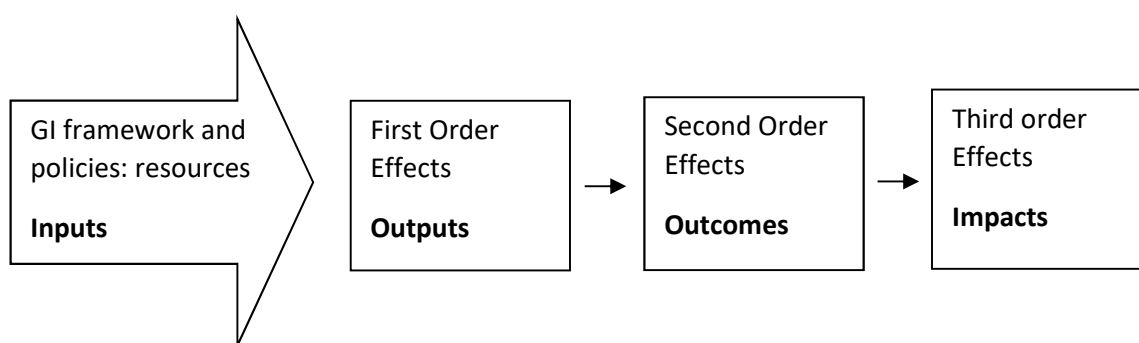
3.5.7 Three-Stage Evaluation - Output, Outcomes and Impacts

The three stage evaluation as per (Belletti et al., 2011) involves the first order, second order and third order assessment of GI.

1. **First Order Effects/ Output** – It refers to the first and immediate results of the project being implemented in this research it is GI registration. Here the measurement of the level of participation in the project is assessed. Participation in the GI registration is the outcome of the perceived benefit of the GI registration.
2. **Second-order Effects / Outcomes** – It is the direct and immediate effects of a policy being implemented, on the beneficiaries. The outcomes can be individualistic or collective depending on the policy being implemented. The second-order effects measure the economic benefits of the project being implemented.
3. **Third-order Effects / Impacts** – This refers to the significance of the project that goes beyond the direct consequence on the beneficiaries. The impact evaluations are much wider in nature and cover the social, economic, cultural and environmental dimensions. In the case of the impact evaluation of the GI system, the effects on the social and environmental factors due to the adoption of GI is measured. It also measures the economic effects both internal and external as a result of the adaptation of the GI system.(Belletti et al., 2011)

Figure 3.1

Three Stage Evolution – Output, Outcome, and Impact



Source: Adopted from (Belletti et al., 2011)

I. Evaluation of First-Order Effects of Geographical Indications Registration

The evaluation of first order effect of GI involves, diffusion of GI scheme, number of AU registrations, producers' awareness and compliance with CoP.

- a. *Diffusion of GI scheme* – Here the number of applications for GI registration and GI registrations in a country since its implementation is recorded and analysed. This also includes the GI registration of domestic products in other countries. The number of GI registrations in India can be compared with other countries with GI registrations. The number of GIs that have registered in other countries can also be analysed.
- b. *Number of Authorised Users* – ‘Authorised users’ are the persons who have the right to use the GI tag on their own. In India as per the Geographical Indications Registration Act, the stakeholders can register themselves as the ‘authorised users’ by filing the application with the GI registry and remitting the requisite fees. The number of GI-authorised user registrations for products can be taken as evaluation criteria for assessing the first-order effect of GI registration.
- c. *Producer Awareness* – The awareness level of producers regarding the meaning of GI, GI logo, GI registration, use of GI, rights of GI users, the requirements to be satisfied by registered producers, the difference with other IPR, the costs and benefits of GI registration, etc can be measured for evaluating the effect of GI registration.

- d. *Compliance with the CoP* -The number of registered producers who are complying with the CoP can also act as the measurement for the evaluation of the first-order effect of GI registration. The effect of the condition to have a uniform CoP for GI registration is to be measured as there are chances of exclusions of producers from the GI system on account of it.

II. Evaluation of Second-Order Effects of Geographical Indications

The second order effect of evaluating GI includes effect on organisation structure and economic effects of GI registration. For evaluating the second-order impact of GI, the number of abuses/imitations reported relating to the GI product can be assessed. The evaluation can also cover how the GI registration is successful in enhancing the knowledge of the consumers.

A. Effect on Organisation Structure

- a. The evaluation needs to cover the collective organisation usually the GI producer's association that is responsible for initiating the registration process right from the submission of the application. Most of the applications for GI registration are an outcome of stimuli from National or State level authorities. The association between the producer's association and the members is also a criterion for the evaluation of the GI system, this covers the activities of the producer's association like the marketing initiatives, administrative work, technical assistance etc.
- b. The initiative to go for GI registration would have resulted in the organisation of the producers.
- c. The number of members willing to stick to the producer's association is an indicator worth evaluating.
- d. The effect of GI registration on vertical and horizontal integration also needs to be covered. This refers to the relations along the supply chain.
- e. The level of investments also can be affected due to GI registration. The CoP requirements may lead to additional investment by the producers to comply with the norms prescribed.

- f. Compliance with the CoP adds a barrier too as it may restrict producers from enjoying the benefits of GI registration due to non-compliance with the CoP.
- g. GI registration can boost the ‘re-localisation’ of the products which can benefit the local producers. This ‘re-localisation’ can have an effect on the employment, self-reliance, independence and control in the hands of the producers of GI.

B. Economic Effects of Geographical Indications Registration

- a. *Price Premium* – The producers of GI products expect a premium price for their produce. Whether the price premium is received on account of the GI registration is to be analysed, for this the price of the GI product needs to be compared with that of a similar non-GI product (this non-GI product can belong to the same market or other markets).
- b. *Production Cost* – The producers could incur additional production costs as they have to comply with the CoP. This compliance cost can be valued by computing the cost of equipment the producers had to purchase to maintain the quality requirements or the cost of additional processes to be performed to maintain the required quality. The cost of GI can also include the fees for becoming a member of the producer’s association and the administrative costs associated with it.
- c. *GI Potentiality* – GI potentiality can be measured in terms of the farm gate value of the product, market value of the GI product, product quantity, area of cultivation etc of the GI registered product.
- d. *Access to new markets* – The GI registration can act as the catalyst for getting access to new domestic and international markets. This access to new markets can reduce the risks involved in the business and bring better stability to the business.
- e. *Business Reputation* – As the GI tag is an indication of the quality of the product, the business reputation of the firms involved in the production and sale of GI products can increase.
- f. *Indirect Income Generation* – It is seen that a GI product in a firm’s portfolio can boost the sales of other products manufactured or sold by the firm. This can bring additional revenue to the firm. A noted feature is that the by-product of a

GI product earns a price premium like the GI product. In short, the benefit of the popularity of GI products is transferred to the basket of related goods.

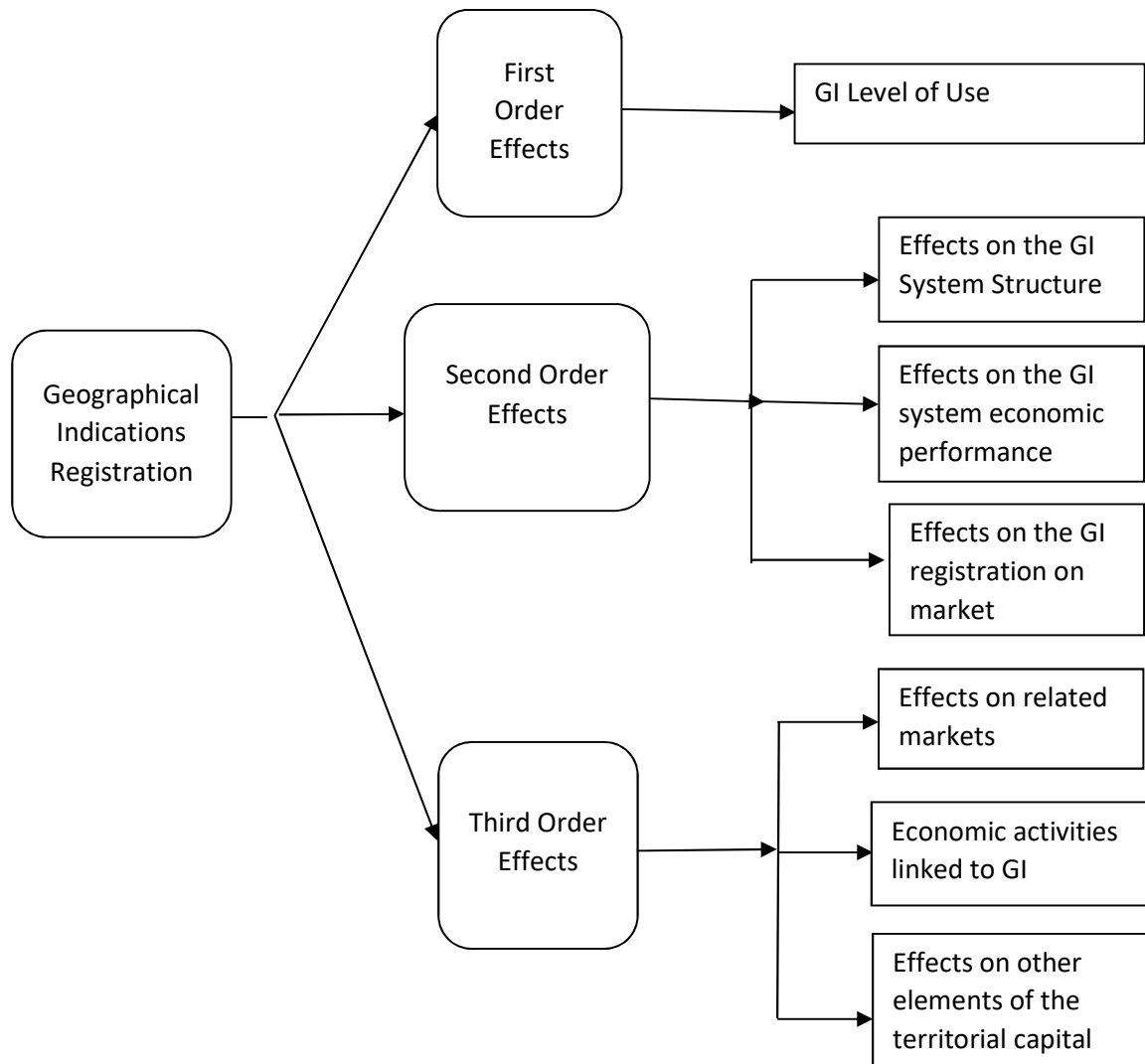
III. Evaluation of the Third-Order Effects of Geographical Indications

The third-order effects of Geographical Indication registration are assessed based on rural development, social issues and Environmental issues. In the case of some GI, the positive effects on the social and cultural environment act as the motive for getting the registration done.

- a. *Economic Development* – The economic development cover variables like the number of registered GIs in marginal areas, percentage of GI registrations in rural areas to total GI registrations, induced effects on local economy viz. tourism, production inputs etc.
- b. *Social Issues* – These covers variables like poverty (number of poor farmers participating in the RGI system), gender issues (number of women participating in the GI system), local culture, workforce (number of employees in connection with registered GI) etc.
- c. *Environmental issues* – This covers variables like biodiversity preservation, pollution management, landscape, use of chemical/fertilizers etc.(Belletti et al., 2011).
- d. *Effects on related markets* – GI products may affect other related markets. The factors measuring the effect of GI on related markets include prices of agricultural land, labour availability, prices of other products etc. The increase in price/rent of the agricultural land can be detrimental to farmers who do not own farmland.
- e. *Economic activities linked to GI* – Tourism prospects of the area can be improved by the presence of GI products. The number of visitors to the area of GI produce and the number of firms producing GI product can be taken to measure the effect of GI.

Figure 3.2

Potential Level of Effects Resulting from Geographical Indications Registration



Source: Adopted from (Belletti et al., 2011)

3.6 PROPOSED CFA MODEL FOR ASSESSING THE IMPACT OF GEOGRAPHICAL INDICATIONS TAG

The researcher proposes the following model for assessing the impact of GI.

3.6.1 Introduction

A model assessing the impact of GI tag is proposed to assess the association between the significance of producers' association, awareness level of producers about GI, the socio-economic impact of GI, the marketing benefits and challenges faced in the successful use of GI. The aim of the proposed model is to identify the major players in the successful use of GI and the benefits derived from it.

3.6.2 Conceptual Framework

The proposed CFA model explores the following relationships

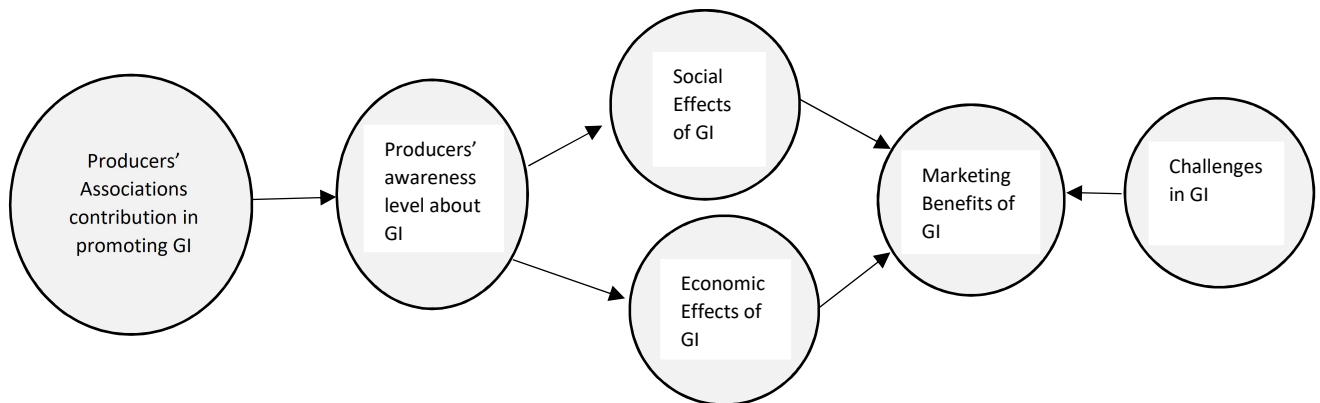
- a. Contribution of producers' association in promoting GI → Producers' Awareness Level about GI
- b. Producers' Awareness Level about GI → Economic Impact
- c. Producers' Awareness Level about GI → Social Impact
- d. Socio - Economic Impact → Marketing Benefits
- e. Challenges in the Successful Use of GI → Marketing Benefits

3.6.3 Model Diagram

For analysing the relationship between different variables relating to GI registration, the researcher proposes the following GI impact assessment model.

Figure 3.3

Proposed Geographical Indications Impact Assessment Model



3.6.4 Description of the Model Relationships

- a. *Contribution of producers' association in promoting GI* → *Producers level of awareness about GI*

Rationale: Producers' associations which are actively involved in promoting the GI by organising promotional events, spreading awareness about GI, and assisting in registration process are likely to enhance awareness and understanding among the individual producers regarding the value of GI, its benefits and the legal framework

involved. The producers' associations can play a crucial role in dispensing the knowledge about GI so that its members become aware of the benefits and the regulations relating to GI certification. A well organised producers' association can lead to higher level of awareness among its members regarding GI.

b. Producers' level of awareness about GI → Economic Impact

Rationale: Higher awareness about GI can help the producers leverage GI benefits like price premium, bargaining power over market intermediaries, increased sales, quality control etc. Increased awareness among the producers can lead to better compliance with GI standards which can help to access new markets, explore tourism prospects and negotiate better prices.

c. Producers' level of awareness about GI → Social Impact

Rationale: Awareness about GI can enhance the social cohesion among the GI producers. It can strengthen the producers' identity and sense of community, which can reinforce the preservation of local culture and tradition. The awareness about GI can evoke a sense of pride among the producers which can enhance their commitment in protecting the cultural, environmental, and social identity of the product.

d. Economic Benefits → Marketing Benefits

Rationale: The economic gains from GI such as increase in the market value (reputation) of the product, entry into new markets, increase in demand for the product etc. can enhance the position of the producers in the supply chain. This can lead to greater bargaining power for the producers and ensures stable relationship with the market intermediaries.

e. Social Benefits → Marketing Benefits

Rationale: Improved social cohesion and collective identity of the GI producers can have a positive influence over the market intermediaries. Social recognition of GI products can increase the trust of the consumers which in turn enhances the brand reputation. The environmental, social and cultural significance of the product protected with GI tag can highlight the uniqueness of the product and its value. This can further enhance the marketing value of the GI product.

f. Challenges in the use of GI → Marketing Benefits

Rationale: The producers of GI may face various issues that hinders the successful use of GI as a marketing tool. The challenges encountered may be lack of institutional support or procedural issues.

3.6.5 Summary

In this model only direct relationship between the variables are explored. The proposed model is a simple direct path model which can establish fundamental relationship. The relationship established are:

- a. Producers' association influence the awareness level of producers about GI.
- b. Awareness level of producers affects the socio-economic benefits of GI.
- c. The socio- economic benefits further improves the marketing success of the GI.
- d. The challenges negatively impact the marketing outcomes.

3.7 CONCLUSION

This chapter describes extensively various concepts that are covered in this research. The first part covers in detail the concept of GI, it starts by discussing Intellectual Property Rights in general, by explaining the various features of different IPRs. Later, the focus is brought towards understanding GI, starting from its evolution. The present research focuses on GI, hence an in-depth discussion on the features of GI, its benefits and challenges were explored by adding the concepts as deliberated by previous researchers in this area. The second part of the chapter discusses various theories and its relationship with GI, this facilitated in getting insights into the complexities of GI. The third part is related to the impact assessment and how a comprehensive impact assessment can be done for evaluating the socio-economic significance of GI. Various accepted methods and criteria for evaluation of GI were discussed in detail. The final part proposed a model for better understanding the impact of GI. The path and its relationship rationale are stated. The chapter provides a comprehensive understanding about GI and its evaluation.

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Chapter 4
***Analysis on the Contribution of Producers’
Associations in Promoting GI***

4.1 INTRODUCTION

The assessment of the Geographical indications tag is crucial in understanding whether the said marketing tool which is equally powerful as a trademark can provide the intended results. GI tags can attract and retain customers just like trademarks, with the distinct feature that these marks are jointly owned and can bring advancement to an entire community.

The primary data for the present study were collected from the producers of the GI-tagged products using an interview schedule. The first two sections of the interview schedule collected information relating to the demographic profile of the producers and their general perception of GI. The next section included questions used for measuring the contribution of producers' association towards the promotion of GI, awareness of producers about GIs, economic impact, social impact, marketing benefits and challenges in the successful use of GIs. The perception of the producers was measured using a five-point Likert scale with the score ranging from 5 for strongly agree, 4 for agree, 3 for neither agree nor disagree, 2 for disagree and 1 for strongly disagree. The awareness level of the producers was measured using a five-point Likert scale with the score ranging from 5 for extremely aware, 4 for moderately aware, 3 for somewhat aware, 2 for slightly aware, and 1 for not at all aware. Appropriate statistical tools like simple percentage, mean, mean percentage score, standard deviation, MANOVA, ANOVA and Bonferroni Post Hoc (hence forth represented as post hoc/ pairwise comparison) were applied for the assessment of the data collected. The evaluation of producers' perception about various aspects of Geographical Indications was done both GI-wise and domicile-wise to bring more clarity to the research objectives. The MPS interpretation adopted is a quartile interpretation similar to the United Nations, Human Development Index and WHO's Quality of Life Index. In this study the MPS less than 35% is categorised as Very Low, 36% - 50% as Low, 51% - 75% as Medium/ Moderate and 76 % to 100 % as High. The mean percentage score was computed using the following formula:

$$\text{Mean Percentage Score (MPS)} = \frac{\text{Mean Score}}{\text{Maximum Possible Score}} * 100$$

4.2 DEMOGRAPHIC PROFILE OF THE PRODUCERS OF GI-TAGGED PRODUCE

The demographic profile of the producers of GI-tagged products was studied in detail for clear imagery of their demographic makeup and how it holds the potential to influence the various factors considered in the study.

4.2.1 Name of the Product

Four agricultural produces having GI tag were selected based on the inclusion criteria for the study. The number of respondents for each of the four GI was finalised proportionate to the number of producers in their producers' association.

Table 4.1

Name of the Product

Name of the Geographical Indication	Frequency	Percent
Chengalikodan Nendran	41	10.3
Tirur Vettala	71	17.8
Marayoor Sharkara	73	18.3
Kaipad Rice	215	53.8
Total	400	100.0

Source: Primary data

Table 4.1 depicts the distribution of the respondents based on the GI-tagged agricultural produce selected for the study. Kaipad Rice producers form 53.8 % of the respondents followed by Marayoor Sharkara, Tirur Vettala and Chengalikodan Nendran forming 18.3 %,17.8 % and 10.3% of the respondents.

4.2.2 Age

The age group of the agricultural producers was divided into six categories. Age is an important demographic factor in the present study as it gives an insight into the succession and farm continuity which is important to farming sustainability. The age of the producers also gives an understanding of their knowledge level regarding the traditional farming practices which are important in the case of the GIs as it is an IPR which is more intervened with culture and tradition.

Table 4.2*Age Group-wise Distribution of the Respondents*

Age Group	Frequency	Percent
21-30	7	1.8
31-40	29	7.3
41-50	81	20.3
51-60	173	43.3
Above 60	110	27.5
Total	400	100.0

Source: Primary Data

The respondents are categorized by age in Table 4.2. Since there are no responders in the age range under 20, it is not displayed in the table. The majority of GI producers belong to two age groups of 51–60 and over 60, accounting for 43.3 % and 27.5 % of the overall sample size. Individuals' farming behaviours are influenced by their age. According to Brown et al. (2019), older producers are less likely to shift farmlands to other uses and are more likely to preserve conventional farming. According to Table 4.2, the majority of the producers are in the older age group and the younger producers are lesser in number. Even though the preservation of farming culture depends on the existence of older producers, traditional farm varieties and farming culture may eventually disappear if younger people lose interest in farming and related activities.

4.2.3 Gender

Analysing gender-wise classification in farming activities is essential to understand the role and contribution of men and women in agriculture. This analysis helps reveal gender disparities in the sector.

Table 4.3*Gender-wise Distribution of the Respondents*

Gender	Frequency	Percent
Male	364	91.0
Female	36	9.0
Total	400	100.0

Source: Primary data

According to Table 4.3, the majority of the respondents, 91 % of the producers are male and only nine percent are female. This result is in line with studies on gender and agriculture, which specify that even though the contribution of women in agriculture is commendable they are less active when it comes to commercial farming (Croppenstedt et al., 2013). This may be due to differences in property rights, access to resources, or social norms.

4.2.4 Domicile

Location of farming is an important factor for the study as many reviews have revealed the relationship between GIs and rural development. The respondents are classified into 3 regions namely urban, rural and semi-urban. The data will provide insight into the farming location of the GI-tagged agricultural produce.

Table 4.4

Domicile-wise Distribution of the Respondents

Domicile	Frequency	Percent
Urban	53	13.3
Rural	266	66.5
Semi-Urban	81	20.3
Total	400	100.0

Source: Primary data

It is clear from Table 4.4 that the majority of the producers, 66.5 % are from the rural area. In all the cases of the GIs in the study, the location of the farmer and their farming activity are the same. This result gives a signal that if there is a positive impact on account of the GI tag it can lead to rural development as mentioned in various studies (Bramley, n.d.; Cei, Defrancesco, et al., 2018; Cei, Stefani, et al., 2018; Dogan & Gokovali, 2012; Vakoufaris, 2010).

4.2.5 Educational Qualification

Education qualifications can influence the economic and social development of the producers. Education can open the door towards accessing various financial resources, adopting new technologies, experimenting with new marketing strategies etc. GIs can be used as a branding tool for which careful planning and strategy formulation is required.

Table 4.5*Educational Qualification of the Respondents*

Educational Qualification	Frequency	Percent
School level	345	86.3
Graduate	55	13.8
Total	400	100.0

Source: Primary data

Table 4.5 presents the categorisation of producers based on educational qualifications. Of the 400 producers, 86.3 % of the respondents have school-level qualifications, followed by 13.8% of respondents having graduate-level qualifications. Postgraduate and professional qualifications are not shown in the table as no respondents have those qualifications.

4.2.6 Annual Family Income

Annual family income gives an idea about the financial position of the producers. The financial position affects the producers' access to various resources like seeds, fertilisers, labour etc. The family income is inclusive of the agricultural income earned.

Table 4.6*Annual Family Income of the Respondents*

Annual Family Income	Frequency	Percent
Less than ₹1 lakh	77	19.3
₹1 lakh - ₹250000	215	53.8
₹250000 - ₹500000	67	16.8
₹500000 - ₹750000	29	7.3
₹750000 - ₹1000000	6	1.5
Above ₹1000000	6	1.5
Total	400	100.0

Source: Primary data

Table 4.6 reveals that 53.8 % of the producers have an annual family income between ₹100000 and ₹ 250000. According to the National Statistical Office's Situation Assessment Survey, agricultural households' average monthly income in

Kerala from January to December 2019 was ₹17915., which comes to ₹214980 per annum (*_annex_265_AU485_DQZKNW.Pdf*, n.d.). The annual income of 53.8 % of producers in the study is comparable to the State average agricultural income.

4.2.7 Type of Family

Family structure influences shaping agricultural practices, resource management and other socio-economic factors. There can be differences in resource ownership and utilisation, gender roles, social support, and adoption of new agricultural practices between joint and nuclear families. The possibility of land fragmentation is lower in the case of joint family than in the case of nuclear.

Table 4.7

Type of Family of the Respondents

Nature of Family	Frequency	Percent
Nuclear	374	93.5
Joint	26	6.5
Total	400	100.0

Source: Primary data

Table 4.7 shows that 93.5 % of the producers belong to the nuclear family. This can be the result of social transformations in the State like land reforms, education and employment diversification and migration, economic constraints, and urbanisation. The majority of the producers in the study are from nuclear families, collective IPR like GIs can provide them with networking support and improve their bargaining power. GIs can foster a sense of community which can bring cooperation among the nuclear family producers.

4.2.8 Ownership of Land Used for Cultivation

For commercial agricultural purposes, the producers may not only rely on their land but may take land on lease. The Table 4.8 provides an insight into the land utilisation.

Table 4.8*Ownership of Land Used for Cultivation*

Land Used for Cultivation	Frequency	Percent
Own land	94	23.5
Leased land	73	18.3
Both	233	58.3
Total	400	100.0

Source: Primary data

As revealed in Table 4.8, 58.3 % of the respondents use both owned and leased land for cultivation purposes. The majority of the producers are from the nuclear family structure which can be the reason for their reduced land holding, due to which they have to depend on leased land too for cultivation.

4.2.9 Categorisation of Producers

There are five categories of farmers as per the Ministry of Agriculture and Farmers Welfare. They are Marginal, Small, Semi – Medium, Medium and Large. Here marginal farmers have cultivation of below 1 hectare and large farmers have cultivation of 10 hectare and above.

Table 4.9*Categorisation of Producers*

Scale of Agriculture	Frequency	Percent
Marginal scale	394	98.5
Small scale	6	1.5
Total	400	100.0

Source: Primary data

Table 4.9 shows that the majority of the producers (98.5%) in the study belong to marginal-scale farming group with a cultivation area of less than 1 hectare. Small-scale producers constitute the second group. There are no producers in the semi-medium, medium and large-scale categories hence not included in the table. The marginal scale producers can use the GI tag for product differentiation, as there are high chances that they may lose the market to large-scale players. The collective nature of the GI tag can provide marginal producers with the strength to face the

competition from large-scale producers. This collective initiative can also help the producers raise their issues with the Government.

4.2.10 Mode of Getting GI Registration

The major beneficiaries of GI registration are traditional producers and artisans. The registration is sought by applying for registration with the GI registry, Chennai. In Kerala, the GI registrations of agricultural products are initiated with the support of Commodity Boards, Krishi Bhavan, and Agricultural University.

Table 4.10

Mode of Getting GI Registration

Mode of Getting GI Registration	Frequency	Percent
Registration with the support of KAU	329	82.3
Registration with the support of Krishi Bhavan	71	17.8
Total	400	100.0

Source: Primary Data

Table 4.10 indicates that the registrations of Kaipad Rice, Marayoor Sharkara and Chengalikodan Nendran which constitute 82.3 % of the total sample are done with Kerala Agricultural University (KAU) being the facilitator. The IPR cell of the KAU has initiated the maximum number of agriculture GI registrations in Kerala, with 9 GI registrations among the 24 agricultural GIs. The registration of Tirur Vettala was initiated with the support of Tirur Krishi Bhavan which constitutes 17.8 % of the sample. None of the GI registrations are done without any institutional support.

4.2.11 Nature of the GI Product

The nature of the product under study is classified as raw and processed. The processed product has greater shelf life and GI as a branding tool can be better used by those products.

Table 4.11*Nature of the GI Product*

Nature of GI Product	Frequency	Percent
Raw	112	28.0
Processed	288	72.0
Total	400	100.0

Source: Primary data

It is clear from Table 4.11 that 72 % are processed products, including Kaipad Rice and Marayoor Sharkara and 28% are raw products, which include Chengalikodan Nendran and Tirur Vettla.

4.2.12 Major Channel of Sales of GI Product

The producers of GI-tagged agricultural produce use different channels to bring their products to the market. The products are brought to the market directly by the producer, through agents, through karshaka sangam (farmer societies) or major markets. The channel of sales is evaluated as there are studies which put forth that the GI helps the producers get better bargaining power over the market intermediaries.

Table 4.12*Major Channel of Sales of GI Products*

Channel of Sale of GI Product	Frequency	Percent
Directly to customer	45	11.25
Through agent	212	53.00
Through karshaka sangam	95	23.75
Through major market	48	12.00
Total	400	100.00

Source: Primary data

Table 4.12 reveals that the majority of the producers, that is 53 %, depend on the market intermediaries for bringing the product to the market, followed by 23.75 % of the producers who depend on the ‘karshaka sangam’ for distributing their products.

4.3 GENERAL INFORMATION AND PERCEPTION OF PRODUCERS ABOUT GI

The registration details of the GI held by the producers and their overall perception about GI are captured in this section.

4.3.1 Perceived Benefits from GI Registration

There are many benefits behind GI registrations. The main benefits are the use of GI as a branding tool, to protect the tradition / culture, to protect the name from becoming generic, to identify genuine product etc. (Blakeney, 2009; Bramley & Kirsten, 2007; Cardoso et al., 2022). GIs are protected IPRs in India which provide legal support to the producers in the event of misuse (Barjolle et al., 2017; Rangnekar, 2004; Srivastava, 2004).

Table 4.13

Perceived Benefits from GI Registration

Perceived Benefits from GI Registration	Frequency	Percent
To protect the tradition / Culture	284	71.0
To get legal protection for product name usage	51	12.8
To help customers identify the genuine product	16	4.0
The registration was initiated by an outside agency	9	2.3
To demark the area of production	9	2.3
To use GI as a marketing tool	31	7.8
Total	400	100.0

Source: Primary data

Table 4.13 reveals that among the perceived benefits of GI registration among the producers the protection of tradition and culture has the highest preference with 71%. This can be on account of the age profile of the producers where the majority of the producers are 50 and above. They want to preserve and protect the traditional farming culture for the future.

4.3.2 Tenure of Holding GI Tag

Aranmula Kannadi was one of the first registration applications submitted when GI registrations began in India in 2003. In 2004, the GI certificate was granted to Aranmula Kannadi. As of November 2024, a total of 36 GI registrations are there in Kerala including both agricultural and handicraft products.

Table 4.14*Tenure of Holding GI Tag*

Tenure of holding GI Tag	Frequency	Percent
5 - 10 years	185	46.25
10 - 15 years	215	53.8
Total	400	100.0

Source: Primary data

Table 4.14 shows that 53.8 % of the producers belong to the agricultural GI having 10-15 years of tenure and 46.25 % of the producers belong to agricultural GI having 5-10 years of tenure. The present study has an inclusion criterion where only those agricultural GIs having at least 5 years of tenure were selected. It can take a few years for a policy to bring out its effects. A minimum of five years after registering for the program is essential for any discernible changes in the participants' accomplishment levels to take place (Gwen, n.d.; IDB | *ExPost Evaluation*, n.d.; Khandker et al., 2009). This period is found to be appropriate since it allows for the program's effects to manifest and prevents the possibility that the analysis could be threatened by attrition. Table 4.14 shows that the products under study have sufficient post-policy implementation tenure for the conduct of the assessment.

4.3.3 GI Registration in Other Countries

GI is an IPR which gives protection as per the TRIPS Agreement. Even though GIs are the outcome of an international agreement, to get legal protection abroad the GIs registered in India should get separate registrations in foreign countries.

Table 4.15*GI Registration in Other Countries*

GI registration in other countries	Frequency	Percent
Registered	0	0.0
Not Registered	400	100.0
Total	400	100.0

Source: Primary data

As per Table 4.15, none of the agricultural GIs have obtained GI registration abroad, which means that these GIs cannot get the protection of GIs abroad and cannot take legal action against GI violations abroad.

4.3.4 Reason for Not Getting GI Registration Abroad

The producers were asked why they were not interested in getting registration abroad, because getting GI protection abroad can help in minimising the imitation of GI name and curb fake GIs globally. Not registering GIs abroad can also reduce export prospects, as one of the objectives of GI registration as stated by the WIPO is to help promote export.

Table 4.16

Reason for Not getting GI Registration Abroad

Reason for not getting GI registration abroad	Frequency	Percent
Complex procedure	330	82.5
Lack of awareness	17	4.3
Lack of consensus among the producers	22	5.5
No perceived benefit	24	6.0
No Government/ organisational support	7	1.8
Total	400	100.0

Source: Primary data

Table 4.16 depicts that among the 400 producers, 330 (82.5 %) opined that the procedure for getting GI registration abroad is complex. From Table 4.10 it was clear that all the GIs taken for the study were registered with the support of either KAU or Krishi Bhavan, hence the producers need external support for foreign registrations also. The institutions like Agricultural and Processed Food Products Export Development Authority (APEDA) can help the registered GIs identify those foreign countries where the GI products can have export possibilities and get GI registrations in those countries.

4.4 ANALYSIS ON THE CONTRIBUTION OF THE PRODUCERS' ASSOCIATION IN PROMOTING GI

4.4.1 Introduction

Producers' associations serve an indispensable and intricate contribution when it comes to promoting GIs. These Associations are typically made up of local producers who share a common interest in preserving and promoting products that are unique to a particular location. Producers' associations can promote GIs through a variety of means, such as raising awareness through education; outreach through workshops, seminars, and information sessions; facilitating registration by helping with GI registration procedures and documentation; and extending legal protection by ensuring the enforcement of GI rights. The producers' association can also enable marketing and branding support to producers, by promoting GI brands and building consumer trust; and promoting economic and social development by empowering local communities and expanding market access. These Associations can also influence policymakers through lobbying and advocacy. Studies have pointed out the importance of collective organisation in the building, administration, and advancement of GI. In the EU countries, Switzerland and some Asian nations, the GI registration requirements specify that the registration of GI should be initiated by an organisation that works towards the protection of the genuineness of the product and welfare of the producers (*The Collective Organizations Role in the Management and Development of Geographical Indication in Vietnam | FFTC Agricultural Policy Platform (FFTC-AP)*, n.d.). This accentuates the fact that a unified organisation defending the interests of the GI producers is a vital prerequisite for the successful use of GI.

The present section assesses the contribution of the producers' association in promoting GI. The data for the assessment were collected using interview schedule from 400 GI producers who were engaged in the production of agricultural produce. The producers' perception was measured using five-point Likert Scale ranging from strongly agree to strongly disagree.

4.4.2 GI wise Analysis on the Contribution of the Producers' Association in Promoting GI

The twelve variables analysed for assessing the contribution of producers' association in promoting GI are producers' association's active involvement during the registration, the initiatives to spread awareness about GI among public, organising events to promote GI, assisting in Authorised User (AU) registration, assisting producers stick to CoP, ensuring producers follow the CoP, ensuring the involvement of inspection body, raises GI issues with government, have dispute redressal mechanism, holding regular meeting, enhancing the confidence of members and improving the interpersonal relationship of the members.

a. Descriptive Statistics – GI wise Analysis on the Contribution of the Producers' Association in Promoting GI

The twelve measures of 'contribution of producers' associations' in promoting GI were subjected to GI-wise analysis.

The overall interpretation of descriptive statistics given in Table 4.17 shows that the producers' associations' contribution was highest in the case of involvement during the GI registration process ($\bar{X}$ = 4.64, SD = 0.481 and MPS = 92.8 %) and the producers believed that producers' associations' contribution was the least when it comes to ensuring that the producers stick to the CoP ($\bar{X}$ = 1.83, SD = 0.436 and MPS = 36.7%).

The GI-wise classification of descriptive statistics from Table 4.17 shows that the most prominent measure of producers' association's contribution was found to be 'producers' association was actively involved in GI registration' ($\bar{X}$ = 4.77 ± 0.423) in the case of Kaipad Rice whereas the least prominent one was 'producers' association assists the producers to stick to CoP' ($\bar{X}$ = 1.49 ± 0.503) in the case of Tirur Vettala.

Table 4.17*Descriptive Statistics – GI wise Analysis on the Contribution of Producers' Association in Promoting GI*

Name of the GI	Variables	Mean	SD	MPS	Variables	Mean	SD	MPS
Chengalikodan Nendran	Producers' association was actively involved in GI registration	4.59	.499	91.7	Producers' association ensures GI management by inspection body	1.71	.512	34.1
Tirur Vettala		4.27	.449	85.5		1.86	.346	37.3
Marayoor Sharkara		4.65	.481	93.0		2.17	.478	43.4
Kaipad Rice		4.77	.423	95.3		3.12	.996	62.3
Total		4.64	.481	92.8		2.58	.988	51.5
Chengalikodan Nendran	Producers' association takes awareness initiatives on GI among public	3.51	.870	70.2	Producers' association has dispute redressal system to resolve GI issues	2.20	.401	43.9
Tirur Vettala		3.45	.953	69.0		1.90	.296	38.1
Marayoor Sharkara		3.59	.863	71.8		2.15	.402	43.1
Kaipad Rice		3.93	.247	78.7		2.08	.278	41.7
Total		3.74	.669	74.9		2.08	.331	41.5
Chengalikodan Nendran	Producers' association organises event to promote GI	4.02	.156	80.5	Producers' association raises GI related issues with government	2.68	.907	53.7
Tirur Vettala		1.84	.373	36.7		1.89	.622	37.7
Marayoor Sharkara		2.15	.577	43.1		2.79	.971	55.9
Kaipad Rice		3.96	.201	79.2		2.76	.974	55.3
Total		3.26	1.01	65.2		2.61	.970	52.1
Chengalikodan Nendran	Producers' association assisted the producers in getting AU registration	3.85	.358	77.1	Producers' association membership has increased the confidence of the producers	2.76	.969	55.1
Tirur Vettala		4.01	.119	80.3		3.54	.808	70.7
Marayoor Sharkara		1.82	.385	36.4		1.85	.360	37.0
Kaipad Rice		2.10	.035	40.0		3.79	.620	75.7
Total		2.52	.926	50.3		3.28	.995	65.7

Name of the GI	Variables	Mean	SD	MPS	Variables	Mean	SD	MPS
Chengalikodan Nendran	Producers' association ensures practice of CoP by members	1.90	.436	38.0	Producers' association holds regular meetings	2.71	.929	54.1
Tirur Vettala		1.69	.523	33.8		3.48	.826	69.6
Marayoor Sharkara		1.88	.331	37.5		1.88	.331	37.5
Kaipad Rice		1.85	.428	37.0		2.38	.788	47.6
Total		1.83	.436	36.7		2.52	.901	50.4
Chengalikodan Nendran	Producers' association assists the producers stick to CoP	1.90	.300	38.0	Producers' association have boosted interpersonal links among producers	2.80	.980	56.1
Tirur Vettala		1.49	.503	29.9		3.76	.788	71.3
Marayoor Sharkara		1.85	.364	36.9		1.88	.331	37.5
Kaipad Rice		3.72	.689	74.3		3.56	.829	70.3
Total		2.79	.464	55.9		3.18	1.01	63.6

Source: Primary Data

Taking all the variables into consideration a high level of contribution from the producers' association was seen in the cases of 'active participation during the registration process' and 'spreading awareness about GI among the public' with overall MPS of 92 % and 75% respectively. During the GI registration process, a lot of documents need to be produced before the GI registry relating to the quality, uniqueness, and history of the GI. It is a process involving a lot of verification and authorisation, the fact that all the producers' associations of the GI in the study had been active throughout the registration process indicates the dedication of the producers' association in getting the GI registration. The contribution of producers' association in popularising the GI among the public is also acknowledged by the producers of all the associations.

The analysis of the statements 'producers' association assisted the producers in getting AU registration', 'association assists the producers stick to CoP', and 'association ensures GI management by inspection body' revealed moderate contribution from the side of producers' association with an overall MPS between 51% and 75 %.

The statements, 'ensuring that the producers stick to the CoP', 'producers' association have a dispute redressal system to address GI-related issues' and 'producers' association raises GI-related issues with government' have an overall MPS between 36% and 50 %, indicating a low level of contribution by the producers' association. This can be attributed to the fact that the producers' associations are not receiving enough support from the Government and the inspection body as revealed in the Table 7.1 and Table 7.5.

When it comes to building unity among the producers, the producers perceived only a moderate contribution from the producers' associations with all three statements, 'producers' association membership has increased the confidence of the producers', 'producers' association holds regular meetings' and 'producers' association have boosted interpersonal links among producers', having MPS in between 51 % and 75 %.

b. Multivariate Analysis of Variance - GI wise Analysis on the Contribution of Producers' Association in Promoting GI

Table 4.18 depicts the combined multivariate effect of all the variables identifying the construct of contribution of producers' association in promoting GI.

H_{4.1}: There is significant difference in the producers' perception, of different GIs, on the combined effect of multiple dependent variables measuring the 'contribution of producers' association in promoting GI'.

Table 4.18

Multivariate (MANOVA) Test Results – Difference in Producers' Perception on the Contribution of Producers' Association in Promoting GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.002	47.311	36.000	138.253	0.000

F tests the multivariate effect of GI.

The figure in bold indicates significant at the 5% level

Source: Primary Data

Table 4.18 reveals that the difference in opinion between various GI producers on the multiple dependent variables relating to the contribution of producers' association was statistically significant as the p value of F statistic is lower than 0.05, $F [36, 138.253] = 47.311, p < 0.05$; Wilks' $\Lambda = 0.002$. This means that the producers of the different GIs have different opinions about the contribution of producers' associations in promoting GI, taking all the variables combined.

Since MANOVA test results where significant univariate ANOVA was conducted.

c. Univariate Analysis of Variance and Pair wise Comparison - GI wise Analysis on the Contribution of the Producers' Association in Promoting GI

Univariate ANOVA was conducted for each of the twelve dependent variables to identify whether statistically significant differences exist between the opinion of various producers of different GIs.

H_{4.2}: There is significant difference in the producers' perception of different GIs on the individual variables measuring the contribution of producers' association in promoting GI.

The ANOVA results shown in Table 4.19 reveal that there is significant difference in the opinion of producers of different GIs about all the individual variables measuring the ‘contribution of producers’ association in promoting GI’.

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 4.20.

In the case of the statement ‘producers’ association was actively involved in GI registration’ pairwise comparisons revealed that statistically significant differences exist only between Tirur Vettila and all other GIs. The maximum variance is observed between Kaipad Rice and Tirur Vettila with a mean difference of 0.493. This can be because the registration of Kaipad Rice involves documentation of the technical aspects of the procedures involved in the cultivation, whereas, in the case of Tirur Vettila, the cultivation does not involve much complex procedures. Hence the dynamic involvement of producers’ association can be seen more in the case of Kaipad Rice.

The pairwise comparison revealed maximum variance between Kaipad Rice and Tirur Vettila in the case of the statement ‘producers’ association takes awareness initiatives on GI among public,’ with a mean difference of 0.484. This difference can be attributed to the fact that the producers’ association of Kaipad Rice plays a significant contribution in taking awareness initiative among the public, this is done majorly by participating in trade fairs and exhibitions and by publishing editorials in newspapers about Kaipad Rice. The Kaipad Rice Farmers Association takes initiatives to popularise their produce through the food stall at Thavam, Kannur serving delicacies made of Kaipad Rice, there are also sales stalls at Parashinikadavu Snake Park (a tourist destination) and at Kannur Railway station where the public can purchase genuine Kaipad Rice and value-added products like puttu podi, idiyappam podi and beaten Rice made of Kaipad Rice.

The statements ‘producers’ association ensured that producers stick to CoP’ and ‘producers’ association assists the producers stick to CoP’ has maximum variance during the pairwise comparison between Kaipad Rice and Tirur Vettila with a mean difference of 0.161 and 2.223 respectively. The results indicate that the producers’ association of Kaipad Rice has made more contribution towards making sure that the producers stick to the CoP mentioned during the registration process when compared to Tirur Vettila. This can be because, in the case of Tirur Vettila, the unique characteristics of the produce are more on account of the environmental condition of

the region. While in the case of Kaipad Rice, the unique quality which makes it eligible for GI are equally on account of the environmental condition prevailing in the area as well as the production process practised by the producers. Hence, the producers' association of Kaipad Rice is more vigilant that the producers follow the prescribed CoP and assists them to stick to the CoP.

When it comes to the statement 'producers' association organises events to promote GI' the maximum variance is found in the pairwise comparison test between Chengalikodan Nendran and Tirur Vettla with a mean difference score of 2.189. In the case of Chengalikodan Nendran, the Association organises events/exhibitions to promote Chengalikodan nendran, especially during the Onam season. In the case of Tirur Vettla, the producers perceive that no such initiatives were taken by the producers' association.

The pairwise comparison result reveals maximum variance between Tirur Vettla and Marayoor Sharkara in the case of 'producers' association assisted in AU registration' with a mean difference score of 2.192. The contribution of the producers' association when it comes to AU registration is commendable in the case of Tirur Vettla, the association has so far assisted 734 producers in getting AU registration, and the application for the remaining producers is forwarded by the Association to the GI Registry, Chengalikodan Nendran Association has also assisted their member in getting AU registration. The producers of Marayoor Sharkara and Kaipad Rice were not receiving AU registration assistance from the producers' association.

To the statement 'producers' association ensures GI management by inspection body' pairwise comparison results revealed maximum variance between Kaipad Rice and Chengalikodan Nendran with a mean difference score of 1.409. One of the inclusion criteria of the study is that the GIs under consideration should have a registered inspection body. The inspection body generally consists of members from Krishi Bhavan, Principal Agricultural Offices, members from the facilitators of GI registration, farmer representatives and the office bearers of the producers' association. The main aim of the inspection body is to help the producers to maintain the quality and uniqueness of the GI product. Even though the office bearers of the producers' association are members of the inspection body, it is not guaranteed that the inspection body performs its functions regularly. The producers' association should take the initiative to make sure that the inspection body helps in managing the GI by supervising the producers. In the case of Kaipad Rice the producers' association

is significant in working together with the inspection body towards the management of the GI when compared to other GIs.

The statement 'producers' association has dispute redressal system to resolve GI issues' after pairwise comparison revealed that maximum variance exists between Chengalikodan Nendran and Tirur Vettala with a mean difference of 0.291.

The pairwise comparison reveals that in the case of the statement 'producers' association raises GI-related issues with the Government' significant difference exists only between Tirur Vettala and all other GIs. The mean difference is maximum between Kaipad Rice and Tirur Vettala at 0.875. The results reveal that the producers' association of Tirur Vettala is not active in raising the GI-related issues of the producers with the Government when compared to other GIs.

In the case of the statement 'producers' association membership has increased the confidence of the producers' the maximum mean difference of 1.937 during pairwise comparison was between Kaipad Rice and Marayoor Sharkara. The statement 'producers' association have boosted interpersonal links among the producers' showed maximum mean difference of 1.886 during pairwise comparison between Tirur Vettala and Marayoor Sharkara.

The statement 'producers' association holds regular meetings' has significant differences between all the GIs except Kaipad Rice and Chengalikodan Nendran. The maximum variance during pairwise comparison to the statement 'producers' association holds regular meetings' exists between Tirur Vettala and Marayoor Sharkara with a mean difference of 1.602.

The results of the pairwise comparison of the three statements 'producers' association membership has increased the confidence of the producers', 'producers' association have boosted interpersonal links among the producers' and 'producers' association holds regular meetings' reveal that the contribution of the Marayoor Sharkara producers' association is the least. The producers' association of Tirur Vettala and Kaipad Rice were better at performing the functions of an Association in bringing the producers together. Holding regular meetings can help to improve the relationship between the producers, as the meetings can act as a venue for discussing problems faced by the producers and in finding solutions to them. This can, over time, improve the collective consciousness among the producers, eventually leading to the better utilisation of the GI tag.

Table 4.19 *Estimated Margin of Means, SE, and ANOVA Results - Contribution of Producers' Association in Promoting GI – Between GIs*

Name of the GI	Variables	Mean	SE	F (3, 396)	Sig	Variables	Mean	SE	F(3, 396)	Sig
Chengalikodan Nendran Tirur Vettila Marayoor Sharkara Kaipad Rice	Producers' association was actively involved in GI registration	4.585 4.274 4.648 4.767	0.070 0.052 0.053 0.030	22.372	0.000	Producers' association ensures GI management by inspection body	1.707 1.863 2.169 3.116	0.123 0.092 0.094 0.054	76.133	0.000
Chengalikodan Nendran Tirur Vettila Marayoor Sharkara Kaipad Rice	Producers' association takes awareness initiatives on GI among public	3.512 3.451 3.589 3.935	0.099 0.076 0.075 0.043	14.711	0.000	Producers' association has dispute redressal system to resolve GI issues	2.195 1.904 2.155 2.084	0.050 0.037 0.038 0.022	10.394	0.000
Chengalikodan Nendran Tirur Vettila Marayoor Sharkara Kaipad Rice	Producers' association organises event to promote GI	4.024 1.836 2.155 3.958	0.051 0.039 0.039 0.022	18.058	0.000	Producers' association raises GI-related issues with Government	2.683 1.887 2.795 2.763	0.143 0.108 0.107 0.062	17.874	0.000
Chengalikodan Nendran Tirur Vettila Marayoor Sharkara Kaipad Rice	Producers' association assisted the producers in getting AU registration	3.854 4.014 1.822 2.000	0.032 0.024 0.024 0.014	55.588	0.000	Producers' association membership has increased the confidence of the producers	2.756 3.535 1.849 3.786	0.104 0.079 0.078 0.045	66.473	0.000

Name of the GI	Variables	Mean	SE	F (3, 396)	Sig	Variables	Mean	SE	F(3, 396)	Sig
Chengalikodan Nendran Tirur Vettala Marayoor Sharkara Kaipad Rice	Producers' association ensures practice of CoP by members	1.851 1.690 1.877 1.902	0.029 0.051 0.051 0.067	3.316	0.020	Producers' association holds regular meetings	2.707 3.479 1.877 2.381	0.117 0.089 0.088 0.051	59.865	0.000
Chengalikodan Nendran Tirur Vettala Marayoor Sharkara Kaipad Rice	Producers' association assists the producers stick to CoP	1.902 1.493 1.845 3.716	0.090 0.068 0.069 0.040	40.369	0.000	Producers' association have boosted interpersonal links among producers	2.805 3.763 1.877 3.563	0.121 0.092 0.090 0.053	95.754	0.000

Source: Primary Data; Figures in bold indicate significance at 5% level

Table 4.20

Bonferroni Adjusted Pairwise Comparisons - Contribution of Producers' Association in Promoting GI – Between GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	SE	Sig.#
Producers' association was actively involved in GI registration	Chengalikodan Nendran	Tirur Vettila	0.311 [*]	0.087	0.002
		Marayoor Sharkara	-0.063	0.088	1.000
		Kaipad Rice	-0.182	0.076	0.103
	Tirur Vettila	Marayoor Sharkara	-0.374 [*]	0.074	0.000
		Kaipad Rice	-0.493 [*]	0.061	0.000
	Marayoor Sharkara	Kaipad Rice	-0.120	0.061	0.308
Producers' association takes awareness initiatives on GI among public	Chengalikodan Nendran	Tirur Vettila	0.061	0.125	1.000
		Marayoor Sharkara	-0.077	0.124	1.000
		Kaipad Rice	-0.423 [*]	0.109	0.001
	Tirur Vettila	Marayoor Sharkara	-0.138	0.106	1.000
		Kaipad Rice	-0.484 [*]	0.087	0.000
	Marayoor Sharkara	Kaipad Rice	-0.346 [*]	0.086	0.000
Producers' association organises event to promote GI	Chengalikodan Nendran	Tirur Vettila	2.189 [*]	0.064	0.000
		Marayoor Sharkara	1.869 [*]	0.065	0.000
		Kaipad Rice	0.066	0.056	1.000
	Tirur Vettila	Marayoor Sharkara	-0.319 [*]	0.055	0.000
		Kaipad Rice	-2.123 [*]	0.045	0.000
	Marayoor Sharkara	Kaipad Rice	-1.803 [*]	0.045	0.000
Producers' association assisted the producers in getting AU registration	Chengalikodan Nendran	Tirur Vettila	-0.160 [*]	0.040	0.001
		Marayoor Sharkara	2.032 [*]	0.040	0.000
		Kaipad Rice	1.854 [*]	0.035	0.000
	Tirur Vettila	Marayoor Sharkara	2.192 [*]	0.034	0.000
		Kaipad Rice	2.014 [*]	0.028	0.000
	Marayoor Sharkara	Kaipad Rice	-0.178 [*]	0.028	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	SE	Sig.#
Producers' association ensures practice of CoP by members	Chengalikodan Nendran	Tirur Vettala	0.212	0.085	0.076
		Marayoor Sharkara	0.026	0.084	1.000
		Kaipad Rice	0.051	0.074	1.000
	Tirur Vettala	Marayoor Sharkara	-0.187	0.072	0.060
		Kaipad Rice	-0.161*	0.059	0.041
	Marayoor Sharkara	Kaipad Rice	0.026	0.059	1.000
Producers' association assists the producers stick to CoP	Chengalikodan Nendran	Tirur Vettala	0.057	0.114	1.000
		Marayoor Sharkara	0.409*	0.113	0.002
		Kaipad Rice	-1.814*	0.099	0.000
	Tirur Vettala	Marayoor Sharkara	0.352*	0.097	0.002
		Kaipad Rice	-2.223*	0.078	0.000
	Marayoor Sharkara	Kaipad Rice	-1.871*	0.079	0.000
Producers' association ensures GI management by inspection body	Chengalikodan Nendran	Tirur Vettala	-0.156	0.154	1.000
		Marayoor Sharkara	-0.462*	0.155	0.018
		Kaipad Rice	-1.409*	0.135	0.000
	Tirur Vettala	Marayoor Sharkara	-0.306	0.132	0.124
		Kaipad Rice	-1.253*	0.107	0.000
	Marayoor Sharkara	Kaipad Rice	-0.947*	0.108	0.000
Producers' association has dispute redressal system to resolve GI issues	Chengalikodan Nendran	Tirur Vettala	0.291*	0.062	0.000
		Marayoor Sharkara	0.040	0.063	1.000
		Kaipad Rice	0.111	0.055	0.250
	Tirur Vettala	Marayoor Sharkara	-0.251*	0.053	0.000
		Kaipad Rice	-0.180*	0.043	0.000
	Marayoor Sharkara	Kaipad Rice	0.071	0.044	0.629

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	SE	Sig.#
Producers' association raises GI related issues with Government	Chengalikodan Nendran	Tirur Vettala	0.796*	0.179	0.000
		Marayoor Sharkara	-0.112	0.178	1.000
		Kaipad Rice	-0.080	0.156	1.000
	Tirur Vettala	Marayoor Sharkara	-0.907*	0.152	0.000
		Kaipad Rice	-0.875*	0.125	0.000
	Marayoor Sharkara	Kaipad Rice	0.032	0.124	0.000
Producers' association membership has increased the confidence of the producers	Chengalikodan Nendran	Tirur Vettala	-0.779*	0.130	0.000
		Marayoor Sharkara	0.907*	0.130	0.000
		Kaipad Rice	-1.030*	0.113	0.000
	Tirur Vettala	Marayoor Sharkara	1.686*	0.111	0.000
		Kaipad Rice	-0.251*	0.091	0.036
	Marayoor Sharkara	Kaipad Rice	-1.937*	0.090	0.000
Producers' association holds regular meetings	Chengalikodan Nendran	Tirur Vettala	-0.772*	0.147	0.000
		Marayoor Sharkara	0.831*	0.146	0.000
		Kaipad Rice	0.326	0.128	0.067
	Tirur Vettala	Marayoor Sharkara	1.602*	0.125	0.000
		Kaipad Rice	1.097*	0.103	0.000
	Marayoor Sharkara	Kaipad Rice	-0.505*	0.102	0.000
Producers' association have boosted interpersonal links among producers	Chengalikodan Nendran	Tirur Vettala	-0.958*	0.152	0.000
		Marayoor Sharkara	0.928*	0.151	0.000
		Kaipad Rice	-0.758*	0.132	0.000
	Tirur Vettala	Marayoor Sharkara	1.886*	0.129	0.000
		Kaipad Rice	0.200	0.106	1.000
	Marayoor Sharkara	Kaipad Rice	-1.686	0.105	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

4.4.3 Domicile-wise Analysis on the Contribution of the Producers' Association in Promoting GI

a. Descriptive Statistics – Domicile wise Analysis on the Contribution of the Producers' Association in Promoting GI

The twelve measures of 'contribution of producers' association in promoting GI' were subjected to domicile-wise analysis.

Table 4.21

Descriptive Statistics - Domicile Wise Analysis on Producers' Perception of the Contribution of Producers' Association in Promoting GI

Variables	Area of Residence	Mean	SD	MPS
Producers' association was actively involved in GI registration	Urban	4.67	0.577	93.40
	Rural	4.64	0.481	92.80
	Semi-Urban	4.61	0.495	92.20
	Total	4.64	0.481	92.80
Producers' association takes awareness initiatives on GI among public	Urban	3.98	0.020	79.60
	Rural	3.75	0.659	75.00
	Semi-Urban	3.61	0.803	72.20
	Total	3.74	0.669	74.80
Producers' association organises event to promote GI	Urban	2.10	0.012	42.00
	Rural	3.20	1.022	64.00
	Semi-Urban	4.03	0.180	80.60
	Total	3.26	1.009	65.20
Producers' association assisted the producers in getting AU registration	Urban	4.52	0.021	90.40
	Rural	2.39	0.862	47.80
	Semi-Urban	3.84	0.374	76.80
	Total	2.52	0.926	50.40
Producers' Association Ensures Practice of CoP by members	Urban	1.33	0.577	26.60
	Rural	1.83	0.432	36.60
	Semi-Urban	1.94	0.442	38.80
	Total	1.83	0.436	36.60
Producers' Association Assists the Producers Stick to CoP	Urban	2.45	0.012	49.00
	Rural	2.87	1.175	57.40
	Semi-Urban	1.90	0.301	38.00
	Total	2.79	1.159	55.80
Producers' Association Ensures GI Management by Inspection Body	Urban	2.33	0.012	46.60
	Rural	2.65	0.992	53.00
	Semi-Urban	1.77	0.497	35.40
	Total	2.58	0.988	51.60

Variables	Area of Residence	Mean	SD	MPS
Producers' Association has Dispute Redressal System to Resolve GI Issues	Urban	2.62	0.012	52.40
	Rural	2.07	0.324	41.40
	Semi-Urban	2.19	0.402	43.80
	Total	2.08	0.331	41.60
Producers' Association Raises GI-related Issues with Government	Urban	1.33	0.477	26.60
	Rural	2.61	0.972	52.20
	Semi-Urban	2.68	0.909	53.60
	Total	2.61	0.970	52.20
Producers' Association Membership has increased the Confidence of the Producers	Urban	4.03	0.020	80.60
	Rural	3.32	0.989	66.40
	Semi-Urban	2.81	0.980	56.20
	Total	3.28	0.995	65.60
Producers' Association Holds Regular Meetings	Urban	3.33	0.577	66.60
	Rural	2.49	0.897	49.80
	Semi-Urban	2.74	0.930	54.80
	Total	2.52	0.901	50.40
Producers' Association have boosted interpersonal links among producers	Urban	4.25	0.020	85.00
	Rural	3.20	0.012	64.00
	Semi-Urban	2.87	0.991	57.40
	Total	3.18	1.012	63.60

Source: Primary Data

The Table 4.21 shows that the most prominent measure of producers' associations' contribution was found to be 'producers' association was actively involved in GI registration' ($\bar{X}= 4.67 \pm 0.577$) in the case of urban domicile whereas the least prominent one was 'producers' association ensures practice of CoP by members' ($\bar{X}= 1.33 \pm 0.477$) in the case of urban domicile.

b. Multivariate Analysis of Variance – Domicile wise Analysis on the Contribution of the Producers' Association in Promoting GI

Table 4.22 depicts the combined multivariate effect of all the variables identifying the construct of contribution of producers' association in promoting GI.

H_{4.3}: There is significant difference in the producers' perception of different domiciles, on the combined effect of multiple dependent variables measuring the 'contribution of producers' association in promoting GI'.

Table 4.22

Multivariate (MANOVA) Test Results - Contribution of Producers' Association in Promoting GI – Between Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.505	13.079	24.000	772.000	0.000

F tests the multivariate effect of domicile.

Figure in bold indicates significant at 5% level

Source: Primary Data

The MANOVA test results shown in Table 4.22 relating to the difference in the opinion of producers from various domiciles, regarding the combined variables measuring the 'producers' contribution towards promoting GI', was statistically significant as the p value of F statistic is lower than 0.05, $F [24, 772] = 13.079, p < 0.05$; Wilks' $\Lambda = 0.505$. This means that the producers from different domiciles have different opinions relating to the combined multiple variables measuring the 'contribution of producers' association in promoting GI'.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the producers' opinion of various domiciles.

c. Univariate Analysis of Variance and Pair wise Comparison - Domicile wise Analysis on the Contribution of the Producers' Association in Promoting GI

Univariate ANOVA was performed in each of the twelve dependent variables to find whether statistically significant differences exist amongst the various domiciles.

H_{4.4}: There is significant difference in the producers' perception of different domiciles on the individual variables measuring the contribution of producers' association in promoting GI.

The univariate ANOVA test results shown in Table 4.23 revealed significant differences in the individual measures of 'contribution of producers' association in promoting GI' between the producers of various domiciles in the case of 'producers' association organises event to promote GI', 'producers' association assisted the producers in getting AU registration', 'producers' association assists the producers stick to CoP', 'producers' association ensures GI management by inspection body' and 'producers' association membership has increased the confidence of the producers'.

Table 4.23 *Estimated Margin of Means, SE, and ANOVA Results - Contribution of Producers' Association in Promoting GI – Between Domiciles*

Domicile	Variables	Mean	SE	F (2, 397)	Sig	Variables	Mean	SE	F (2, 397)	Sig
Urban	Producers' association was actively involved in GI registration	4.67	0.279	0.048	0.953	Producers' association ensures GI management by inspection body	2.33	0.555	12.332	0.000
Rural		4.64	0.025				2.65	0.050		
Semi-Urban		4.61	0.087				1.77	0.173		
Urban	Producers' association takes awareness initiatives on GI among public	3.98	0.386	0.836	0.434	Producers' association has dispute redressal system to resolve GI issues	2.62	0.191	2.225	0.109
Rural		3.75	0.035				2.07	0.017		
Semi-Urban		3.61	0.120				2.19	0.059		
Urban	Producers' association organises event to promote GI	2.1	0.566	12.716	0.000	Producers' association raises GI related issues with Government	1.33	0.558	2.689	0.069
Rural		3.2	0.051				2.61	0.051		
Semi-Urban		4.03	0.176				2.68	0.174		
Urban	Producers' association assisted the producers in getting AU registration	4.52	0.481	48.008	0.000	Producers' association membership has increased the confidence of the producers	4.03	0.569	4.629	0.010
Rural		2.39	0.044				3.32	0.052		
Semi-Urban		3.84	0.150				2.81	0.177		
Urban	Producers' association ensures practice of CoP by members	1.33	0.250	2.881	0.057	Producers' association holds regular meetings	3.33	0.518	2.357	0.096
Rural		1.83	0.023				2.49	0.047		
Semi-Urban		1.94	0.078				2.74	0.161		
Urban	Producers' association assists the producers stick to CoP	2.45	0.652	11.297	0.000	Producers' association have boosted interpersonal links among producers	4.25	0.582	2.499	0.083
Rural		2.87	0.059				3.2	0.053		
Semi-Urban		1.90	0.203				2.87	0.181		

Figures in bold indicate significant at 5% level

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 4.24.

Table 4.24

Bonferroni Adjusted Pairwise Comparisons - Contribution of Producers' Association in Promoting GI – Between Domiciles

Variables	(I) Area of Residence	(J) Area of Residence	Mean Difference (I-J)	Std. Error	Sig.#
Producers' association organises event to promote GI	Urban	Rural	-1.202	0.569	0.105
		Semi-Urban	-2.032*	0.593	0.002
	Rural	Urban	1.202	0.569	0.105
		Semi-Urban	-0.830*	0.183	0.000
Producers' association assisted the producers in getting AU registration	Urban	Rural	2.130*	0.483	0.003
		Semi-Urban	0.680	0.504	1.000
	Rural	Urban	-2.130*	0.483	0.003
		Semi-Urban	-1.448*	0.156	0.000
Producers' association assists the producers stick to CoP	Urban	Rural	-0.421	0.655	0.548
		Semi-Urban	0.097	0.683	1.000
	Rural	Urban	0.421	0.655	0.548
		Semi-Urban	0.971*	0.211	0.000
Producers' association ensures GI management by inspection body	Urban	Rural	-0.648	0.557	0.738
		Semi-Urban	0.226	0.581	1.000
	Rural	Urban	0.648	0.557	0.738
		Semi-Urban	0.873*	0.180	0.000
Producers' association membership has increased the confidence of the producers	Urban	Rural	0.683	0.572	0.699
		Semi-Urban	1.194	0.596	0.138
	Rural	Urban	-0.683	0.572	0.699
		Semi-Urban	0.510*	0.184	0.018

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

Table 4.24 indicates the pairwise comparison of different domiciles. In the case of the statement 'producers' association organises event to promote GI' statistically significant difference exists only between urban and semi-urban domiciles as well as

between semi-urban and rural domiciles. The maximum variance was found in the pairwise test between semi-urban and urban domicile with a mean difference score of 2.032. This significant difference in the opinion of producers can be due to the producers' association from semi-urban areas being more traditional at heart when compared to urban areas hence they can be more conscious in taking initiatives in promoting GI when compared to urban area. Moreover, the Association of semi-urban area can have more access to resources than the rural producers' associations, hence they can organise events better than the producers' association of rural areas.

In the case of 'producers' association assisted the producers in getting AU registration' domicile wise differences could be traced between the urban and rural as well as between semi-urban and rural domiciles. The pairwise comparison result reveals that maximum variance exists between the urban and rural domiciles with a mean difference score of 2.130. This shows that the producers' association in the rural area were not taking much initiative to help its member producers get AU registration.

The statements 'producers' association assists the producers stick to CoP', 'producers' association ensures GI management by inspection body' and 'producers' association membership has increased the confidence of the producers' after pairwise comparison reveal that significant variance exists between rural and semi-urban with a mean difference score of 0.971, 0.873 and 0.510 respectively. This can be due to the reason that the producers from rural domiciles are more conservative in nature and give value to traditional agricultural practices.

The pairwise comparison results reveal that the producers' association of the rural area are promoting GI by assisting producers in sticking to the CoP and ensuring coordination with the inspection management. This support provided by the producers' association would have led to the opinion among the rural producers that membership in the producers' association has increased their confidence.

4.5 CONCLUSION

The present chapter provides an in-depth analysis on the contribution of producers' association in governing and promoting GI. The contribution was measured using twelve variables. The findings derived from the data analysis provided valuable insights to the contribution of producers' association, the producers perceived high level of contribution from the part of the association during the registration

process and for spreading awareness about GI among the public. The least level of involvement of the producers' association was felt in the case of ensuring the practise of CoP by the producers, having a dispute redressal system and raising the issues relating to GI with the Government. The contribution of the producers' association in bringing together the GI producers were perceived as moderate. The producers of Kaipad Rice perceived higher level of contribution of their association in the cases relating to the technical compliance among the producers, such as ensuring that the producers stick to the CoP. The producers of Tirur Vettala perceived higher contribution from their association in improving the relationship between the producers. The producers of rural domicile perceived higher contribution from the producers' association in promoting GI. The contribution of producers' association is significant given that GI is a collective mark and the association can act as a coordinating institution for bringing coordination among the producers. With appropriate institutional support from the inspection body and the Government the producers' association can better accomplish bringing coordination among the producers and gain the benefit of GI tag. By collaborating efficiently, the producers of GI tag can achieve shared development. The effectiveness of the producers' association can contribute to improving the awareness level among the producers about the significance and use of GI. The next chapter is an assessment of the level of awareness about GI among the producers.

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Chapter 5

Analysis on the Diffusion of GI and Awareness Level of Producers about GI

5.1 INTRODUCTON

The diffusion of the GI scheme and the level of awareness of the producers regarding various aspects of GI are evaluated in the present chapter. The measures of GI diffusion and producers' awareness level are the immediate results of the GI policy implementation. The diffusion of GI scheme evaluates the spread of GI registration in the country. The overall participation in the scheme can be measured by analysing information related to registrations and approvals of GI. The awareness level of GI producers is also the immediate result of GI Policy implementation; it influences the level of participation of the producers in utilising GI tag.

5.2 DIFFUSION OF THE GI SCHEME

The diffusion of the GI scheme can be measured through various indicators such as number of GI registrations received, number of GI registrations approved by the Registry, the number of authorised user applications, number of authorised user applications approved by the Registry and the number of GIs registered abroad. The GI registrations in India are done at the Geographical Indications Registry, situated at Chennai. The data related with GI registrations were accessed from the official site of Intellectual Property Office, India. The Office of the Controller General of Patents, Designs and Trademark have released annual reports on Intellectual Properties of India till the year 2023-2024, which are used for the present analysis. The extent of diffusion of GI scheme were measured by analysing data relating to GI applications, AU applications and GI registrations abroad.

5.2.1 Evaluation of the Number of GI Applications

In a culturally diversified nation like India, there are a lot of unique products which are eligible for getting GI registrations. The number of products that have applied for getting GI registration and their year-wise growth are assessed in Table 5.1. The GI Registry in Chennai started accepting applications for the GI registrations from the year 2003. The year-wise growth rate of the GI applications is highly fluctuating, with some years having three-digit growth, whereas other years have negative growth. The highest growth rate was in the year 2011-12, with a growth rate of 448%, and the lowest was in the year 2012-13, with a rate of negative 84 %. These fluctuations are due to the mass registration initiatives taken by the commodity boards

during certain years, which results in the negative rate of registrations in the following years. The applications received during the last four years constitute almost 50% of the total applications filed. The CAGR of the GI applications is 11.66 %.

Table 5.1

GI Registration Applications filed as on March 31, 2024

Year	No. of Applications	Growth Rate (%)
2003-04	6	0
2004-05	29	383
2005-06	16	-45
2006-07	33	106
2007-08	37	12
2008-09	44	19
2009-10	40	-9
2010-11	27	-33
2011-12	148	448
2012-13	24	-84
2013-14	75	213
2014-15	47	-37
2015-16	17	-64
2016-17	32	88
2017-18	38	19
2018-19	32	-16
2019-20	42	31
2020-21	58	38
2021-22	116	100
2022-23	211	82
2023-24	134	-36
Total	1072	CAGR = 11.66

Source: ipinida.gov.in

5.2.2 Evaluation of Goods Wise Break Up of GI Applications

Table 5.2 shows the goods wise break up of GI applications received and approved by the GI Registry from September 15, 2003 till March 31, 2024. The approval rate was found to understand how fast the GI Registry is processing the applications of the GI registrations received by the office.

The approval rate is calculated using the formula:

$$\text{Approval Rate (\%)} = (\text{Applications Registered} / \text{Applications Received}) \times 100$$

Table 5.2

GI Applications Approval Rate – Goods wise break up as on March 31, 2024

Category of Goods	No. of GI Applications Received	No. of GI Applications Registered	Approval Rate (%)
Handicraft (including Textiles)	545	337	62
Agricultural	369	197	53
Manufactured	169	48	28
Foodstuff	105	50	48
Natural	18	3	17
Total	1206	635	53

Source: ipindia.gov.in

Table 5.2 shows that the GI Registry has received a total of 1206 applications till March 31, 2024 and out of these 635 registrations were approved by the Registry. The results of goods wise split up of the approval rate shows that the highest approval rate is seen in the case of handicraft with 62 % and lowest approval rate is 17 % in the case of natural product. The overall approval rate till the year 2023-24 is 53 %. This shows that out of the GI registration applications received over the years only 53% of the applications were approved, which means that the approval of only half of the GI applications received were approved by the Registry. This can be due to the lengthy registration process involving multiple verification and validation of the uniqueness and originality of the product.

5.2.3 Evaluation of GI Authorised User Applications

The GI Registry Chennai started receiving applications for AU registrations since 2009. The producers of GI can get individual AU registration which officially recognises them as a producer of the registered GI product.

Table 5.3

Authorised User Registrations filed as on March 31, 2024

Year	No. of Applications	Growth Rate (%)
2009-10	101	0
2010-11	124	23
2011-12	145	17
2012-13	1070	638
2013-14	471	-56
2014-15	262	-44
2015-16	176	-33
2016-17	1548	780
2017-18	823	-47
2018-19	662	-20
2019-20	1476	123
2020-21	966	-35
2021-22	5745	495
2022-23	9102	58
2023-24	12766	40
Total	22671	CAGR = 7

Source: ipindia.gov.in

The CAGR of AU registration is 7 % as revealed in Table 5.3. Last three years showed significant growth in the number of AU registrations with a total of 5745, 9102 and 12766 applications of AU received during the year 2021-22, 2022-23 and 2023-24 respectively. Out of the all the AU applications received till march 2024, 56.30 % applications belonged to the year 2023-24 and 40.15 % applications belonged to the year 2022-23.

5.2.4 Evaluation of Goods Wise Break up of AU Approval

Table 5.4 shows the number of AU applications received and approved by the Registry on the basis of classification of goods. The result can give an idea about how efficiently the Registry is processing the AU applications received.

Table 5.4

Authorised User Registration Applications - Goods-wise breakup as on March 31, 2024

Category of Goods	No. of GI Authorised User Applications Received	No. of GI Authorised User Applications Registered	Approval Rate (%)
Handicraft (including Textiles)	15422	12781	83
Agricultural	19252	15937	83
Manufactured	201	185	92
Foodstuff	543	532	98
Natural	19	18	95
Total	35437	29453	83

Source: ipindia.gov.in

The Goods wise break up of AU registrations are shown in Table 5.4. The results shows that the approval rate of AU registration applications was higher than 80 % in all cases. The overall approval rate of AU registration is 83%, which shows that the GI Registry is very efficient in approving the AU registrations received.

5.2.5 Authorised User Registration of GIs in the Study

The authorised user registrations of the four GI products chosen for the present study are shown in Table 5.5

Table 5.5*Authorised User Registrations of the Products in the Study*

Name of the GI	No. of Producers registered in the Producers' Association	No. of Producers who have AU registration	AU registration rate (%)
Chengalikodan	524	33	6.29
Nendran			
Tirur Vettala	912	737	80.81
Marayoor	946	0	0
Sharkara			
Kaipad Rice	2755	0	0

Source: ipindia.gov.in

Table 5.5 shows that among the producers taken for the present study only the producers belonging to Chengalikodan Nendran and Tirur Vettala are having AU registration. The highest rate of AU registration can be seen in the case of Tirur Vettala (80.81%). The producers of Marayoor Sharkara and Kaipad Rice has not applied for AU registration. The producers' association of Chengalikodan Nendran and Tirur Vettala were active in initiating AU registrations for their producers as revealed in Table 4.17.

5.2.6 Indian GI Registered Abroad

As per the Geographical Indications of Goods Act, getting GI registration in India does not protect the GI in a foreign market. To get protection abroad the GIs registered in India should get separate registrations in those nations in which it seeks to get protection. It should be noted that those products that do not have GI registration in their home country cannot get GI registration abroad.

The Indian GIs having Registrations Abroad are;

European Union – Kangra Tea, Basmati, and Darjeeling Tea.

United States – Darjeeling Tea, the registration for Basmati by APEDA is pending.

Among the GI registrations in India the Darjeeling tea has adopted the IPR bundling method of protection using multiple IPRs to provide multilevel protection.

5.2.6.1 The Case of Darjeeling Tea

Darjeeling tea was the first to register as a GI in India. The initiative for GI registration was taken by the Tea Board. Being a product with high export potential the Tea Board has made sure to protect Darjeeling Tea abroad also. The Tea Board has taken multi-level protection to protect the genuineness of Darjeeling tea. Within the country Darjeeling tea is protected by way of the Trademarks Act 1999, the Geographical Indications of Goods Act 1999, and the Copyrights Act 1957. The Tea Board has given immense importance to protecting Darjeeling tea in the export market also. For this, the Board has registered it as Trademarks in the UK, USA, Japan, and Russia. The tea is registered as a collective mark in several countries including Spain, France, Portugal, Italy, Switzerland, Egypt, and Lebanon. It is also protected as a certification mark in Australia. Hence, it can be concluded that the Darjeeling tea is the best protected GI of India.

5.3 ANALYSIS ON THE LEVEL OF AWARENESS ABOUT GI AMONG PRODUCERS

The extent of producers' awareness regarding GI tags is vital in ensuring the successful implementation and utilization of GI protection. GIs are a way to certify that a product has certain attributes, a certain market value (reputation), or traits that are exclusive to its place of origin. Understanding the importance of GI tag is crucial for producers, particularly those involved in traditional and region-specific production, as it protects their goods against imitation, while simultaneously increasing market value and promoting sustainable regional development.

Producers' knowledge and comprehension of the registration procedure, legal ramifications, and socio-economic advantages of GI protection are essential for making the most of these protections in areas where GI tags are widely used. Producers' awareness levels can differ greatly depending on various factors, including education, information availability, and participation in cooperatives or producer associations. Higher levels of awareness are frequently linked to improved GI standard compliance, more successful marketing campaigns, and larger overall socio-economic gains. On the other hand, GI safeguards may remain unutilised due to ignorance, leaving producers open to market forces and possible abuse. Ultimately the lack of awareness of GI among the producers can erode the protection of the product's

distinctive qualities by impeding the teamwork required to register and uphold a GI(Vinayan, 2017).

For analysing the awareness level of producers about GI data were collected from 400 GI producers of selected agricultural produce using structured interview schedule. The awareness level of the producers was measured using a five-point Likert scale with the score ranging from 5 for extremely aware, 4 for moderately aware, 3 for somewhat aware, 2 for slightly aware, and 1 for not at all aware.

5.3.1 GI-wise Analysis on the Awareness Level of GI Among the Producers

This section explores the different dimensions of the level of awareness among producers, namely general awareness about GI (six measures), awareness about GI registrations (eight measures), and awareness about legal aspects of GI (six measures) were subjected to analysis GI wise.

5.3.1.1 GI-wise analysis on the Producers' Awareness of General Aspects of GI

The six measures of the level of awareness about general aspects of GI were subjected to GI-wise analysis. In the section questions measuring general awareness about GIs were asked to the producers of the GI-tagged goods as to whether they knew the concept of GI, about the GI logo, and its usage.

a.Descriptive Statistics – GI wise Analysis on the Producers' Awareness of General Aspects of GI

Table 5.6 shows the descriptive statistics relating to the general awareness level of producers about GIs. The overall MPS of above 75 % shows that the producers of all the GIs in the study are highly aware of the concept of GI, the GI logo, and the usage of the GI logo, whereas they have very low awareness about the national-level GI logo and its usage as the MPS is below 35 %. The very low level of awareness regarding the national logo and tag line can be due to lack of promotion and usage from the part of the Government.

Table 5.6

Descriptive Statistics – GI wise Analysis on the Producers' Awareness of General Aspects of GI

Variables	Name of the GI	Mean	SD	MPS
Awareness of the concept of GI	Chengalikodan Nendran	4.437	0.499	88.7
	Tirur Vettala	3.634	0.488	72.7
	Marayoor Sharkara	4.438	0.500	88.8
	Kaipad Rice	3.991	0.684	79.8
	Total	4.115	0.658	82.3
Awareness about GI logo	Chengalikodan Nendran	4.380	0.489	87.6
	Tirur Vettala	3.659	0.480	73.2
	Marayoor Sharkara	4.959	0.200	99.2
	Kaipad Rice	3.865	0.568	77.3
	Total	4.135	0.665	82.7
Awareness about own product having GI logo	Chengalikodan Nendran	4.197	1.050	83.9
	Tirur Vettala	3.780	0.419	75.6
	Marayoor Sharkara	4.973	0.164	99.5
	Kaipad Rice	3.940	0.635	78.8
	Total	4.158	0.771	83.2
Awareness that the GI logo can be attached to the product for brand identity	Chengalikodan Nendran	4.169	1.042	83.4
	Tirur Vettala	3.732	0.449	74.6
	Marayoor Sharkara	4.849	0.360	97.0
	Kaipad Rice	3.953	0.617	79.1
	Total	4.133	0.753	82.7
Awareness that there is a national level logo and tagline for GI	Chengalikodan Nendran	1.390	0.494	27.8
	Tirur Vettala	1.113	0.318	22.3
	Marayoor Sharkara	1.001	0.127	20.0
	Kaipad Rice	1.177	0.569	23.5
	Total	1.170	0.476	23.1
Awareness that national level logo and tagline can be attached to GI products	Chengalikodan Nendran	1.244	0.435	24.9
	Tirur Vettala	1.113	0.318	22.3
	Marayoor Sharkara	1.012	0.125	20.0
	Kaipad Rice	1.167	0.459	23.5
	Total	1.140	0.465	22.8

Source: Primary Data

The most prominent measure of awareness about GI was found to be 'Awareness about own product having GI logo' ($\bar{X} = 4.973 \pm 0.164$) in the case of Marayoor Sharkara, whereas the least prominent one was 'Awareness that national level logo and tagline can be attached to GI products' ($\bar{X} = 1.012 \pm 0.125$) that too in the case of Marayoor Sharkara.

b. Multivariate Analysis of Variance - GI wise Analysis on the Producers' Awareness of General Aspects of GI

Table 5.7 depicts the combined multivariate effect of all the variables identifying the construct of awareness on general aspects of GI.

H_{5.1}: There is significant difference in the producers' level of awareness on the combined effect of multiple dependent variables measuring the 'awareness on general aspects of geographical indications' between different GIs.

Table 5.7 indicates that differences in the awareness level of the producers of different GIs on the combined dependent variables measuring the 'general aspects of GI' were statistically significant with p value of F statistic lower than 0.05, $F [18, 1106.4] = 22.168, p < 0.05$; Wilks' $\Lambda = 0.419$. This means that the producers of different GIs have different level of awareness relating to the multiple variables measuring the producers' awareness about general aspects of GI.

Table 5.7

Multivariate (MANOVA) Test Results – Difference in Producers' Awareness on General Aspects of GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.419	22.168	18.000	1106.400	0.000

F tests the multivariate effect of GI.

Figure in bold indicates significant at 5% level

Source: Primary Data

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 5.8.

c. Univariate Analysis of Variance and Pair wise Comparison - GI wise Analysis on the Producers' Awareness on General Aspects of GI

Univariate ANOVA was conducted for each of the six dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{5.2}: There is significant difference in the producers' level of awareness relating to the individual variables measuring the 'awareness on general aspects of geographical indications' between different GIs.

The test results shown in Table 5.8 reports that statistically significant difference exists in the awareness level of the producers of different GIs, in all the individual cases measuring the awareness on the general aspects of GI except in the cases of 'awareness that there is a national-level logo and tagline for GI' and 'awareness that national level logo and tagline can be attached to GI products'.

Table 5.8

Estimated Margin of Means, SE, and ANOVA Results – Difference in Producers' Awareness on General Aspects of Geographical Indications between different GIs

Variables	Name of the GI	Mean	SE	F (3, 396)	Sig.
Awareness of the concept of GI	Chengalikodan	4.437	0.094	25.301	0.000
	Nendran				
	Tirur Vettala	3.634	0.072		
	Marayoor Sharkara	4.438	0.071		
	Kaipad Rice	3.991	0.041		
Awareness about GI logo	Chengalikodan	4.380	0.078	10.219	0.000
	Nendran				
	Tirur Vettala	3.659	0.059		
	Marayoor Sharkara	4.959	0.058		
	Kaipad Rice	3.865	0.034		
Awareness about own product having GI logo	Chengalikodan	4.197	0.103	49.497	0.000
	Nendran				
	Tirur Vettala	3.780	0.078		
	Marayoor Sharkara	4.973	0.077		
	Kaipad Rice	3.940	0.045		
Awareness that the GI logo can be attached to the product for brand identity	Chengalikodan	4.169	0.104	38.551	0.000
	Nendran				
	Tirur Vettala	3.732	0.079		
	Marayoor Sharkara	4.849	0.078		
	Kaipad Rice	3.953	0.045		
Awareness that there is a national-level logo and tagline for GI	Chengalikodan	1.390	0.073	1.515	0.326
	Nendran				
	Tirur Vettala	1.113	0.055		
	Marayoor Sharkara	1.001	0.051		
	Kaipad Rice	1.177	0.032		

Variables	Name of the GI	Mean	SE	F (3, 396)	Sig.
Awareness that national level logo and tagline can be attached to GI products	Chengalikodan	1.244	0.072	2.486	0.076
	Nendran				
	Tirur Vettala	1.113	0.055		
	Marayoor Sharkara	1.012	0.054		
	Kaipad Rice	1.167	0.031		

Figures in bold indicate significant at 5% level

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 5.9.

Table 5.9

Bonferroni Adjusted Pairwise Comparisons – Difference in Producers' Awareness on General Aspects of Geographical Indications between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	SE	Sig. [#]
Awareness about the concept of GI	Chengalikodan Nendran	Tirur Vettala	0.803 [*]	0.119	0.000
		Marayoor Sharkara	-0.001	0.118	0.000
		Kaipad Rice	0.446 [*]	0.103	0.004
	Tirur Vettala	Marayoor Sharkara	-0.804 [*]	0.101	1.000
		Kaipad Rice	-0.357 [*]	0.083	0.000
	Marayoor Sharkara	Kaipad Rice	0.447 [*]	0.082	0.000
Awareness of GI logo	Chengalikodan Nendran	Tirur Vettala	0.721 [*]	0.098	0.000
		Marayoor Sharkara	-0.579 [*]	0.097	0.000
		Kaipad Rice	0.515 [*]	0.085	0.091
	Tirur Vettala	Marayoor Sharkara	-1.300 [*]	0.083	0.000
		Kaipad Rice	-0.206	0.068	0.038
	Marayoor Sharkara	Kaipad Rice	1.094 [*]	0.067	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	SE	Sig.#
Awareness about own product having GI logo	Chengalikodan Nendran	Tirur Vettila	0.417*	0.129	0.008
		Marayoor Sharkara	-0.776*	0.129	0.000
		Kaipad Rice	0.257*	0.112	0.948
	Tirur Vettila	Marayoor Sharkara	-1.193*	0.110	0.000
		Kaipad Rice	-0.160	0.090	0.027
	Marayoor Sharkara	Kaipad Rice	1.033*	0.089	0.000
Awareness that GI logo can be attached to product for brand identity	Chengalikodan Nendran	Tirur Vettila	0.437*	0.130	0.005
		Marayoor Sharkara	-0.680*	0.130	0.000
		Kaipad Rice	0.216	0.113	0.305
	Tirur Vettila	Marayoor Sharkara	-1.117*	0.111	0.000
		Kaipad Rice	-0.221	0.091	0.110
	Marayoor Sharkara	Kaipad Rice	0.896*	0.090	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

The post hoc test result showed statistically significant difference between the producers of Chengalikodan Nendran and all other GIs, between the producers of Tirur Vettila and Kaipad Rice and between the producers of Marayoor Sharkara and Kaipad Rice in the case of ‘awareness about the concept of GI’.

The statements ‘awareness about GI logo’ and ‘awareness that own product has a registered GI logo’ showed statistically significant difference between the producers of Chengalikodan Nendran and all other GIs except Kaipad Rice, between Tirur Vettila and all other GIs and between Marayoor Sharkara and Kaipad Rice. The statement ‘awareness that GI logo can be attached to products for branding’ showed significant difference between the producers of Chengalikodan Nendran and Tirur Vettila, between Chengalikodan Nendran and Marayoor Sharkara, between Tirur Vettila and Marayoor Sharkara and between Marayoor Sharkara and Kaipad Rice.

In post hoc test result in the case of ‘awareness about the concept of GI’, ‘awareness about GI logo’, ‘awareness that own product has a registered GI logo’ and

‘awareness that GI logo can be attached to products for branding’ maximum variance is found between the producers of Marayoor Sharkara and Tirur Vettala with a mean difference score of 0.804, 1.300, 1.193 and 1.117 respectively. This higher level of awareness about the concept of GI and logo among the producers of Marayoor Sharkara is attributed to the fact that the producers’ association of Marayoor Sharkara is distributing logo sticker among its members. The members can attach this logo sticker to their product at the time of sales. This would have familiarised the GI logo among the producers of Marayoor Sharkara.

There is no significant difference in the level of awareness among the producers of different GIs regarding the national level logo and tagline. All the producers are having very low level of awareness about the national level logo and tagline.

5.3.1.2 GI-wise analysis on the Producers’ Awareness about GI Registration

The eight measures of awareness about GI registration were subjected to GI-wise analysis. The awareness of GI registration features is important to the producers of GI as it opens the eye towards the terms and conditions related to the usage of the GI tag. The awareness level on GI registration measures the producers’ awareness regarding the procedure for GI registration, its validity, renewal, fees, coverage, and AU registration.

a. Descriptive Statistics - GI-wise analysis on the Producers’ Awareness about GI Registration

The descriptive statistics as revealed in Table 5.10 about the awareness level of producers relating to GI registrations indicates that the producers of GI in the study have medium awareness about the fact that GI registration gives them pan India protection and that the registration fee of GI is Rs.5000 with MPS of 58.6 % and 54.9 % respectively.

The producers were having very low level of awareness to the statements about individual AU registration, the validity of GI being 10 years, GI registration needs to be renewed after 10 years and the renewal fees are Rs.3000 with an MPS of 36.2%, 46.1%, 38% and 49% respectively.

The producers have having poor level of awareness about the procedure of GI registration and the fact that GI registrations that are protected in the home country only can claim protection outside the nation with MPS of 30%.

As per the descriptive statistics shown in Table 5.10, the most prominent measure of awareness about GI registration was found to be ‘awareness that producers can get individual AU registration’ ($\bar{X}$ = 3.854 $\pm$ 0.358) in the case of Chengalikodan Nendran, whereas the least prominent one was ‘awareness that producers can get individual AU registration’ ($\bar{X}$ = 1.085 $\pm$ 0.142) in the case of Kaipad Rice.

Table 5.10

Descriptive Statistics – GI wise Analysis on the Producers’ Awareness about GI Registration

Variables	Name of the GI	Mean	SD	MPS
Awareness about procedures for getting GI registration	Chengalikodan Nendran	1.195	0.401	23.9
	Tirur Vettala	1.394	0.547	27.9
	Marayoor Sharkara	2.027	0.745	40.5
	Kaipad Rice	1.419	0.685	28.4
	Total	1.503	0.697	30.1
Awareness that producers can get individual AU registration	Chengalikodan Nendran	3.854	0.358	77.1
	Tirur Vettala	3.606	0.492	72.1
	Marayoor Sharkara	1.288	0.808	25.8
	Kaipad Rice	1.085	0.142	20.0
	Total	1.808	1.257	36.2
Awareness about the validity of GI registration being 10 years	Chengalikodan Nendran	2.341	0.480	46.8
	Tirur Vettala	1.211	0.445	24.2
	Marayoor Sharkara	3.164	0.687	63.3
	Kaipad Rice	2.367	0.483	47.3
	Total	2.305	0.786	46.1
Awareness that GI registration has to be renewed after 10 years	Chengalikodan Nendran	1.659	0.480	33.0
	Tirur Vettala	1.183	0.390	23.7
	Marayoor Sharkara	1.356	0.856	27.1
	Kaipad Rice	2.363	0.482	47.3
	Total	1.898	0.757	38.0
Awareness that single GI registration will provide pan India protection	Chengalikodan Nendran	2.098	0.436	42.0
	Tirur Vettala	3.324	0.713	66.5
	Marayoor Sharkara	2.411	0.663	48.2
	Kaipad Rice	3.135	0.899	62.7
	Total	2.930	0.890	58.6

Variables	Name of the GI	Mean	SD	MPS
Awareness that GI protected in home country can seek protection abroad	Chengalikodan Nendran	1.317	0.471	26.3
	Tirur Vettla	1.592	0.667	31.8
	Marayoor Sharkara	1.178	0.385	23.6
	Kaipad Rice	1.628	0.484	32.6
	Total	1.508	0.534	30.2
Awareness that the GI registration fee is Rs.5000	Chengalikodan Nendran	1.585	0.631	31.7
	Tirur Vettla	2.127	0.375	42.5
	Marayoor Sharkara	1.767	0.677	35.3
	Kaipad Rice	3.498	0.501	70.0
	Total	2.743	0.984	54.9
Awareness that the GI registration renewal fee is Rs. 3000	Chengalikodan Nendran	1.195	0.401	43.9
	Tirur Vettla	1.254	0.438	45.1
	Marayoor Sharkara	1.356	0.856	45.5
	Kaipad Rice	1.623	0.486	52.5
	Total	1.465	0.583	49.0

Source: Primary Data

b. Multivariate Analysis of Variance - GI-wise analysis on the Producers' Awareness about GI Registration

Table 5.11 depicts the combined multivariate effect of all the variables identifying the construct of awareness about GI registration.

H_{5.3}: There is significant difference in the producers' level of awareness on the combined effect of multiple variables measuring the awareness about geographical indications registration between different GIs.

Table 5.11

Multivariate (MANOVA) Test Results – Difference in Producers' Awareness about GI Registration between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	.009	72.783	27.000	1133.802	0.000

F tests the multivariate effect of GI.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The differences in the awareness level of the producers of different GIs on the combined dependent variables were statistically significant with p value of F statistic

lower than 0.05, $F [27, 1133.802] = 72.783, p < 0.05$; Wilks' $\Lambda = .009$; as shown in Table 5.11. This means that the producers of different GIs have different levels of awareness relating to the multiple variables measuring the awareness about registration aspects of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 5.12.

c. Univariate Analysis of Variance and Pair wise Comparison - GI-wise analysis on the Producers' Awareness about GI Registration

Univariate ANOVA was conducted for each of the eight dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{5.4}: There is significant difference in the producers' level of awareness relating to the individual measures of awareness about registration aspects of geographical indications between different GIs.

The test results as shown in Table 5.12 reveal that statistically significant difference exists in the awareness level of the producers of different GIs, in all the individual cases measuring the registration-related awareness about GI.

Table 5.12

Estimated Margin of Means, SE, and ANOVA Results – Difference in Producers' Awareness about GI Registration between different GIs

Variables	Name of the GI	Mean	SE	F (3, 396)	Sig.
Awareness about procedures for getting GI registration	Chengalikodan Nendran	1.195	.102	20.729	0.000
	Tirur Vettala	1.394	.077		
	Marayoor Sharkara	2.027	.076		
	Kaipad Rice	1.419	.044		
Awareness that producers can get individual AU registration	Chengalikodan Nendran	3.854	.065	71.883	0.000
	Tirur Vettala	3.606	.050		
	Marayoor Sharkara	1.288	.049		
	Kaipad Rice	1.085	.028		

Variables	Name of the GI	Mean	SE	F (3, 396)	Sig.
Awareness about the validity of GI registration being 10 years	Chengalikodan Nendran	2.341	.081	17.309	0.000
	Tirur Vettala	1.211	.062		
	Marayoor Sharkara	3.164	.061		
	Kaipad Rice	2.367	.035		
Awareness that GI registration has to be renewed after 10 years	Chengalikodan Nendran	1.659	.087	14.982	0.000
	Tirur Vettala	1.183	.066		
	Marayoor Sharkara	1.356	.065		
	Kaipad Rice	2.363	.038		
Awareness that single GI registration will provide pan India protection	Chengalikodan Nendran	2.098	.124	36.270	0.000
	Tirur Vettala	3.324	.094		
	Marayoor Sharkara	2.411	.093		
	Kaipad Rice	3.135	.054		
Awareness that GI protected in home country can seek protection abroad	Chengalikodan Nendran	1.317	.079	17.034	0.000
	Tirur Vettala	1.592	.060		
	Marayoor Sharkara	1.178	.059		
	Kaipad Rice	1.628	.034		
Awareness that the GI registration fee is Rs.5000	Chengalikodan Nendran	1.585	.083	32.063	0.000
	Tirur Vettala	2.127	.063		
	Marayoor Sharkara	1.767	.062		
	Kaipad Rice	3.498	.036		
Awareness that the GI registration renewal fee is Rs. 3000	Chengalikodan Nendran	1.195	.087	13.308	0.000
	Tirur Vettala	1.254	.066		
	Marayoor Sharkara	1.356	.065		
	Kaipad Rice	1.623	.038		

Figures in bold indicate significant at 5% level

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 5.13.

Table 5.13

Bonferroni Adjusted Pairwise Comparisons – Difference in Producers' Awareness about GI Registration between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	SE	Sig.#
Awareness about procedures for getting GI registration	Chengalikodan Nendran	Tirur Vettila	-0.199	0.128	0.716
		Marayoor Sharkara	-0.832*	0.127	0.000
		Kaipad Rice	-0.223	0.111	0.267
	Tirur Vettila	Marayoor Sharkara	-0.633*	0.108	0.000
		Kaipad Rice	-0.024	0.089	1.000
	Marayoor Sharkara	Kaipad Rice	0.609*	0.088	0.000
Awareness that producers can get individual AU registration	Chengalikodan Nendran	Tirur Vettila	0.248*	0.082	0.016
		Marayoor Sharkara	2.566*	0.081	0.000
		Kaipad Rice	2.854*	0.071	0.000
	Tirur Vettila	Marayoor Sharkara	2.318*	0.070	0.000
		Kaipad Rice	2.606*	0.057	0.000
	Marayoor Sharkara	Kaipad Rice	0.288*	0.057	0.000
Awareness about the validity of GI registration being 10 years	Chengalikodan Nendran	Tirur Vettila	1.130*	0.102	0.031
		Marayoor Sharkara	-0.823*	0.101	0.000
		Kaipad Rice	-0.026	0.089	1.000
	Tirur Vettila	Marayoor Sharkara	-1.953*	0.087	0.012
		Kaipad Rice	-1.156*	0.071	0.000
	Marayoor Sharkara	Kaipad Rice	0.797*	0.070	0.000
Awareness that GI registration has to be renewed after 10 years	Chengalikodan Nendran	Tirur Vettila	0.475*	0.109	0.000
		Marayoor Sharkara	0.302*	0.108	0.033
		Kaipad Rice	-0.704*	0.095	0.000
	Tirur Vettila	Marayoor Sharkara	-0.173	0.093	0.375
		Kaipad Rice	-1.180*	0.076	0.000
	Marayoor Sharkara	Kaipad Rice	-1.007*	0.075	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	SE	Sig.#
Awareness that single GI registration will provide pan India protection	Chengalikodan Nendran	Tirur Vettila	-1.226*	0.155	0.000
		Marayoor Sharkara	-0.313	0.154	0.258
		Kaipad Rice	-1.037*	0.135	0.000
	Tirur Vettila	Marayoor Sharkara	0.913*	0.132	0.000
		Kaipad Rice	0.189	0.108	0.490
	Marayoor Sharkara	Kaipad Rice	-0.724*	0.107	0.000
Awareness that GI protected in home country can seek protection abroad	Chengalikodan Nendran	Tirur Vettila	-0.274*	0.099	0.035
		Marayoor Sharkara	0.139	0.099	0.955
		Kaipad Rice	-0.311*	0.086	0.002
	Tirur Vettila	Marayoor Sharkara	0.413*	0.084	0.000
		Kaipad Rice	-0.036	0.069	1.000
	Marayoor Sharkara	Kaipad Rice	-0.450*	0.068	0.003
Awareness that the GI registration fee is Rs.5000	Chengalikodan Nendran	Tirur Vettila	-0.541*	0.105	0.000
		Marayoor Sharkara	-0.182	0.104	0.489
		Kaipad Rice	-1.912*	0.091	0.010
	Tirur Vettila	Marayoor Sharkara	0.360*	0.089	0.020
		Kaipad Rice	-1.371*	0.073	0.041
	Marayoor Sharkara	Kaipad Rice	-1.731*	0.072	0.000
Awareness that the GI registration renewal fee is Rs. 3000	Chengalikodan Nendran	Tirur Vettila	-0.058	0.109	1.000
		Marayoor Sharkara	-0.161	0.109	0.838
		Kaipad Rice	-0.428*	0.095	0.031
	Tirur Vettila	Marayoor Sharkara	-0.103	0.093	1.000
		Kaipad Rice	-0.370*	0.076	0.000
	Marayoor Sharkara	Kaipad Rice	-0.267*	0.076	0.003

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

In the case of ‘awareness about procedures for getting GI registration’ pairwise comparisons shown in Table 5.13 revealed that statistically significant differences exist between Marayoor Sharkara and all other GIs under review. However, no differences could be traced between Chengalikodan Nendran and Tirur Vettala, between Chengalikodan Nendran and Kaipad Rice as well as between Tirur Vettala and Kaipad Rice. The pairwise comparison showed maximum variance between Marayoor Sharkara and Chengalikodan Nendran with a mean difference score of 0.832. The reason can be due to the registration of Marayoor Sharkara being more recent when compared to Chengalikodan Nendran.

The statement ‘awareness that producers can get individual AU registration’ has statistically significant differences between all categories of GIs under review. The maximum variance exists between Chengalikodan Nendran and Kaipad Rice with a mean difference of 2.854. The producers of Tirur Vettala and Chengalikodan Nendran are much more aware of the individual AU registration than the producers of Marayoor Sharkara and Kaipad Rice. This is evident from the number of AU registrations in the case of Chengalikodan Nendran and Tirur Vettala and no registration in the case of Kaipad Rice and Marayoor Sharkara.

In the case of ‘awareness about the validity of GI registration being 10 years’ statistically significant differences exist between Marayoor Sharkara and all other GIs under study. However, no statistically significant differences exist between Chengalikodan Nendran and Kaipad Rice. The pairwise comparison revealed maximum variance between Marayoor Sharkara and Tirur Vettala with a mean difference score of 1.953.

A close examination of pair-wise comparisons revealed that in the case of ‘awareness that GI registration must be renewed after 10 years’ statistically significant differences were traced between Chengalikodan Nendran and all other GIs namely Tirur Vettala, Marayoor Sharkara and Kaipad Rice. However, no differences exist between Tirur Vettala and Marayoor Sharkara. Similarly in the case of ‘awareness that the GI registration renewal fee is Rs. 3000’ statistically significant differences exist between Kaipad Rice and all other GIs such as Chengalikodan Nendran, Tirur Vettala and Marayoor Sharkara. However, no differences could be traced between Chengalikodan Nendran and Tirur Vettala as well as between Chengalikodan Nendran

and Marayoor Sharkara. Pairwise comparison showed no differences between Tirur Vettala and Marayoor Sharkara. The pairwise comparison on 'GI registration should be renewed after 10 years of registration' revealed the highest difference between Kaipad Rice and Tirur Vettala with a mean difference of 1.180 and awareness about 'GI registration renewal fee is Rs. 3000' showed the maximum variance between Kaipad and Chengalikodan with a mean difference score of 0.428.

This means that the awareness about the renewal of the GI tag is higher among the producers of Kaipad Rice and lower among other GI producers in the study. This can be because the only GI in the study that has already renewed the registration after the completion of 10 years is Kaipad Rice.

When it comes to 'awareness that single GI registration can provide pan India protection', except between Chengalikodan Nendran and Marayoor Sharkara and between Tirur Vettala and Kaipad Rice, statistically significant differences exist between all other varieties of GIs under study. The results of the post hoc test revealed maximum variance between Tirur Vettala and Chengalikodan Nendran with a mean difference of 1.226.

Similarly, in the case of 'awareness that GI protected in the home country can seek protection abroad' statistically significant differences exist between all other varieties of GIs under study except between Chengalikodan Nendran and Marayoor Sharkara and between Tirur Vettala and Kaipad Rice. The maximum variance is between Kaipad Rice and Marayoor Sharkara with a mean difference of 0.45.

In the case of 'awareness that the GI registration fee is Rs.5000' statistically significant differences exist between Tirur Vettala and all other GIs such as Chengalikodan Nendran, Marayoor Sharkara and Kaipad Rice. However, no differences could be traced between Chengalikodan Nendran and Marayoor Sharkara. The post hoc test revealed maximum variance between Kaipad Rice and Chengalikodan Nendran with a mean difference of 1.912.

The evaluation of the awareness level of producers of different GIs regarding GI registration showed that the producers of Marayoor Sharkara had higher level of awareness on GI registration procedures and its validity. In the case of AU registration possibilities, the producers of Chengalikodan Nendran expressed higher level of

awareness. The producers of Kaipad Rice displayed higher level of awareness on multiple variables such as registration fees of GI, renewal period and fees as well as the fact that the GI protected in India only can get registration abroad. The awareness about the pan India validity of GI registration was higher among the producers of Tirur Vettila.

5.3.1.3 GI wise analysis of Producers' Awareness about Legal Aspects of GI

The six measures of 'awareness about legal aspects of GI' were subjected to GI-wise analysis. A GI tag is a legal protection provided to products having unique qualities due to their environmental significance. Ignorance about the legal aspects of the protection restricts the producers from availing the full benefit of the GI protection. The awareness level of GI producers was measured using the statements, 'awareness that GI gives the product legal protection', 'awareness that the right to use registered GI can be transferred to legal heir', 'awareness about the legal procedures in case of GI Act violation', 'awareness that GI is a collective mark', 'awareness that GI can provide products with a collective monopoly' and 'awareness that GI rights cannot be transferred to external parties'.

a.Descriptive Statistics - GI wise analysis of Producers' Awareness about Legal Aspects of Geographical Indications

The combined descriptive statistics in Table 5.14 reveal that the producers of the GI in the study have a moderate level of awareness about the fact that the GI are a legal protection instrument and that they provide collective protection with an overall MPS between 51% and 75%. The producers in the study have a low level of awareness that the GI tag can provide the producers with a collective monopoly with an overall MPS of 48.8 %. The producers in the study have a very low level of awareness relating to the statements that 'the right to use GI can be transferred only to their legal heirs', 'it cannot be transferred to any external parties' and about 'the legal procedures to be followed when GI Act violation', as these statements have an MPS less than 35 %. This brings to the fact that the GI producers are having very low level of awareness about technical aspects of GI relating to procedural formalities like transfer of legal ownership and filing of legal complaint. This can be due to their poor educational background and that most of the producers in the study are from rural domicile.

Table 5.14

Descriptive Statistics – GI wise Analysis Producers' Awareness about Legal Aspects of GI

Variables	Name of the GI	Mean	SD	MPS
Awareness that GI gives the product legal protection	Chengalikodan Nendran	3.293	0.461	65.9
	Tirur Vettila	4.197	0.768	83.9
	Marayoor Sharkara	3.219	0.479	64.4
	Kaipad Rice	3.702	0.534	74.0
	Total	3.660	0.648	73.2
Variables	Name of the GI	Mean	SD	MPS
Awareness that the right to use registered GI can be transferred to legal heir	Chengalikodan Nendran	1.610	0.542	32.2
	Tirur Vettila	1.408	0.599	28.2
	Marayoor Sharkara	1.329	0.473	26.6
	Kaipad Rice	1.321	0.468	26.4
	Total	1.368	0.508	27.4
Awareness about the legal procedures in case of GI Act violation	Chengalikodan Nendran	1.146	0.358	22.9
	Tirur Vettila	1.225	0.421	24.5
	Marayoor Sharkara	1.233	0.426	24.7
	Kaipad Rice	1.251	0.435	25.0
	Total	1.233	0.423	24.7
Awareness that GI is a collective mark	Chengalikodan Nendran	3.610	0.494	72.2
	Tirur Vettila	4.113	0.398	82.3
	Marayoor Sharkara	2.397	0.595	47.9
	Kaipad Rice	3.684	0.466	73.7
	Total	3.518	0.736	70.4
Awareness that GI can provide products with a collective monopoly	Chengalikodan Nendran	2.220	0.419	44.4
	Tirur Vettila	3.845	0.669	76.9
	Marayoor Sharkara	2.178	0.452	43.6
	Kaipad Rice	2.102	0.735	42.0
	Total	2.438	0.924	48.8
Awareness that GI rights cannot be transferred to external parties	Chengalikodan Nendran	2.366	0.488	47.3
	Tirur Vettila	1.887	0.667	37.7
	Marayoor Sharkara	1.219	0.417	24.4
	Kaipad Rice	1.321	0.468	26.4
	Total	1.510	0.621	30.2

Source: Primary Data

The most prominent measure of awareness about legal aspects of GI was found to be 'awareness that GI gives the product legal protection' ($\bar{X}$ = 4.197 ± 0.768) in the case of Tirur Vettila, whereas the least prominent one was 'awareness about the legal

procedures in case of GI Act violation' ($\bar{X}$ = 1.146 $\pm$ 0.358) in the case of Chengalikodan Nendran.

b. Multivariate Analysis of Variance - GI wise analysis of Producers' Awareness about Legal Aspects of GI

Table 5.15 depicts the combined multivariate effect of all the variables identifying the construct of awareness about legal aspects of GI.

H_{5.5}: There is significant difference in the producers' level of awareness on the combined effect of multiple dependent variables measuring the awareness about legal aspects of geographical indications between different GIs.

Table 5.15

Multivariate (MANOVA) Test Results – Difference in Producers' Awareness about Legal Aspects of GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.117	69.847	18.000	1106.400	0.000

F tests the multivariate effect of GI.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The differences in the awareness level of the producers of different GIs on the combined dependent variables measuring the awareness level of legal aspects were statistically significant with p value of F statistic lower than 0.05, F [18, 1106.4] = 69.847, $p < 0.05$; Wilks' Λ = 0.117. This means that the producers of different GIs have different levels of awareness relating to the multiple variables measuring the awareness about legal aspects of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 5.16.

c. Univariate Analysis of Variance and Pair wise Comparison - GI wise analysis of Producers' Awareness about Legal Aspects of GI

Univariate ANOVA was conducted for each of the six dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{5.6}: There is significant difference in the producers' level of awareness relating to the individual measures of awareness about legal aspects of geographical indications between different GIs.

The test results of Univariate ANOVA in Table 5.16 indicate that statistically significant difference exists in the awareness level of the producers of different GIs, in all the individual cases of variables measuring the awareness about legal aspects of GI, except in the case of 'awareness about the legal procedures in case of GI Act violation'.

Table 5.16

Estimated Margin of Means, SE, and ANOVA Results – Difference in Producers' Awareness about Legal Aspects of GI between different GIs

Variables	Name of the GI	Mean	SE	F (3,396)	Sig.
Awareness that GI gives the product legal protection	Chengalikodan Nendran	3.293	0.089	42.133	0.000
	Tirur Vettala	4.197	0.067		
	Marayoor Sharkara	3.219	0.066		
	Kaipad Rice	3.702	0.039		
Awareness that the right to use registered GI can be transferred to legal heir	Chengalikodan Nendran	1.610	0.078	4.098	0.007
	Tirur Vettala	1.408	0.060		
	Marayoor Sharkara	1.329	0.059		
	Kaipad Rice	1.321	0.034		
Awareness about the legal procedures in case of GI Act violation	Chengalikodan Nendran	1.146	0.066	0.712	0.545
	Tirur Vettala	1.225	0.050		
	Marayoor Sharkara	1.233	0.050		
	Kaipad Rice	1.251	0.029		
Awareness that GI is a collective mark	Chengalikodan Nendran	3.610	0.076	74.977	0.000
	Tirur Vettala	4.113	0.057		
	Marayoor Sharkara	2.397	0.057		
	Kaipad Rice	3.684	0.033		

Variables	Name of the GI	Mean	SE	F (3,396)	Sig.
Awareness that GI can provide products with a collective monopoly	Chengalikodan Nendran	2.220	0.102	34.292	0.000
	Tirur Vettala	3.845	0.077		
	Marayoor Sharkara	2.178	0.076		
	Kaipad Rice	2.102	0.045		
Awareness that GI rights cannot be transferred to external parties	Chengalikodan Nendran	2.366	0.078	71.309	0.000
	Tirur Vettala	1.887	0.060		
	Marayoor Sharkara	1.219	0.059		
	Kaipad Rice	1.321	0.034		

Figures in bold indicate significant at 5% level.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 5.17.

Table 5.17

Bonferroni Adjusted Pairwise Comparisons – Difference in Producers' Awareness about Legal Aspects of GI between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Awareness that GI gives the product legal protection	Chengalikodan Nendran	Tirur Vettala	-0.905*	0.111	0.003
		Marayoor Sharkara	0.074	0.111	0.701
		Kaipad Rice	-0.410*	0.097	0.011
	Tirur Vettala	Marayoor Sharkara	0.978*	0.094	0.004
		Kaipad Rice	0.495*	0.078	0.000
	Marayoor Sharkara	Kaipad Rice	-0.483*	0.077	0.000
Awareness that the right to use registered GI can be transferred to legal heir	Chengalikodan Nendran	Tirur Vettala	0.201	0.099	0.250
		Marayoor Sharkara	0.281*	0.098	0.026
		Kaipad Rice	0.289*	0.086	0.005
	Tirur Vettala	Marayoor Sharkara	0.080	0.084	0.981
		Kaipad Rice	0.088	0.069	0.766
	Marayoor Sharkara	Kaipad Rice	0.008	0.068	0.961

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Awareness that GI is a collective mark	Chengalikodan Nendran	Tirur Vettila	-0.503*	0.095	0.000
		Marayoor Sharkara	1.212*	0.094	0.000
		Kaipad Rice	-0.074	0.083	0.896
	Tirur Vettila	Marayoor Sharkara	1.715*	0.081	0.017
		Kaipad Rice	0.429*	0.066	0.001
	Marayoor Sharkara	Kaipad Rice	-1.286*	0.066	0.007
Awareness that GI can provide products with collective monopoly	Chengalikodan Nendran	Tirur Vettila	-1.626*	0.128	0.000
		Marayoor Sharkara	0.041	0.127	0.785
		Kaipad Rice	0.117	0.111	0.597
	Tirur Vettila	Marayoor Sharkara	1.667*	0.109	0.021
		Kaipad Rice	1.743*	0.089	0.000
	Marayoor Sharkara	Kaipad Rice	0.076	0.088	0.731
Awareness that GI rights cannot be transferred to external parties	Chengalikodan Nendran	Tirur Vettila	0.479*	0.099	0.000
		Marayoor Sharkara	1.147*	0.098	0.002
		Kaipad Rice	1.045*	0.086	0.000
	Tirur Vettila	Marayoor Sharkara	0.668*	0.084	0.000
		Kaipad Rice	0.566*	0.069	0.009
	Marayoor Sharkara	Kaipad Rice	-0.102	0.068	0.814

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

Table 5.17 provides the results of the post hoc test. In the case of ‘awareness that GI tag gives the product legal protection,’ pairwise comparisons revealed that statistically significant differences exist between Tirur Vettila and all other GIs under review. However, no differences could be traced between Chengalikodan Nendran and Marayoor Sharkara. The pairwise comparison revealed maximum variance between Tirur Vettila and Marayoor Sharkara with a mean difference score of 0.978. This means that the producers of Tirur Vettila are more aware of the fact that the GI tag is a legal tool and can give them legal protection in case of violation than the producers of Marayoor Sharkara.

In the case of ‘awareness that the right to use registered GI can be transferred to legal heir’ statistically significant differences exist only between Chengalikodan Nendran and Marayoor Sharkara as well as between Chengalikodan Nendran and Kaipad Rice. The post hoc test showed maximum variance between Chengalikodan Nendran and Kaipad Rice with a mean difference of 0.289.

A close examination of pair-wise comparisons revealed that in the case of ‘awareness that GI rights cannot be transferred to external parties’ statistically significant differences were traced between all varieties of GIs namely Chengalikodan Nendran, Tirur Vettila, Marayoor Sharkara and Kaipad Rice, except between Marayoor Sharkara and Kaipad Rice. The pairwise comparison revealed a maximum mean difference of 1.147 between Chengalikodan nendran and Marayoor Sharkara. This brings to light the fact that the producers of Chengalikodan Nendran are more aware of the ownership and transfer of the right to use the GI tag.

The statements ‘aware that GI is a collective mark’ and ‘aware that GI registration will give my product a collective monopoly’ showed the highest mean difference between Tirur Vettila and Marayoor Sharkara and between Tirur Vettila and Kaipad Rice with a mean difference score of 1.715 and 1.743 respectively. This reveals that among the GI producers in the study, the producers of Tirur Vettila are more aware that GI is a collective IPR and that it can provide them the strength of collective monopoly if properly utilised.

5.3.2 Domicile-wise Analysis on the Awareness Level of GI Among the Producers

This section explores the different dimensions of the level of awareness among producers, namely awareness about GI (six measures), awareness about GI registrations (eight measures), and awareness about legal aspects of GI (six measures) were subjected to analysis domicile wise.

5.3.2.1 Domicile-wise Analysis on the Producers’ Awareness of General Aspects of GI

The six measures of level of awareness about GI were subjected to domicile-wise analysis.

a. Descriptive Statistics - Domicile-wise Analysis on Producers' Awareness of General Aspects of Geographical Indications

The descriptive statistics in Table 5.18 reveal that the producers of the urban area have a high level of awareness about the 'concept of GI' MPS = 84.6 %, 'about GI logo' MPS = 86.7 %, 'about their product having GI logo' MPS = 93.3 % and that 'GI logo can be attached to the product for brand identity' MPS=86.7 %. The awareness level about the national level logo and tagline and its utilisation analysis reveals that all the producers have very low level of awareness with a combined mean score of $\bar{X}$ =1.155, SD 0.476 (MPS 23.1 %) and $\bar{X}$ =1.144, SD 0.465 (MPS 22.8 %) irrespective of domiciles.

Table 5.18

Descriptive Statistics – Producers' Awareness on General Aspects of GI between different Domiciles

Variables	Domicile	Mean	SD	MPS
Awareness of the concept of GI	Urban	4.230	0.112	84.6
	Rural	4.156	0.658	83.1
	Semi-Urban	3.645	0.486	72.9
	Total	4.115	0.658	82.3
Awareness about GI logo	Urban	4.333	0.577	86.7
	Rural	4.175	0.664	83.5
	Semi-Urban	3.645	0.486	72.9
	Total	4.135	0.665	82.7
Awareness about own product having GI logo	Urban	4.667	0.577	93.3
	Rural	4.186	0.786	83.7
	Semi-Urban	3.774	0.425	75.5
	Total	4.158	0.771	83.2
Awareness that GI logo can be attached to product for brand identity	Urban	4.333	0.577	86.7
	Rural	4.161	0.768	83.2
	Semi-Urban	3.774	0.425	75.5
	Total	4.133	0.753	82.7
Awareness that there is national level logo and tag line for GI	Urban	1.052	0.332	21.0
	Rural	1.137	0.472	22.7
	Semi-Urban	1.387	0.495	27.7
	Total	1.155	0.476	23.1
Awareness that national level logo and tagline can be attached to GI products	Urban	1.023	0.131	20.5
	Rural	1.131	0.467	22.6
	Semi-Urban	1.258	0.445	25.2
	Total	1.14	0.465	22.8

Source: Primary Data

The most prominent measure of awareness about GI was found to be ‘awareness about own product having GI logo’ ($\bar{X}= 4.667 \pm 0.577$) in the case of urban producers, whereas the least prominent one was ‘awareness that national level logo and tagline can be attached to GI products’ ($\bar{X}= 1.023 \pm 0.131$) that too among producers from urban areas.

b.Multivariate Analysis of Variance - Domicile-wise Analysis of Producers’ Awareness on General Aspects of Geographical Indications

Table 5.19 depicts the combined multivariate effect of all the variables identifying the construct of awareness on general aspects of GI.

H_{5.7}: There is significant difference in the awareness level of the producers on the combined effect of multiple dependent variables measuring the awareness about general aspects of geographical indications between different domiciles.

Table 5.19

Multivariate (MANOVA) Test Results – Difference in Producers’ Awareness on General Aspects of Geographical Indications between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.019	3.500	12.000	784.000	0.000

F tests the multivariate effect of Domicile.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The differences in the awareness level of the producers of different domiciles on the combined dependent variables were statistically significant with the p value of F statistic lower than 0.05, $F [12, 784] = 3.500$, $p < 0.05$; Wilks' $\Lambda = 0.019$. This means that the producers of different domiciles have different levels of awareness relating to the multiple variables measuring the awareness about general aspects of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 5.20.

**c. Univariate Analysis of Variance and Pair wise Comparison - Domicile-wise
Analysis on Producers' Awareness of General Aspects of Geographical
Indications**

Univariate ANOVA was conducted for each of the six dependent variables to identify whether statistically significant differences exist between the various producers of different domiciles.

H_{5.8}: There is significant difference in the producers' level of awareness on the individual measures of awareness about general aspects of geographical indications between different domiciles.

The test results in Table 5.20 indicate that a statistically significant difference exists in the awareness level of the producers of different domiciles, in all the individual cases of variables measuring the 'general awareness about GI, except 'awareness that national level logo and tagline can be attached to GI products'.

Table 5.20

Estimated Margin of Means, SE, and ANOVA Results – Difference in Producers' Awareness on General Aspects of Geographical Indications between different Domiciles

Variables	Domicile	Mean	SE	F (2,397)	Sig.
Awareness of the concept of GI	Urban	4.230	0.372	8.999	0.000
	Rural	4.156	0.034		
	Semi-Urban	3.645	0.116		
Awareness of GI logo	Urban	4.333	0.376	9.583	0.000
	Rural	4.175	0.034		
	Semi-Urban	3.645	0.117		
Awareness about own product having GI logo	Urban	4.667	0.441	4.824	0.009
	Rural	4.186	0.040		
	Semi-Urban	3.774	0.137		
Awareness that the GI logo can be attached to the product for brand identity	Urban	4.333	0.431	3.944	0.020
	Rural	4.161	0.039		
	Semi-Urban	3.774	0.134		
Awareness that there is a national-level logo and tagline for GI	Urban	1.052	0.273	4.184	0.016
	Rural	1.137	0.025		
	Semi-Urban	1.387	0.085		

Variables	Domicile	Mean	SE	F (2,397)	Sig.
Awareness that national level logo and tagline can be attached to GI products	Urban	1.023	0.268	1.204	0.301
	Rural	1.131	0.024		
	Semi-Urban	1.258	0.083		

Figures in bold indicate significant at 5% level

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 5.21.

Table 5.21

Bonferroni Adjusted Pairwise Comparisons – Difference in Producers' Awareness on General Aspects of Geographical Indications between different Domiciles

Variables	(I) Domicile	(J) Domicile	Mean Difference (I-J)	SE	Sig.#
Awareness of the concept of GI	Urban	Rural	-0.074	0.374	0.810
		Semi-Urban	0.585	0.390	1.000
	Rural	Urban	0.074	0.374	0.612
		Semi-Urban	0.511*	0.121	0.000
Awareness of GI logo	Urban	Rural	0.158	0.378	1.000
		Semi-Urban	0.688	0.394	0.244
	Rural	Urban	-0.158	0.378	1.000
		Semi-Urban	0.530*	0.122	0.000
Awareness about own product having GI logo	Urban	Rural	0.481	0.443	0.834
		Semi-Urban	0.892	0.462	0.162
	Rural	Urban	-0.481	0.443	0.855
		Semi-Urban	0.412*	0.143	0.013
Awareness that the GI logo can be attached to the product for brand identity	Urban	Rural	0.172	0.433	1.000
		Semi-Urban	0.559	0.452	0.650
	Rural	Urban	-0.172	0.433	0.906
		Semi-Urban	0.387*	0.140	0.018

Variables	(I) Domicile	(J) Domicile	Mean Difference (I-J)	SE	Sig.#
Awareness that there is a national-level logo and tagline for GI	Urban	Rural	-0.085	0.274	1.000
		Semi-Urban	-0.335	0.286	0.528
	Rural	Urban	0.085	0.274	0.760
		Semi-Urban	0.250*	0.088	0.014

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

Pairwise comparisons as shown in Table 5.21 revealed that in the cases where significant differences exist across categories of domicile of producers, statistically significant differences exist only between semi-urban and rural producers.

In the case of awareness about the concept of GI, awareness about GI logo, awareness that own product has a registered GI logo, awareness that the GI logo can be attached to products for branding, and awareness that there is a national-level logo and tagline for the GI product maximum variance is found between rural and semi-urban with mean difference of 0.511, 0.530, 0.412, 0.387 and 0.250 respectively. This reveals that the producers of rural domiciles have a slightly higher level of awareness about the general concepts of GI when compared to producers of semi-urban domiciles, this can be because the producers of rural areas are more interested in the GI tag as it upholds the traditional farming practices.

5.3.2.2 Domicile-wise Analysis on Producers' Awareness about Geographical Indications Registration

The eight measures of awareness about GI registrations were subjected to domicile-wise analysis.

a.Descriptive Analysis - Domicile-wise Analysis on Producers' Awareness about Geographical Indications Registration

Table 5.22 reveals that the producers of rural domiciles in the study have a higher level of awareness with the statements 'awareness about procedures for getting GI registration', 'awareness about the validity of GI registration being 10 years', 'awareness that GI protected in the home country can seek protection abroad', 'awareness that the GI registration fee is Rs.5000' and 'awareness that the GI

registration renewal fee is Rs. 3000' when compared to other domiciles. The producers of urban areas have a higher level of awareness of the statement that 'single GI registration will provide pan India protection' when compared to other domiciles with an MPS of 69.1%. The results also reveal that the producers of rural areas have very low levels of awareness to the statement 'awareness that producers can get individual AU registration' with an MPS of 32.5 %.

Table 5.22

Descriptive Statistics – Producers' Awareness about GI Registration between different Domiciles

Variables	Domicile	Mean	SD	MPS
Awareness about procedures for getting GI registration	Urban	1.031	0.612	20.6
	Rural	1.538	0.712	30.8
	Semi-Urban	1.129	0.341	22.6
	Total	1.503	0.697	30.1
Awareness that producers can get individual AU registration	Urban	3.333	0.577	66.7
	Rural	1.623	1.144	32.5
	Semi-Urban	3.839	0.374	76.8
	Total	1.808	1.257	36.2
Awareness about the validity of GI registration being 10 years	Urban	1.561	0.028	31.2
	Rural	2.314	0.802	46.3
	Semi-Urban	2.323	0.475	46.5
	Total	2.305	0.786	46.1
Awareness that GI registration has to be renewed after 10 years	Urban	1.332	0.112	26.6
	Rural	1.929	0.770	38.6
	Semi-Urban	1.613	0.495	32.3
	Total	1.898	0.757	38.0
Awareness that single GI registration will provide pan India protection	Urban	3.453	0.577	69.1
	Rural	3.003	0.881	60.1
	Semi-Urban	2.032	0.407	40.6
	Total	2.93	0.890	58.6
Awareness that GI protected in home country can seek protection abroad	Urban	1.221	0.231	24.4
	Rural	1.525	0.537	30.5
	Semi-Urban	1.355	0.486	27.1
	Total	1.508	0.534	30.2
Awareness that the GI registration fee is Rs.5000	Urban	2.361	0.000	47.2
	Rural	2.844	0.948	56.9
	Semi-Urban	1.613	0.667	32.3
	Total	2.743	0.984	54.9

Variables	Domicile	Mean	SD	MPS
Awareness that the GI registration renewal fee is Rs. 3000	Urban	1.071	0.021	21.4
	Rural	1.495	0.591	29.9
	Semi-Urban	1.161	0.374	23.2
	Total	1.465	0.583	29.3

Source: Primary Data

The most prominent measure of awareness about GI registration was found to be ‘awareness that producers can get individual AU registration’ ($\bar{X}$ = 3.839 ± 0.374) in the case of semi-urban producers, whereas the least prominent one was ‘awareness about procedures for getting GI registration’ ($\bar{X}$ = 1.031 ± 0.612 each) in the case of urban producers.

b. Multivariate Analysis of Variance - Domicile-wise Analysis on Producers’ Awareness about Geographical Indications Registration

Table 5.23 depicts the combined multivariate effect of all the variables identifying the construct of awareness about GI registrations.

H_{5.9}: There is significant difference in the awareness level of the producers on the combined effect of multiple dependent variables measuring the awareness level about geographical indications registrations between different domiciles.

The differences in the awareness level of the producers of different domiciles on the combined dependent variables were statistically significant as p value of F statistic is lower than 0.05, F [18, 778] = 12.905, p < 0.05; Wilks' Λ = 0.593. This means that the producers of different domiciles are having different level of awareness relating to the multiple variables measuring the awareness level about GI registrations.

Table 5.23

Multivariate (MANOVA) Test Results – Difference in Producers’ Awareness about GI Registration between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.593	12.905	18.000	778.000	0.000

F tests the multivariate effect of Domicile.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 5.24.

c. Univariate Analysis of Variance and Pair wise Comparison - Domicile-wise Analysis on Producers' Awareness About Geographical Indications Registration

Univariate ANOVA was conducted for each of the eight dependent variables to identify whether statistically significant differences exist between various producers of different domiciles.

H_{5.10}: There is significant difference in the producers' level of awareness relating to the individual measures of awareness about geographical indications registrations between different domiciles.

The test results in Table 5.24 indicate that a statistically significant difference exists in the awareness level of the producers of different domiciles, in all the individual cases of variables measuring the awareness about GI registrations, except, 'awareness that GI protected in home country can seek protection abroad'.

Table 5.24

Estimated Margin of Means, SE, and ANOVA Results – Difference in Producers' Awareness about GI Registration between different Domiciles

Variables	Domicile	Mean	SE	F (2, 397)	Sig.
Awareness about procedures for getting GI registration	Urban	1.031	0.398	5.845	0.003
	Rural	1.538	0.036		
	Semi-Urban	1.129	0.124		
Awareness that producers can get individual AU registration	Urban	3.333	0.637	60.579	0.000
	Rural	1.623	0.058		
	Semi-Urban	3.839	0.198		
Awareness about the validity of GI registration being 10 years	Urban	1.561	0.450	4.230	0.015
	Rural	2.314	0.041		
	Semi-Urban	2.323	0.140		
Awareness that GI registration has to be renewed after 10 years	Urban	1.332	0.433	4.698	0.010
	Rural	1.929	0.039		
	Semi-Urban	1.613	0.135		
Awareness that single GI registration will provide pan India protection	Urban	3.453	0.492	18.849	0.000
	Rural	3.003	0.045		
	Semi-Urban	2.032	0.153		
Awareness that GI protected in the home country can seek protection abroad	Urban	1.221	0.307	2.830	0.060
	Rural	1.525	0.028		
	Semi-Urban	1.355	0.096		

Variables	Domicile	Mean	SE	F (2, 397)	Sig.
Awareness that the GI registration fee is Rs.5000	Urban	2.361	0.535	26.158	0.000
	Rural	2.844	0.048		
	Semi-Urban	1.613	0.167		
Awareness that the GI registration renewal fee is Rs. 3000	Urban	1.071	0.333	5.769	0.003
	Rural	1.495	0.030		
	Semi-Urban	1.161	0.103		

Figures in bold indicate significant at 5% level.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 5.25.

Table 5.25

Bonferroni Adjusted Pairwise Comparisons – Difference in Producers' Awareness about GI Registration between different Domiciles

Variables	(I) Domicile	(J) Domicile	Mean Difference (I-J)	SE	Sig.#
Awareness about procedures for getting GI registration	Urban	Rural	-0.507	0.399	0.536
		Semi-Urban	-0.098	0.417	1.000
	Rural	Urban	0.507	0.399	0.536
		Semi-Urban	0.409*	0.129	0.005
Awareness that producers can get individual AU registration	Urban	Rural	1.710*	0.639	0.023
		Semi-Urban	-0.505	0.667	1.000
	Rural	Urban	-1.710*	0.639	0.023
		Semi-Urban	-2.216*	0.206	0.000
Awareness about the validity of GI registration being 10 years	Urban	Rural	-0.753*	0.452	0.012
		Semi-Urban	-0.762*	0.472	0.016
	Rural	Urban	0.753*	0.452	0.012
		Semi-Urban	-0.008	0.146	1.000
Awareness that GI registration has to be renewed after 10 years	Urban	Rural	-0.597	0.435	0.100
		Semi-Urban	-0.281	0.454	0.532
	Rural	Urban	0.597	0.435	0.100
		Semi-Urban	0.316	0.140	0.075
Awareness that Single GI registration will provide pan India protection	Urban	Rural	0.450	0.494	1.000
		Semi-Urban	1.421*	0.516	0.036
	Rural	Urban	-0.483	0.494	1.000
		Semi-Urban	0.970*	0.159	0.000

Variables	(I) Domicile	(J) Domicile	Mean Difference	(I-J)	SE	Sig.#
Awareness that the GI registration fee is Rs.5000	Urban	Rural	-0.844		0.538	0.351
		Semi-Urban	0.387		0.561	1.000
	Rural	Urban	0.844		0.538	0.351
		Semi-Urban	1.231*		0.173	0.000
Awareness that the GI registration renewal fee is Rs. 3000	Urban	Rural	-0.424		0.334	0.418
		Semi-Urban	-0.090		0.348	1.000
	Rural	Urban	0.424		0.334	0.418
		Semi-Urban	0.333*		0.108	0.006

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

The post hoc tests shown in Table 5.25 reveal that to the statement ‘awareness about procedures for getting GI registration’, statistically significant differences exist only between semi-urban and rural producers. The pairwise comparison revealed maximum variance between rural and semi-urban with a mean difference of 0.409. The higher level of awareness about the procedures for getting GI registration among the producers of rural domicile can be due to their involvement in providing documents relating to the traditional farming practices and history of their produce to the GI registry which is a preliminary requisite for GI tag.

However, in the case of ‘awareness that producers can get Individual AU registration’ statistical differences exist between urban and rural as well as between semi-urban and rural producers. The maximum variance exists between producers of semi-urban and rural domiciles with a mean difference of 2.216. This reveals that the GI producers of rural domiciles are least aware of individual AU registration.

The statement that ‘the GI registration is valid for 10 years’ has the maximum variance between semi-urban and urban producers with a mean difference of 0.762 and in the case of ‘awareness that single GI registration will provide pan India protection’ the statement showed maximum variance between urban and semi-urban domiciles with a mean difference of 1.421.

The statement ‘GI registration renewal fee is Rs. 3000’ has the maximum variance between rural and urban domicile with a mean difference of 0.424 and ‘awareness that the GI registration fee is Rs.5000’, has maximum variance between rural and semi-urban producers with mean difference score of 1.231, this reveals that the producers of the rural domiciles are more aware of the fees related aspects of GI, this can be due to the inherent sensitive nature of the rural people to money related aspects.

5.3.2.3 Domicile-wise analysis on Producers’ Awareness about Legal Aspects of GI

The six measures of awareness about legal aspects of GI were subjected to domicile-wise analysis. Table 5.26 shows the descriptive statistics.

a.Descriptive Statistics - Domicile-wise analysis on Producers’ Awareness about Legal Aspects of GI

These rural producers have a higher level of awareness the statement ‘awareness that GI gives the product legal protection’, MPS = 73.9%, while they have a lower level of awareness of the statement ‘awareness that GI is a collective mark’, MPS = 70.1 % when compared to other domiciles.

Table 5.26

Descriptive Statistics – Producers’ Awareness about Legal Aspects of GI between different Domiciles

Variables	Domicile	Mean	SD	MPS
Awareness that GI gives the product legal protection	Urban	3.269	0.577	65.4
	Rural	3.697	0.652	73.9
	Semi-Urban	3.258	0.445	65.2
	Total	3.660	0.648	73.2
Awareness that the right to use registered GI can be transferred to legal heir	Urban	1.152	0.374	23.0
	Rural	1.352	0.501	27.0
	Semi-Urban	1.581	0.564	31.6
	Total	1.368	0.508	27.4
Awareness about the legal procedures in case of GI Act violation	Urban	1.132	0.422	22.6
	Rural	1.246	0.431	24.9
	Semi-Urban	1.097	0.301	21.9
	Total	1.233	0.423	24.7
Awareness that GI is a collective mark	Urban	4.963	0.221	99.3
	Rural	3.505	0.754	70.1
	Semi-Urban	3.613	0.495	72.3
	Total	3.518	0.736	70.4

Variables	Domicile	Mean	SD	MPS
Awareness that GI can provide products with a collective monopoly	Urban	4.233	0.221	84.7
	Rural	2.440	0.945	48.8
	Semi-Urban	2.258	0.445	45.2
	Total	2.438	0.924	48.8
Awareness that GI rights cannot be transferred to external parties	Urban	1.333	0.577	26.7
	Rural	1.440	0.579	28.8
	Semi-Urban	2.355	0.486	47.1
	Total	1.510	0.621	30.2

Source: Primary Data

The most prominent measure of awareness about legal aspects of GI was found to be ‘awareness that GI is a collective mark’ ($\bar{X} = 4.963 \pm 0.221$) in the case of urban producers, whereas the least prominent one was ‘awareness about the legal procedures in case of GI Act violation’ ($\bar{X} = 1.097 \pm 0.301$) in the case of semi-urban producers.

b. Multivariate Analysis of Variance - Domicile-wise analysis on Producers’ Awareness about Legal Aspects of Geographical Indications

Table 5.27 depicts the combined multivariate effect of all the variables identifying the construct of awareness about legal aspects of GI.

H_{5.11}: There is significant difference in the awareness level of the producers on the combined effect of multiple dependent variables measuring the awareness about legal aspects of geographical indications between various domiciles.

Table 5.27

Multivariate (MANOVA) Test Results – Difference in Producers’ Awareness about Legal Aspects of GI between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.697	12.930	12.000	784.000	0.000

F tests the multivariate effect of Domicile.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The differences in the awareness level of the producers of different domiciles on the combined dependent variables were statistically significant with p value of F statistic lower than 0.05, $F [12, 784] = 12.93$, $p < 0.05$; Wilks' $\Lambda = 0.697$ as shown in

Table 5.27. This means that the producers of different domiciles have different levels of awareness relating to the multiple variables measuring the combined effect of awareness about legal aspects of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 5.28.

c. Univariate Analysis of Variance and Pair wise Comparison - Domicile-wise analysis on Producers' Awareness about Legal Aspects of GI

Univariate ANOVA was conducted for each of the six dependent variables to identify whether statistically significant differences exist between various producers of different domiciles. The results of univariate ANOVA are depicted in Table 5.28.

H_{5.12}: there is significant difference in the producers' level of awareness relating to the individual measures of awareness about legal aspects geographical indications across various domiciles under review.

The test results indicate that a statistically significant difference exists in the awareness level of the producers of different domiciles, in all the individual cases of variables measuring the awareness about legal aspects of GI, except 'awareness about the legal procedures in the case of GI Act violation' and 'awareness that GI is a collective mark', indicating that statistically significant difference exists across categories of domicile of producers in all the cases except the above mentioned two.

Table 5.28

Estimated Margin of Means, SE, and ANOVA Results – Difference in Producers' Awareness about Legal Aspects of GI between different Domiciles

Variables	Domicile	Mean	SE	F (2, 397)	Sig.
Awareness that GI gives the product legal protection	Urban	3.269	0.369	7.136	0.001
	Rural	3.697	0.033		
	Semi-Urban	3.258	0.115		
Awareness that the right to use registered GI can be transferred to legal heir	Urban	1.152	0.291	3.724	0.025
	Rural	1.352	0.026		
	Semi-Urban	1.581	0.091		

Variables	Domicile	Mean	SE	F (2, 397)	Sig.
Awareness about the legal procedures in case of GI Act violation	Urban	1.132	0.243	2.247	0.107
	Rural	1.246	0.022		
	Semi-Urban	1.097	0.076		
Awareness that GI is a collective mark	Urban	4.963	0.425	0.955	0.386
	Rural	3.505	0.038		
	Semi-Urban	3.613	0.132		
Awareness that GI can provide products with a collective monopoly	Urban	4.233	0.528	4.975	0.007
	Rural	2.440	0.048		
	Semi-Urban	2.258	0.164		
Awareness that GI rights cannot be transferred to external parties	Urban	1.333	0.330	36.692	0.000
	Rural	1.440	0.030		
	Semi-Urban	2.355	0.103		

Figures in bold indicate significant at 5% level.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 5.29.

The pairwise comparison result shown in Table 5.29 shows that in the cases of ‘awareness that GI gives the product legal protection’ and ‘awareness that the right to use registered GI can be transferred to legal heir’ pairwise comparisons revealed that statistically significant differences exist between semi-urban and rural producers only. No differences could be traced between urban and semi-urban producers or between urban and rural producers. In the case of ‘awareness that GI gives the product legal protection’ pairwise comparisons revealed a significant difference between rural and semi-urban domiciles with a maximum mean difference of 0.439. The statement ‘awareness that the right to used registered GI can be transferred to the legal heir’ when subject to pairwise comparisons revealed a significant difference between semi-urban and rural domiciles with a maximum mean difference of 0.228.

Table 5.29

Bonferroni Adjusted Pairwise Comparisons – Difference in Producers' Awareness about Legal Aspects of GI between different Domiciles

Variables	(I) Domicile	(J) Domicile	Mean Difference (I-J)	Std. Error	Sig. [#]
Awareness that GI gives the product legal protection	Urban	Rural	-0.428	0.370	0.981
		Semi-Urban	0.011	0.386	1.000
	Rural	Urban	0.428	0.370	0.981
		Semi-Urban	0.439*	0.119	0.001
Awareness that the right to use registered GI can be transferred to legal heir	Urban	Rural	-0.200	0.293	0.687
		Semi-Urban	-0.429	0.305	0.173
	Rural	Urban	0.200	0.293	0.687
		Semi-Urban	-0.228*	0.094	0.048
Awareness that GI can provide products with a collective monopoly	Urban	Rural	1.793*	0.530	0.010
		Semi-Urban	1.975*	0.553	0.005
	Rural	Urban	-1.793*	0.530	0.010
		Semi-Urban	0.182	0.171	0.866
Awareness that GI rights cannot be transferred to external parties	Urban	Rural	-0.107	0.332	1.000
		Semi-Urban	-1.022*	0.346	0.010
	Rural	Urban	0.107	0.332	1.000
		Semi-Urban	-0.915*	0.107	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

In the case of 'awareness that GI can provide products with collective monopoly' statistically significant differences exist between urban and semi-urban as well as between urban and rural producers. The statement showed the highest variance between urban and semi-urban domiciles with a mean difference of 1.975.

The results of the statement 'awareness that the GI tag is an exclusive right (cannot be transferred to external parties)' showed a maximum mean difference of 1.022 between the producers of semi-urban and urban areas.

To conclude the pairwise test results reveal that the producers of semi-urban domiciles have significantly higher levels of awareness in two out of the four statements this can be due to their unique blend of being traditional and having access to more resources than producers of rural domiciles.

5.4 CONCLUSION

The first and immediate effects of the GI tag were analysed in the present chapter. The first part covered the analysis on the diffusion of the GI scheme at national level, and the second part covered the analysis of the producers' awareness about GI. The analysis on the diffusion of the GI scheme revealed that the GI registrations as well as the AU registrations showed growth in registrations during the past few years. The GI registrations in the country has seen a slow approval rate, which can be the reason for the lesser number of GI registrations. The awareness level of the producers was examined using variables under three dimensions. The GI producers are very much aware about the concept of GI and its uses. But when it comes to the technical aspects like registrations and legal procedures the level of awareness among the GI producers were low. This emphasizes the need for enhanced programs for building awareness among GI producers in the areas of registration and legal aspects. The level of awareness can significantly influence the utilisation of GI among the producers, which can affect the social and economic benefits derived from GI. The next chapter explores the socio-economic influence of GI as perceived by the GI producers.

Chapter 6

An Evaluation of the Socio Economic Impact and Marketing Benefits of GI

6.1 INTRODUCTION

In business, reputation is often resorted to by the producers and customers to remove information asymmetry in the market. Reputation can reduce the market failure and help producers build a strong bond with the customers. It is often termed as an outcome of quality standards maintained by the producers. GIs can help in building reputation by legally formalising the relationship between the quality of the product with the region of origin (Rangnekar, 2004). The uniqueness of GI is that it can signal the traditional quality of products which are preserved by the collective effort of producers who practise the age-old CoP.

The prime objective of GI tag as stated by the World Intellectual Property Organisation is its economic and social advantages. The GI tag can act as a tool for promoting rural development and cultural heritage. By linking the uniqueness of the products to its origin it is expected that the GI tag can bring about social and economic benefits to GI producers. The economic rationale behind the protection of GI is similar to trademark. While the social validation covers various dimensions such as protection of indigenous knowledge, creating employment opportunities, environment protection, preventing rural drift, bringing social cohesion among the producers, to name a few. Through the protection of GI, the communities can enhance their livelihood while promoting sustainable practices and regional identity.

Commodification of products in recent times have led to the standardisation of products which resulted in decreased market prices. In a commodity market producers are price takers and the prices are often fluctuating (Bramley, n.d.). The only way the producers can break-free from the commodity market is by creating a niche market. GIs can create niche market by highlighting territorial based product differentiation which is the key to attainment of price premium. The GI tags are also treasured for their traceability properties along the supply chain. This traceability of GI products over the supply chain provides the producers of GI better bargaining power and relationship with the market intermediaries.

The actual realisation of these benefits needs to be assessed as the benefits derived by the GI producers can vary significantly across the domiciles and products. The present chapter gives a comprehensive analysis on the socio-economic and marketing benefits of GI registration as perceived by the GI producers.

6.2 ECONOMIC IMPACT OF GI

Geographical indications are the earliest form of trademarks, where these signs indicate the geographical origins of the products and their uniqueness (Rangnekar, 2004). A GI registration helps in institutionalising reputation by formally registering the relationship between the place and the product, this reputation earns a premium which is sustained even at equilibrium (Bramley & Kirsten, 2007). The economic benefits of GI registrations often mentioned are reduced information asymmetry, increased market value (reputation), new market access, niche market, price premium, power to fix price, and increase in demand for the product to mention a few. The GIs are often cited as having long-term economic benefits such as the creation of collective monopoly and rural development.

GI tags can play a significant role in the economic scenario of producers. The main economic benefits that are explored in this research are the price effects of GI such as, the power to fix price, price stability, price premium and cost of the product. The effect of GI on the market demand, access and reputation of the product are also depicted by researchers as the economic effect of GI. Various studies have also pointed towards the role of the State in promoting the GI tag, which embraces extended governmental support to the producers of GI-tagged products in the form of fund allocation for specialised schemes and financial support in the form of subsidies, these economic assistances are also assessed in the research. Both subjective and objective assessment of the economic effect of GI are analysed. The subjective assessment of the economic effect of GI are measured using the data collected from 400 agricultural GI producers using structured interview schedule. The objective assessment was done by analysing the secondary data relating to area of production and quantity of production of the selected agricultural produce using the Difference in Difference (DiD) regression method. The economic benefits of GI as perceived by the producers of GI are explored in the following section.

6.2.1 GI – wise Analysis on Producers’ perception of the Economic Impact of GI

This section explores the two dimensions of the economic impact of GI tag, namely ‘price effect’ and ‘market and finance effect’. The dimension price effect is measured by four indicators such as price premium, price stability, power to fix price and change in total cost on account of sticking to the GI CoP. The dimension market and finance effect are measured by eight items such as increased market value,

increase in demand, access to a new market, increase in exports, increase in tourism prospects, and increase in financial support from financial institutions and Government.

6.2.1.1 GI wise Analysis on Producers' Perception of the Price Effect of GI

The four measures of the 'price effect of GI' were subject to GI-wise analysis. In this section, an analysis is conducted to discover how producers of various GIs perceive the effect of GI registration on the price of their agricultural produce.

a.Descriptive Statistics- GI wise Analysis on Producers' Perception of the Price Effect of GI

The descriptive statistics revealed in Table 6.1 indicates that the most prominent measure of the price effect of GI was found to be 'experiencing price stability for the product in the market' ($\bar{X} = 4.419 \pm 0.494$) in the case of Kaipad Rice, whereas the least prominent one was 'need to follow uniform CoP increased the production cost' ($\bar{X} = 1.428 \pm 0.496$) that too in the case of Kaipad Rice.

Table 6.1

Descriptive Statistics – GI wise Analysis on Producers' Perception of the Price Effect of GI

Variables	Name of the GI	Mean	SD	MPS
Power to fix price for the produce	Chengalikodan Nendran	3.049	0.999	60.98
	Tirur Vettala	1.761	0.430	35.22
	Marayoor Sharkara	2.945	0.911	58.90
	Kaipad Rice	3.144	0.992	62.88
	Total	2.853	1.036	57.06
Experiencing price stability for the product in the market	Chengalikodan Nendran	3.780	0.525	75.60
	Tirur Vettala	4.310	0.689	86.20
	Marayoor Sharkara	4.178	0.385	83.56
	Kaipad Rice	4.419	0.494	88.38
	Total	4.290	0.554	85.8
Need to follow uniform CoP increased the production cost	Chengalikodan Nendran	2.073	0.469	41.46
	Tirur Vettala	2.155	0.364	43.10
	Marayoor Sharkara	2.012	0.127	40.00
	Kaipad Rice	1.428	0.496	28.56
	Total	1.728	0.533	34.56

Variables	Name of the GI	Mean	SD	MPS
Getting price premium for produce	Chengalikodan Nendran	3.951	0.312	79.02
	Tirur Vettala	4.366	0.567	87.32
	Marayoor Sharkara	4.178	0.385	83.56
	Kaipad Rice	4.353	0.479	87.06
	Total	4.283	0.483	85.66

Source: Primary Data

The overall MPS reveals that all the producers of different GIs under study have high level of agreement to the statements ‘experiencing price stability for the product after receiving GI’ and ‘getting a premium price for the produce after receiving GI tag’ with MPS of above 75%.

The statement ‘power to fix price after receiving GI registration’ has moderate level of agreement among the producers with MPS between 51% and 75%.

The producers have very low level of agreement to the statement ‘need to follow uniform CoP has increased the production cost’ with MPS of 34.50%. This finding is not consistent with the research findings of Hauser, S. (1997) who found that sticking to the CoP can increase the cost of production among the producers of GI product.

a. Multivariate Analysis of Variance – GI wise Analysis on Producers’ Perception of the Price Effect of GI

Table 6.2 depicts the combined multivariate effect of all the variables identifying the construct of price effect of GI.

H_{6.1}: There is significant difference in the producers’ perception on the combined effect of multiple dependent variables measuring the ‘price effect of geographical indications’ between different GIs.

Table 6.2

Multivariate (MANOVA) Test Results – Difference in Producers' Perception on the Price Effect of GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.412	34.510	12.000	104.072	0.000

F tests the multivariate effect of the type of GI.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The differences in the producers' opinion of different GIs on the combined dependent variables measuring the price effect of GI were statistically significant with the p value of F statistic lower than 0.05, $F [12, 104.072] = 34.510$, $p < 0.05$; Wilks' $\Lambda = 0.412$ as shown in Table 6.2. This means that the producers of different GIs had different opinion relating to the multiple variables measuring the price effect of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 6.3.

b. Univariate Analysis of Variance and Pair wise Comparison - GI-wise Analysis on Producers' Perception of the Price Effect of GI

Univariate ANOVA was conducted for each of the four dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{6.2}: There is significant difference in the producers' perception on the individual measures of the price effect of geographical indications between different GIs.

The test results of univariate ANOVA as indicated in Table 6.3 reveal that statistically significant difference exists in the opinion of the producers of different GIs, in all the individual cases of variables measuring the price effect of GI.

Table 6.3

Estimated Margin of Means, SE, and ANOVA Results - Difference in Producers' Perception on the Price Effect of GI between different GIs

Variables	Name of the GI	Mean	SE	F	Sig.
Power to fix price for the produce	Chengalikodan Nendran	3.049	0.141	42.954	0.000
	Tirur Vettala	1.761	0.107		
	Marayoor Sharkara	2.945	0.106		
	Kaipad Rice	3.144	0.062		
Experiencing price stability for the product in the market	Chengalikodan Nendran	3.780	0.081	18.642	0.000
	Tirur Vettala	4.310	0.062		
	Marayoor Sharkara	4.178	0.061		
	Kaipad Rice	4.419	0.035		
Need to follow uniform CoP increased the production cost	Chengalikodan Nendran	2.073	0.066	79.505	0.000
	Tirur Vettala	2.155	0.050		
	Marayoor Sharkara	2.012	0.049		
	Kaipad Rice	1.428	0.029		
Getting price premium for produce	Chengalikodan Nendran	3.951	0.073	10.530	0.000
	Tirur Vettala	4.366	0.055		
	Marayoor Sharkara	4.178	0.055		
	Kaipad Rice	4.353	0.032		

Figures in bold indicate significant at 5% level.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.4.

Table 6.4

Bonferroni Adjusted Pairwise Comparisons - Difference in Producers' Perception on the Price Effect of GI between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig. [#]
Power to fix price for the produce	Chengalikodan Nendran	Tirur Vettala	1.288*	0.177	0.000
		Marayoor Sharkara	0.104	0.176	0.956
		Kaipad Rice	-0.095	0.154	1.000
	Tirur Vettala	Marayoor Sharkara	-1.185*	0.151	0.000
		Kaipad Rice	-1.384*	0.124	0.000
	Marayoor Sharkara	Kaipad Rice	-0.199	0.122	0.628

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Experiencing price stability for the product in the market	Chengalikodan Nendran	Tirur Vettila	-0.529*	0.102	0.000
		Marayoor Sharkara	-0.398*	0.102	0.001
		Kaipad Rice	-0.638*	0.089	0.000
	Tirur Vettila	Marayoor Sharkara	0.132	0.087	0.777
		Kaipad Rice	-0.109	0.071	0.766
	Marayoor Sharkara	Kaipad Rice	-0.241*	0.070	0.004
Need to follow uniform CoP increased the production cost	Chengalikodan Nendran	Tirur Vettila	-0.082	0.083	0.242
		Marayoor Sharkara	0.073	0.082	0.563
		Kaipad Rice	0.645*	0.072	0.000
	Tirur Vettila	Marayoor Sharkara	0.155	0.070	0.170
		Kaipad Rice	0.727*	0.058	0.000
	Marayoor Sharkara	Kaipad Rice	0.572*	0.057	0.000
Getting price premium for produce	Chengalikodan Nendran	Tirur Vettila	-0.415*	0.092	0.000
		Marayoor Sharkara	-0.227	0.091	0.079
		Kaipad Rice	-0.402*	0.080	0.000
	Tirur Vettila	Marayoor Sharkara	0.188	0.078	0.096
		Kaipad Rice	0.013	0.064	1.000
	Marayoor Sharkara	Kaipad Rice	-0.175*	0.063	0.035

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

The post hoc test results showed that, in the case of ‘power to fix price for the produce’ statistically significant differences were found to exist between Tirur Vettila and all other GIs under study. The pairwise comparison of the statement showed maximum variance between the producers of Kaipad Rice and Tirur Vettila with a mean difference of 1.384.

In the case of ‘experiencing price stability for the product in the market’ statistically significant differences were found to exist between Chengalikodan Nendran and all other GIs under study as well as between Marayoor Sharkara and Kaipad Rice. However, no significant differences could be traced between Tirur Vettila and Marayoor Sharkara as well as between Tirur Vettila and Kaipad Rice. The

statement when subject to pairwise comparison revealed the highest variance between Kaipad Rice and Chengalikodan Nendran with a mean difference of 0.638. In both cases of power to fix price and price stability of the product it is seen that the producers of Kaipad Rice have an edge over other producers of the GIs in the study. This can be due to the non-perishable nature of the produce; hence the producers may not be under the pressure to sell at low price on account of the fear of perishability.

Statistically significant differences were found to exist between Kaipad Rice and all other GIs in the case of ‘need to follow uniform CoP increased the production cost’. The pairwise comparison of the statement gives the highest variance between Chengalikodan Nendran and Kaipad Rice with a mean difference of 0.727. This reveals that the producers of the Kaipad Rice did not experience significant change in the cost of production after receiving the GI tag. This can be because of various factors like assistance from the part of the producers’ association to stick to CoP as depicted in Table 4.17 and that the CoP registered with the GI Registry is accepted by the producers as depicted in Table 7.1. Moreover, the producers of Kaipad Rice would have been practicing the existing CoP even before the GI registration, hence the GI registration would not have resulted in any change in their cost of production.

Finally, in the case of ‘getting price premium for the produce’ statistically significant difference exists between Chengalikodan Nendran and Tirur Vettala, between Chengalikodan Nendran and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice. The post hoc test results of the statement showed maximum variance between Tirur Vettala and Chengalikodan Nendran with a mean difference of 0.415, this shows that the producers of Tirur Vettala have a higher level of agreement to the statement that their product received price premium after getting GI tag.

6.2.1.2 GI wise Analysis on Producers’ Perception of the Market and Finance Effect of GI

The second dimension for measuring the economic impact of GI registration is the ‘market and finance effect’. this dimension is measured using eight variables namely ‘increase in market value (Reputation) of the product’, increase in the demand for the product’, ‘access to new market’, ‘increase in exports’, ‘increase in tourism prospects’, ‘easy lending by financial institution’, ‘increase in government subsidies’ and ‘increase in government schemes.’

a. Descriptive Statistics - GI wise Analysis on Producers' Perception of the Market and Finance Effect of GI

In Table 6.5, the most prominent measure of 'market and finance effect' was found to be 'increase in the market value (reputation) of the product' ($\bar{X}$ = 4.526 ± 0.554) in the case of Kaipad Rice whereas the least prominent one was 'increase in access to new markets' ($\bar{X}$ = 1.381 ± 0.487) that too in the case of Kaipad Rice.

Table 6.5

Descriptive Statistics – GI wise Analysis on Producers' Perception on the Market and Finance Effect of GI

Variables	Name of the GI	Mean	SD	MPS
Increase in the market value (reputation) of the product	Chengalikodan Nendran	3.488	0.840	69.76
	Tirur Vettla	3.732	0.632	74.64
	Marayoor Sharkara	4.342	0.478	86.84
	Kaipad Rice	4.526	0.554	90.52
	Total	4.245	0.704	84.9
Increase in the demand for the product in domestic market	Chengalikodan Nendran	3.073	1.330	61.46
	Tirur Vettla	4.014	0.316	80.28
	Marayoor Sharkara	3.890	0.792	77.8
	Kaipad Rice	4.098	0.341	81.96
	Total	3.940	0.680	78.8
Increase in access to new markets	Chengalikodan Nendran	1.561	0.502	31.22
	Tirur Vettla	2.056	0.232	41.12
	Marayoor Sharkara	2.018	0.125	40.18
	Kaipad Rice	1.381	0.487	27.62
	Total	1.633	0.503	32.66
Increase in export of the product	Chengalikodan Nendran	1.561	0.502	31.22
	Tirur Vettla	2.028	0.337	40.56
	Marayoor Sharkara	2.027	0.287	40.54
	Kaipad Rice	1.409	0.538	28.18
	Total	1.648	0.547	32.96
Increase in tourism prospects of the region	Chengalikodan Nendran	1.537	0.505	30.74
	Tirur Vettla	2.113	0.318	42.26
	Marayoor Sharkara	3.466	0.883	69.32
	Kaipad Rice	2.437	1.065	48.74
	Total	2.475	1.043	49.5
Greater interest on the part of the financial institution in providing credit to the producers after the receipt of GI tag	Chengalikodan Nendran	1.707	0.559	34.14
	Tirur Vettla	1.901	0.613	38.02
	Marayoor Sharkara	2.068	0.385	41.36
	Kaipad Rice	1.712	0.454	34.24
	Total	1.810	0.505	36.2

Variables	Name of the GI	Mean	SD	MPS
Increase in Government subsidies / grants	Chengalikodan Nendran	2.195	0.401	43.9
	Tirur Vettala	2.014	0.493	40.28
	Marayoor Sharkara	4.110	0.356	82.2
	Kaipad Rice	1.609	0.489	32.18
	Total	2.198	1.035	43.96
Increase in Govt schemes after receiving GI tag	Chengalikodan Nendran	3.756	0.624	75.12
	Tirur Vettala	3.563	0.770	71.26
	Marayoor Sharkara	4.096	0.340	81.92
	Kaipad Rice	3.656	0.757	73.12
	Total	3.730	0.709	74.6

Source: Primary Data

The producers of GI products perceived high level of market effect of GI in the case of statements ‘increase in the market value (reputation) of the product’ and ‘increase in the demand for the product in domestic market’ with an MPS of 84.9% and 78.8% respectively. The GI producers perceived moderate effect of GI in the case of the statement ‘increase in tourism prospects of the region’ with an MPS of 50% and very low effect of GI to the statements ‘increase in access to new markets’ and ‘increase in export of the product’ with an MPS of 32.66% and 32.96% respectively.

The results of the finance effect of GI showed that the producers perceived higher effect of GI in the case of ‘increase in Govt schemes after receiving GI tag’ with an MPS of 75% and lower effect of GI in the case of statements ‘greater interest on the part of the financial institution in providing credit to the producers after the receipt of GI tag’ and ‘increase in government subsidies / grants’ with MPS of 36.2% and 43.96% respectively.

b. Multivariate Analysis of Variance - GI wise Analysis on Producers’ Perception of the Market and Finance Effect of GI

Table 6.6 depicts the combined multivariate effect of all the variables identifying the construct of market and finance effect of GI.

H_{6,3}: There is significant difference in the producers’ perception on the combined effect of multiple dependent variables measuring the market and finance effect of geographical indications between different GIs.

Table 6.6

Multivariate (MANOVA) Test Results - Difference in Producers' Perception on the Market and Finance Effect of GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	.065	73.405	24.000	1128.820	0.000

F tests the multivariate effect of the type of GI.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The differences in the producers' opinion of different GIs on the combined effect of dependent variables were statistically significant as the p value of F statistic was lower than 0.05, $F [24, 1128.820] = 73.405$, $p < 0.05$; Wilks' $\Lambda = .065$ as shown in Table 6.6. This means that the producers of different GIs had different opinion relating to the multiple variables measuring the market and financial effects of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 6.7.

c. Univariate Analysis of Variance and Pair wise Comparison - GI wise Analysis on Producers' Perception of the Market and Finance Effect of GI

Univariate ANOVA was conducted for each of the eight dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{6.4}: There is significant difference in the producers' perception on the individual measures of the market and finance effect of geographical indications between different GIs.

The univariate ANOVA test result as depicted in Table 6.7 show that statistically significant difference exists in the opinion of the producers of different GIs, in all the individual cases of variables measuring the market and finance effect of GI.

Table 6.7

Estimated Margin of Means, SE, and ANOVA Results - Difference in Producers' Perception on the Market and Finance Effect of GI between different GIs

Variables	Name of the GI	Mean	SE	F	Sig.
Increase in the market value (reputation) of the product	Chengalikodan Nendran	3.488	0.092	57.098	0.000
	Tirur Vettala	3.732	0.070		
	Marayoor Sharkara	4.342	0.069		
	Kaipad Rice	4.526	0.040		
Increase in the demand for the product in domestic market	Chengalikodan Nendran	3.073	0.095	32.787	0.000
	Tirur Vettala	4.014	0.073		
	Marayoor Sharkara	3.890	0.072		
	Kaipad Rice	4.098	0.042		
Increase in access to new markets	Chengalikodan Nendran	1.561	0.063	74.339	0.000
	Tirur Vettala	2.056	0.048		
	Marayoor Sharkara	2.018	0.047		
	Kaipad Rice	1.381	0.028		
Increase in export of the product	Chengalikodan Nendran	1.561	0.073	51.176	0.000
	Tirur Vettala	2.028	0.055		
	Marayoor Sharkara	2.027	0.055		
	Kaipad Rice	1.409	0.032		
Increase in tourism prospects of the region	Chengalikodan Nendran	1.537	0.140	48.980	0.000
	Tirur Vettala	2.113	0.106		
	Marayoor Sharkara	3.466	0.105		
	Kaipad Rice	2.437	0.061		
Greater interest on the part of the financial institution in providing credit to the producers after the receipt of GI tag	Chengalikodan Nendran	1.707	0.076	11.262	0.000
	Tirur Vettala	1.901	0.058		
	Marayoor Sharkara	2.068	0.057		
	Kaipad Rice	1.712	0.033		
Increase in Government subsidies / grants	Chengalikodan Nendran	2.195	0.072	41.793	0.000
	Tirur Vettala	2.014	0.055		
	Marayoor Sharkara	4.110	0.054		
	Kaipad Rice	1.609	0.031		
Increase in Govt schemes after receiving GI tag	Chengalikodan Nendran	3.756	0.108	9.102	0.000
	Tirur Vettala	3.563	0.082		
	Marayoor Sharkara	4.096	0.081		
	Kaipad Rice	3.656	0.047		

Figures in bold indicate significant at 5% level.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.8.

Table 6.8

Bonferroni Adjusted Pairwise Comparisons - Difference in Producers' Perception on the Market and Finance Effect of GI between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig. [#]
Increase in the market value (reputation) of the product	Chengalikodan Nendran	Tirur Vettala	-0.245	0.116	0.213
		Marayoor Sharkara	-0.855*	0.115	0.000
		Kaipad Rice	-1.038*	0.101	0.000
	Tirur Vettala	Marayoor Sharkara	-0.610*	0.098	0.000
		Kaipad Rice	-0.793*	0.081	0.000
	Marayoor Sharkara	Kaipad Rice	-0.183	0.080	0.136
Increase in the demand for the product in domestic market	Chengalikodan Nendran	Tirur Vettala	-0.941*	0.120	0.000
		Marayoor Sharkara	-0.817*	0.119	0.000
		Kaipad Rice	-1.025*	0.104	0.000
	Tirur Vettala	Marayoor Sharkara	0.124	0.102	0.896
		Kaipad Rice	-0.084	0.084	0.235
	Marayoor Sharkara	Kaipad Rice	-0.207	0.083	0.076
Increase in access to new markets	Chengalikodan Nendran	Tirur Vettala	-0.495*	0.079	0.000
		Marayoor Sharkara	-0.439*	0.079	0.000
		Kaipad Rice	0.180	0.069	0.057
	Tirur Vettala	Marayoor Sharkara	0.056	0.067	0.526
		Kaipad Rice	0.675*	0.055	0.000
	Marayoor Sharkara	Kaipad Rice	0.619*	0.055	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Increase in export of the product	Chengalikodan Nendran	Tirur Vettila	-0.467*	0.091	0.000
		Marayoor Sharkara	-0.466*	0.091	0.000
		Kaipad Rice	0.152	0.079	0.341
	Tirur Vettila	Marayoor Sharkara	0.001	0.078	0.851
		Kaipad Rice	0.619*	0.064	0.000
	Marayoor Sharkara	Kaipad Rice	0.618*	0.063	0.000
Increase in tourism prospects of the region	Chengalikodan Nendran	Tirur Vettila	-0.576*	0.175	0.007
		Marayoor Sharkara	-1.929*	0.174	0.000
		Kaipad Rice	-0.901*	0.152	0.000
	Tirur Vettila	Marayoor Sharkara	-1.353*	0.149	0.000
		Kaipad Rice	-0.325*	0.122	0.050
	Marayoor Sharkara	Kaipad Rice	1.029*	0.121	0.000
Greater interest on the part of the financial institution in providing credit to the producers after the receipt of GI tag	Chengalikodan Nendran	Tirur Vettila	-0.194	0.095	0.255
		Marayoor Sharkara	-0.361*	0.095	0.001
		Kaipad Rice	-0.004	0.083	0.985
	Tirur Vettila	Marayoor Sharkara	-0.167	0.081	0.239
		Kaipad Rice	0.190*	0.067	0.027
	Marayoor Sharkara	Kaipad Rice	0.357*	0.066	0.000
Increase in Government subsidies / grants	Chengalikodan Nendran	Tirur Vettila	0.181	0.090	0.272
		Marayoor Sharkara	-1.914*	0.090	0.000
		Kaipad Rice	0.586*	0.078	0.000
	Tirur Vettila	Marayoor Sharkara	-2.096*	0.077	0.000
		Kaipad Rice	0.405*	0.063	0.000
	Marayoor Sharkara	Kaipad Rice	2.500*	0.062	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Increase in Govt schemes after receiving GI tag	Chengalikodan Nendran	Tirur Vettala	0.193	0.135	0.927
		Marayoor Sharkara	-0.340	0.134	0.071
		Kaipad Rice	0.100	0.117	0.912
	Tirur Vettala	Marayoor Sharkara	-0.533*	0.115	0.000
		Kaipad Rice	-0.092	0.094	0.252
	Marayoor Sharkara	Kaipad Rice	0.440*	0.093	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

The pairwise comparison result in the case of ‘increase in the market value (reputation) of the product’ showed statistically significant differences between the producers of Chengalikodan Nendran and Marayoor Sharkara, between Chengalikodan Nendran and Kaipad Rice, between Tirur Vettala and Marayoor Sharkara as well as between Tirur Vettala and Kaipad Rice. The statement had the highest significant difference between Kaipad Rice and Chengalikodan Nendran with a mean difference of 1.038.

In the case of ‘increase in the demand for the product in the domestic market’ significant differences could be traced between the producers of Chengalikodan Nendran and all other GIs namely Tirur Vettala, Marayoor Sharkara and Kaipad Rice. The pairwise comparison of the statement revealed the highest variance between Kaipad Rice and Chengalikodan with a mean difference of 1.025. The increase in market value (reputation) would have facilitated in increasing the positive word of mouth about the product, increased quality perception and decreased risk perception about the product among the buyers. The increase in the Market Value (Reputation) of the product after the receipt of the GI tag would have helped Kaipad Rice in increasing the demand for the product in the domestic market.

The post hoc test result of the statement ‘increase in access to new markets’ showed significant differences between the producers of Chengalikodan Nendran and Tirur Vettala, between Chengalikodan Nendran and Marayoor Sharkara, between Tirur Vettala and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice. The

statement ‘experiencing an increase in access to new markets after receiving GI registration’ when subjected to post hoc test showed the highest difference between Tirur Vettila and Kaipad Rice with a mean difference score of 0.675. The producers of Tirur Vettila responded that earlier their business was concentrated towards Uttar Pradesh but now they were able to enter other northern states like Maharashtra and Madhya Pradesh.

Similarly, in the case of the statement ‘increase in export of the product’ significant differences exist between the producers of Chengalikodan Nendran and Tirur Vettila, between Chengalikodan Nendran and Marayoor Sharkara, between Tirur Vettila and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice. The post hoc test revealed a maximum variance between Tirur Vettila and Kaipad Rice at 0.619. In the case of exports, the producers of Tirur Vettila opined that they could enter the Gulf market after the receipt of the GI tag, earlier their exports were to Pakistan and Afghanistan.

The statement ‘increase in tourism prospects of the region’ showed statistically significant differences between the producers of all the categories of GI. The pairwise comparison results of the statement ‘increase in the tourism prospects in the region after getting GI registration’ revealed the highest variance between Marayoor Sharkara and Chengalikodan Nendran with a mean difference of 1.929. Even though Marayoor is a place located close to Munnar, which is one of the top tourist destinations of Kerala, earlier it did not receive much tourist traffic, but now after the receipt of the GI tag, Marayoor Sharkara become very popular which has facilitated in attracting the tourist from Munnar to visit Marayoor also. The producers having sharkara processing units are allowing tourists to visit their production site and are charging a small visit fee, this is adding a source of income to the producers. The tourists visiting the production unit can have a sample taste of sharkara and can purchase sharkara from the production unit directly.

In the case of the statement ‘greater interest on the part of the financial institution in providing credit to the producers after the receipt of GI tag’, significant differences could be traced between the producers of Chengalikodan Nendran and Marayoor Sharkara, between Tirur Vettila and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice. The post hoc test results of the statement

revealed maximum variance between Marayoor Sharkara and Chengalikodan Nendran with a mean difference of 0.361. The producers of Marayoor Sharkara have started receiving special credit facilities from the Marayoor Cooperative Bank post-GI registration. The Marayoor Cooperative Bank along with NABARD is working on a project to assist the producers in the production and marketing activities.

In the case of the statement ‘increase in government subsidies / grants’ statistically significant differences could be observed between the producers of Marayoor Sharkara and all other GIs namely Chengalikodan Nendran, Tirur Vettala and Kaipad Rice as well as between Kaipad Rice and other GIs namely Chengalikodan Nendran, Tirur Vettala and Marayoor Sharkara. The statement showed the highest variance in pairwise comparison between Marayoor Sharkara and Kaipad Rice with a mean difference of 2.50. Finally in the case of ‘increase in govt schemes after receiving GI tag’ significant differences exist between the producers of Tirur Vettala and Marayoor Sharkara and Marayoor Sharkara and Kaipad Rice. The statement has the maximum variance in pairwise comparison between Marayoor Sharkara and Tirur Vettala with a mean difference score of 0.533. The producers of Marayoor Sharkara have received special financial support under Janakeeya padhathi. The Government of Kerala has earmarked an amount of Rs. 7 lakhs for providing support to farm processing units in its annual plans.

6.2.2 Domicile wise Analysis on Producers’ Perception of the Economic Impact of GI

The difference in the producers’ perception on the economic effect of GI were analysed based on different domiciles. The difference in the producers’ perception on the price effect and the market and finance effect of GI between different domiciles is captured in this section.

6.2.2.1 Domicile wise Analysis on Producers’ Perception of the Price Effect of GI

The four measures of the ‘price effect of GI’ were subjected to domicile-wise analysis in order to understand whether there is difference in producers’ perception on the price effect of GI between different domicile.

a. Descriptive Statistics - Domicile wise Analysis on Producers' Perception of the Price Effect of GI

As per Table 6.9, the most prominent measure of the price effect of GI was found to be 'experiencing price stability for the product in the market' ($\bar{X}$ = 4.339 ± 0.529) in the case of rural areas, whereas the least prominent one was 'power to fix price for the produce' ($\bar{X}$ = 1.685 ± 0.213) in the case of urban area.

Table 6.9

Descriptive Statistics – Domicile wise analysis on Producers' Perception on Price Effect of GI

Variables	Domicile	Mean	SD	MPS
Power to fix price for the produce	Urban	1.685	0.213	33.7
	Rural	2.861	1.031	57.22
	Semi-Urban	2.935	0.998	58.7
	Total	2.853	1.036	57.06
Experiencing price stability for the product in the market	Urban	3.954	0.421	79.08
	Rural	4.339	0.529	86.78
	Semi-Urban	3.742	0.575	74.84
	Total	4.290	0.554	85.8
Need to follow uniform CoP increased the production cost	Urban	2.333	0.577	46.66
	Rural	1.697	0.527	33.94
	Semi-Urban	2.032	0.482	40.64
	Total	1.728	0.533	34.56
Getting price premium for produce	Urban	4.112	0.386	82.24
	Rural	4.314	0.482	86.28
	Semi-Urban	3.935	0.359	78.7
	Total	4.283	0.483	85.66

Source: Primary Data

The statement 'power to fix price for the produce' has the highest MPS of 57.22% in the case of rural domicile. In the case of statements 'experiencing price stability for the product in the market' and 'getting price premium for the produce' the highest MPS was 86.78% and 86.6% respectively in the case of rural domicile, which reveals that the producers of rural domiciles perceived that GI tag has high effect on statements relating to the price effect of GI.

The statement 'need to follow uniform CoP increased the production cost' showed very low effect in the case of all domiciles, with the lowest in the case of rural

domiciles with MPS of 33.94 %, this can be on account that the producers of rural domiciles are already sticking to their traditional production techniques and hence the receipt of GI tag has not influenced their production cost.

b. Multivariate Analysis of Variance - Domicile wise Analysis on Producers' Perception of the Price Effect of GI

Table 6.10 depicts the combined multivariate effect of all the variables identifying the construct of price effect of GI.

H_{6.5}: There is significant difference in the producers' perception on the combined effect of multiple dependent variables measuring the price effect of geographical indications between different domiciles.

Table 6.10

Multivariate (MANOVA) Test Results - Difference in Producers' Perception on Price Effect of GI between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.652	8.240	8.000	788.000	0.000

F tests the multivariate effect of domicile.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The differences in the producers' perception of the price effect of GI between different domiciles on the combined effect of multiple dependent variables were statistically significant with p value of F statistic below 0.05, $F [8, 788] = 8.240$, $p < 0.05$; Wilks' $\Lambda = 0.652$ as shown in Table 6.10. This means that the producers of different domiciles had different opinion relating to the multiple variables measuring the price effect of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 6.11.

c. Univariate Analysis of Variance and Pair wise Comparison - Domicile wise Analysis on Producers' Perception of the Price Effect of GI

Univariate ANOVA was conducted for each of the four dependent variables to identify whether statistically significant differences exist between the various producers of different domiciles.

H_{6.6}: There is significant difference in the producers' perception on the individual measures of the price effect of geographical indications between different domiciles.

The univariate ANOVA test result shown in Table 6.11 indicate that a statistically significant difference exists in the opinion of the producers of different domiciles, in all the individual cases of variables measuring the price effect of GI.

Table 6.11

Estimated Margin of Means, SE, and ANOVA Results - Difference in Producers' Perception on Price Effect of GI between different Domiciles

Variables	Domicile	Mean	SE	F	Sig.
Power to fix price for the produce	Urban	1.685	.592	5.005	0.007
	Rural	2.861	.054		
	Semi-Urban	2.935	.184		
Experiencing price stability for the product in the market	Urban	3.954	.307	18.507	0.000
	Rural	4.339	.028		
	Semi-Urban	3.742	.095		
Need to follow uniform CoP increased the production cost	Urban	2.333	.302	7.882	0.000
	Rural	1.697	.027		
	Semi-Urban	2.032	.094		
Getting price premium for produce	Urban	4.112	.273	9.709	0.000
	Rural	4.314	.025		
	Semi-Urban	3.935	.085		

Figures in bold indicate significant at 5% level

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.12.

Table 6.12

Bonferroni Adjusted Pairwise Comparisons - Difference in Producers' Perception on Price Effect of GI between different Domiciles

Variables	(I) Domicile	(J) Domicile	Mean Difference (I-J)	Std. Error	Sig.#
Power to fix price for the produce	Urban	Rural	-1.176*	0.595	0.006
		Semi-Urban	-1.250*	0.620	0.003
	Rural	Urban	1.176*	0.595	0.006
		Semi-Urban	-.075	0.192	0.774
Experiencing price stability for the product in the market	Urban	Rural	-0.385	0.308	0.815
		Semi-Urban	0.212	0.321	0.956
	Rural	Urban	0.385	0.308	0.815
		Semi-Urban	0.597*	0.099	0.000
Need to follow uniform CoP increased the production cost	Urban	Rural	0.637	0.304	0.110
		Semi-Urban	0.301	0.317	0.142
	Rural	Urban	-0.637	0.304	0.110
		Semi-Urban	-0.336*	0.098	0.002
Getting price premium for produce	Urban	Rural	-0.202	0.274	0.757
		Semi-Urban	0.177	0.286	0.252
	Rural	Urban	0.202	0.274	0.757
		Semi-Urban	0.379*	0.088	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

In the case of 'power to fix price for the produce' statistically significant differences were traced between urban and rural, between urban and semi-urban as well as between semi-urban and urban domiciles. The pairwise comparison of domiciles on the statement 'power to fix the price of my product after getting the GI tag' showed maximum variance between the producers of semi-urban and urban domicile with a mean difference of 1.250. The reason for this difference can be because the producers of the semi-urban area can be more concerned about the value of GI than the urban producers due to their inclination towards tradition and they are more practical when it comes to money when compared to producers of rural domicile. This unique nature of semi-urban producers can be the reason for their higher edge in 'power to fix price for the produce' after the receipt of GI when compared to the producers of other domiciles.

However, in the case of ‘experiencing price stability for the product in the market,’ ‘need to follow uniform CoP increased the production cost’ as well as ‘getting price premium for produce’ significant differences were traced only between semi-urban and rural.

The statements ‘experiencing price stability for my produce after getting the GI tag’ and ‘getting a price premium for my product after getting the GI tag’ when subject to pairwise comparison revealed the highest variance between rural and semi-urban with a mean difference score of 0.597 and 0.379 respectively. The results of the statement reveal that the GI producers of rural domicile perceived higher benefit from the receipt of GI as it helped them in gaining price premium and price stability for their product.

The pairwise comparison of the statement ‘experiencing an increase in the input cost since the producers must maintain certain quality standards as per GI registration’ gives the highest variance between semi-urban and rural with a mean score difference of 0.336. This can be because the producers of rural domicile are more traditional in nature and stick to the CoP even before the receipt of GI tag. The results reveal that GI tag did not influence the production cost of producers belonging to rural area.

6.2.2.2 Domicile wise Analysis on Producers’ Perception of the Market and Finance Effect of GI

The eight measures of ‘market and finance effect of GI’ were subjected to domicile-wise analysis to understand whether there is any difference in producers’ perception about the market and finance effect of GI between different domicile.

a. Descriptive Statistics - Domicile wise Analysis on Producers’ Perception of the Market and Finance Effect of GI

The most prominent measure of the market and finance effect of GI was found to be ‘increase in the market value (reputation) of the product’ ($\bar{X}$ = 4.35 ± 0.655) in the case of rural area, whereas the least prominent one was ‘increase in tourism prospects of the region’ ($\bar{X}$ = 1.55 ± 0.506) in the case of semi-urban area, as per the descriptive statistics shown in Table 6.13.

Table 6.13

Descriptive Statistics – Domicile wise Analysis on the Producers' Perception on the Market and Finance Effect of GI

Variables	Domicile	Mean	SD	MPS
Increase in the market value (reputation) of the product	Urban	4.15	0.342	83
	Rural	4.35	0.655	86.2
	Semi-Urban	3.48	0.851	69.6
	Total	4.25	0.704	85
Increase in the demand for the product in domestic market	Urban	3.86	0.144	77.2
	Rural	4.01	0.564	80.2
	Semi-Urban	3.16	1.267	63.2
	Total	3.94	0.680	78.8
Increase in access to new markets	Urban	2.71	0.245	54.2
	Rural	1.63	0.505	32.6
	Semi-Urban	1.58	0.502	31.6
	Total	1.63	0.503	32.6
Increase in export of the product	Urban	2.36	0.744	47.2
	Rural	1.65	0.552	33
	Semi-Urban	1.58	0.502	31.6
	Total	1.65	0.547	33
Increase in tourism prospects of the region	Urban	2.33	0.577	46.6
	Rural	2.55	1.042	51
	Semi-Urban	1.55	0.506	31
	Total	2.48	1.043	49.6
Greater interest on the part of the financial institution in providing credit to the producers after the receipt of the GI tag	Urban	1.67	0.577	33.4
	Rural	1.82	0.499	36.4
	Semi-Urban	1.74	0.575	34.8
	Total	1.81	0.505	36.2
Increase in Government subsidies / grants	Urban	2.33	0.577	46.6
	Rural	2.2	1.076	44
	Semi-Urban	2.16	0.374	43.2
	Total	2.2	1.035	44
Increase in Govt schemes after receiving GI tag	Urban	4.22	0.674	84.4
	Rural	3.72	0.724	74.4
	Semi-Urban	3.81	0.543	76.2
	Total	3.73	0.709	74.6

Source: Primary Data

The MPS of the dimensions 'market and finance effect' of GI showed that the indicators 'increase in the market value (reputation) of the product', 'increase in the demand for the product in the domestic market', 'increase in tourism prospects of the

region’ and ‘greater interest on the part of the financial institution in providing credit to the producers after the receipt of GI tag’ support the previous studies supporting the role of GI in rural development as these indicators have the highest MPS in the case of rural domicile. The analysis of the first two variables, relating to increase in market value and increase in demand for the products after the receipt of GI tag, revealed a high level of agreement with MPS of above 75 % among the producers of rural domicile.

The statements ‘increase in access to new markets’ and ‘increase in export of the product’ showed that the producers of urban domiciles have higher perceived benefit from GI tag over other domiciles. This can be due to the greater market exposure enjoyed by the producers of the urban domiciles over other domiciles.

When it comes to the economic support from the State, two indicators were measured using the statements ‘increase in government subsidies / grants’ and ‘increase in govt schemes after receiving GI tag’. The producers of urban domicile had higher MPS when compared to other domiciles in the case of both the statements. GI producers of all the domiciles perceived low effect of GI on the subsidies/ grants received from the Government with MPS between 36 % and 50%.

b. Multivariate Analysis of Variance - Domicile wise Analysis on Producers’ Perception of the Market and Finance Effect of GI

Table 6.14 depicts the combined multivariate effect of all the variables identifying the construct of market and finance effect of GI.

H_{6.7}: There is significant difference in the producers’ perception on the combined effect of multiple dependent variables measuring the ‘market and finance effect of geographical indications’ between different domiciles.

The differences in the producers’ perception of different domiciles on the combined dependent variables were statistically significant as the p value of F statistic was lower than 0.05, $F [16, 780] = 5.693, p < 0.05$; Wilks' $\Lambda = 0.502$ as depicted in Table 6.14. This means that the producers of different domiciles had different opinion relating to the multiple variables measuring the combined market and finance effect of GI.

Table 6.14

Multivariate (MANOVA) Test Results - Difference in Producers' Perception on the Market and Finance Effect of GI between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.502	5.693	16.000	780.000	0.000

F tests the multivariate effect of domicile

Figure in bold indicates significant at 5% level.

Source: Primary Data

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 6.15.

c. Univariate Analysis of Variance and Pair wise Comparison - Domicile wise Analysis on Producers' Perception of the Market and Finance Effect of GI

Univariate ANOVA was conducted for each of the eight dependent variables to identify whether statistically significant differences exist between the various producers of different domiciles.

H_{6.8}: There is significant difference in the producers' perception on the individual measures of the market and finance effect of geographical indications between different domiciles.

The univariate ANOVA test result as per Table 6.15 revealed statistically significant difference in the opinion of GI producers of different domiciles on the individual measures of market and finance effect of GI only in the case of the statements 'increase in the market value (reputation) of the product', 'increase in the demand for the product in domestic market' and 'increase in tourism prospects of the region'.

Table 6.15

Estimated Margin of Means, SE, and ANOVA Results - Difference in Producers' Perception on the Market and Finance Effect of GI between different Domiciles

Variables	Domicile	Mean	SE	F	Sig.
Increase in the market value (reputation) of the product	Urban	4.15	0.387	22.003	0.000
	Rural	4.31	0.035		
	Semi-Urban	3.48	0.120		
Increase in the demand for the product in the domestic market	Urban	3.86	0.371	24.637	0.000
	Rural	4.01	0.034		
	Semi-Urban	3.16	0.116		
Increase in access to new markets	Urban	2.71	0.290	0.966	0.381
	Rural	1.63	0.026		
	Semi-Urban	1.58	0.090		
Increase in export of the product	Urban	2.36	0.316	0.859	0.424
	Rural	1.65	0.029		
	Semi-Urban	1.58	0.098		
Increase in tourism prospects of the region	Urban	2.33	0.583	14.222	0.000
	Rural	2.55	0.053		
	Semi-Urban	1.55	0.181		
Greater interest on the part of the financial institution in providing credit to the producers after the receipt of the GI tag	Urban	1.67	0.292	0.437	0.647
	Rural	1.82	0.026		
	Semi-Urban	1.74	0.091		
Increase in Government subsidies / grants	Urban	2.33	0.599	0.045	0.956
	Rural	2.2	0.054		
	Semi-Urban	2.16	0.186		
Increase in Govt schemes after receiving GI tag	Urban	4.22	0.410	0.423	0.655
	Rural	3.72	0.037		
	Semi-Urban	3.81	0.128		

Figures in bold indicate significant at 5% level.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.16.

Table 6.16

Bonferroni Adjusted Pairwise Comparisons - Difference in Producers' Perception on Market and Finance Effect of GI between different Domiciles

Variables	(I) Domicile	(J) Domicile	Mean Difference (I-J)	Std. Error	Sig.#
Increase in the market value (reputation) of the product	Urban	Rural	-0.160	0.388	0.585
		Semi-Urban	0.671	0.405	0.610
	Rural	Urban	0.160	0.388	0.585
		Semi-Urban	0.828*	0.125	0.000
Increase in the demand for the product in the domestic market	Urban	Rural	-0.152	0.373	0.961
		Semi-Urban	0.718	0.389	0.095
	Rural	Urban	0.152	0.373	0.961
		Semi-Urban	0.844*	0.120	0.000
Increase in tourism prospects of the region	Urban	Rural	-0.221	0.585	0.632
		Semi-Urban	0.785	0.611	0.598
	Rural	Urban	0.221	0.585	0.632
		Semi-Urban	1.006*	0.189	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

The pairwise comparisons revealed that in the case of the statements ‘increase in the market value (reputation) of the product’, ‘increase in the demand for the product in the domestic market’ and ‘increase in tourism prospects of the region’, statistically significant differences exist between semi-urban and rural areas only.

The post hoc test results of the statement ‘increase in the market value (reputation) of the product’ showed significant variance between the GI producers of rural and semi-urban domiciles with a maximum mean difference of 0.828. The statement ‘GI tag has increased the demand for the product in the domestic market’ after pairwise comparison revealed maximum variance between the GI producers of rural and semi-urban with a mean difference of 0.844. The pairwise comparison results of the statement ‘increase in the tourism prospects in the region after getting GI registration’ revealed the highest variance between rural and semi-urban with a mean difference of 1.006. All the pairwise comparison test results signal the significance of GI in facilitating rural development.

6.3 ECONOMIC IMPACT ASSESSMENT OF GI - OBJECTIVE METHOD

The development policies and programs are implemented by the authorities to have designated outcomes like increase in income, improved learning, better representation etc among the beneficiaries. The GIs are often represented by the researchers as a policy framework capable of bringing changes in the life of producers ultimately leading to rural development (Ceï et al., 2018). Every policy needs to be assessed in order to find out whether the policies have brought out the desired results. The previous studies have proposed several indicators for evaluating the impact of GI, these include amount of production, price, area of production, number of producers and employment generation. In this study the indicators identified are area of production and production quantity which are suggested as indicators for the measurement of GI potentiality by (Belletti et al., 2011).

The impact assessment method followed in this study is the Double Difference method also called the Difference in Difference (DiD) method. Here panel data were used, which consisted of data before the program was implemented and after the program has been operating. The panel data of participants and non-participants pre and post GI registrations were collected to apply the DiD evaluation. DiD examines the variations in the outcomes between a treatment group and a comparison group at the postintervention phase in contrast to the results of a preintervention baseline survey. (Khandker et al., 2009)

The present study adopts the assumption given in the research by Leonardo Ceï and team in their research article on impact analysis of GI (Ceï et al., 2018). In their study it was stated that the social and pedoclimatic factors are regarded as time invariant, hence it is assumed that other socio-economic and environmental factors are almost stable during the period of study. The present study considers panel data for a period not more than fifteen years for the chosen GIs, because natural elements change slowly and take an extensive time to generate considerable changes in the agricultural sector. This assumption supports the DiD assumption that the unobserved heterogeneity is time invariant by (Khandker et al., 2009). The GIs identified for comparison in the study are similar products with the highest value in Kerala relating to the area of production and the production quantity. Hence, the GI to be compared with Chengalikodan Nendran was nendran statistics from Palakkad district, for Tirur

Vettila it was vettila statistics from Pathanamthitta district and for Marayoor Sharkara it was sharkara statistics from Palakkad district. The DiD for Kaipad Rice was not conducted as there was no comparison product with the same nature available.

6.3.1 The Econometric Specification for the DiD Regression Model

$$Y_{it} = \beta_0 + \beta_1 \text{Treatment}_i + \beta_2 \text{Post}_t + \beta_3 (\text{Treatment}_i \times \text{Post}_t) + \epsilon_{it}$$

Where:

- i. Y_{it} is the outcome variable of interest (the production area and quantity of production).
- ii. Treatment_i is a binary variable indicating whether the unit (e.g., a product) is in the treatment group or comparison group (1 for GI product (Treatment group), 0 for non-GI product (comparison group)).
- iii. Post_t is a binary variable indicating whether the observation is after the intervention (post intervention).
- iv. $\text{Treatment}_i \times \text{Post}_t$ is the interaction term, representing the DiD estimator. This term captures the difference in outcomes between the treatment and comparison groups pre and post intervention.
- v. β_0 is the intercept, representing the baseline outcome for the comparison group pre intervention.
- vi. β_1 represents the difference between the treatment and comparison groups pre intervention.
- vii. β_2 represents the change in the outcome over time for the comparison group.
- viii. β_3 represents the DiD effect, which is the estimated impact of the intervention (the main coefficient of interest).
- ix. ϵ_{it} is the error term.

6.3.2 Impact Assessment of Geographical Indications on the Area of Production of Chengalikodan Nendran

The impact of the GI tag, obtained in the year 2014, on the area of production of Chengalikodan Nendran was analysed. Table 6.17 depicts the pre and post - GI comparison of the average production area of Chengalikodan Nendran production and the comparison group in hectares.

Table 6.17

Descriptive Statistics – Area of Production of Chengalikodan Nendran and Comparison Group

Group	Pre-GI (Mean)	Post-GI (Mean)	Percentage Change
Treatment Group (GI product)	871.55	1028.76	+18.04%
Comparison Group (Non-GI product)	1171.46	1358.06	+15.92%

Source: Data compiled from Krishi Bhavan and Principal Agricultural Office

The descriptive analysis in Table 6.17 revealed that in the case of Chengalikodan Nendran there was an increase in the area of production by +18.04% after the receipt of GI. The same was +15.92% for the comparison group considered for the study during the period. The descriptive statistics revealed an increase in the area of production in the case of Chengalikodan Nendran after receiving the GI tag. A DiD impact assessment was conducted in order to identify whether this increase in the area of production was due to the receipt of GI tag.

a. Results of DiD Regression Analysis

H_{6,9}: Geographical Indications certification leads to significant increase in the production area of Chengalikodan Nendran.

The details of regression coefficients and model fit indices are given in Table 6.18 and Table 6.19 respectively.

Table 6.18

Regression Coefficients – Effect of GI on the Production Area of Chengalikodan Nendran

Term	Estimate	Std. Error	t-value	p-value	Significance
Intercept (β_0)	994.62	450	2.21	0.027	*
Treatment (β_1)	-299.91	192	-1.56	0.119	
Post_Treatment(β_2)	186.60	118	1.58	0.114	
Treatment $\times$ Post_Treatment(β_3)	-29.39	147	-0.020	0.841	

Significance Codes: *** p<0.001, **p<0.01, *p<0.05

Source: Computed using data compiled from Krishi Bhavan and Principal Agricultural Office

Table 6.19*Model Fit Statistics –Effect of GI on the Production Area of Chengalikodan Nendran*

Measure	Value
Residual Standard Error	319
Multiple R-squared	0.8251
Adjusted R-squared	0.8012
F-statistic	34.59 (p<0.001)
Degrees of Freedom (Model/Residual)	3/22

Source: Computed using data compiled from Krishi Bhavan and Principal Agricultural Office

The model fit indices in Table 6.19 showed a coefficient of determination value of 0.8012, which means that 80.12% of the variation in production area can be explained by the model. The F-statistic (34.59, p<0.001) confirms that the model is statistically significant. These results suggest that the model effectively captures the relationship between GI registration and area of production.

The intercept ($\beta_0 = 994.62$, $p < 0.027$) represents that the baseline outcome of the comparison group pre-GI period is significant. The coefficient for Treatment ($\beta_1 = -299.91$, $p=0.119$) suggests that the difference in the area of production between the treatment and comparison group pre-GI period was relatively balanced as the effect was not statistically significant. The coefficient for Post_Treatment ($\beta_2 = 186.60$, $p = 0.114$) showed the change in the comparison group outcome pre and post – GI registration. The results were not statistically significant which revealed that in the absence of the treatment there is only minimal natural change.

The DiD interaction term ($\beta_3 = -29.39$, $p= 0.841$) although negative was not statistically significant. Hence it is concluded that the GI certificate did not significantly affect the area of production of Chengalikodan Nendran.

6.3.3 Impact Assessment of Geographical Indications on the Production Quantity of Chengalikodan Nendran

To assess the impact of GI certification on the production quantity of Chengalikodan Nendran a DiD regression model was used. A comparison was made on the changes in production quantity pre and post – GI between Chengalikodan Nendran and the comparison group in order to assess the impact of GI on the

production quantity. Table 6.20 reveal the pre and post - GI comparison of the average production quantity of Chengalikodan Nendran and the comparison group in tonnes.

Table 6.20

Descriptive Statistics –Production Quantity of Chengalikodan Nendran and Comparison Group

Group	Pre-GI (Mean)	Post-GI (Mean)	Percentage Change
Treatment Group	5431.64	6160.29	13.41%
Comparison Group	9097.4	10038.4	10.35%

Source: Data compiled from Krishi Bhavan and Principal Agricultural Office

The descriptive analysis in Table 6.20 reveal that the Chengalikodan Nendran had an increase in the production quantity by +13.41 % post GI registration, while the same was +10.35 % for the comparison group taken for the study during the period. There was an increase in the production quantity in the case of Chengalikodan Nendran post GI registration. A DiD impact assessment was conducted in order to identify whether this increase in production quantity was due to GI certification.

a. Results of DiD Regression Analysis

H_{6.10}: Geographical Indications certification leads to significant increase in the production quantity of Chengalikodan Nendran.

The details of regression coefficients and model fit indices are given in Table 6.21 and Table 6.22 respectively.

Table 6.21

Regression Coefficients – Effect of GI on the Production Quantity of Chengalikodan Nendran

Term	Estimate	Std. Error	t-value	p-value	Significance
Intercept (β_0)	7061	150	47.07	<0.001	***
Treatment (β_1)	-3665.76	1912	-1.92	0.055	
Post_Treatment(β_2)	941	492	1.91	0.056	
Treatment × Post_Treatment(β_3)	-212.35	180	-1.18	0.24	

Significance Codes: *** p<0.001,** p<0.01,* p<0.05

Source: Computed using data compiled from Krishi Bhavan and Principal Agricultural Office

Table 6.22

Model Fit Statistics – Effect of GI on the Production Quantity of Chengalikodan Nendran

Measure	Value
Residual Standard Error	203
Multiple R-squared	0.7525
Adjusted R-squared	0.7187
F-statistic	22.29 (p value <0.001)
Degrees of Freedom (Model/Residual)	3/22

Source: Computed using data compiled from Krishi Bhavan and Principal Agricultural Office

The model fit indices in Table 6.22 showed a coefficient of determination value of 0.7187, which means that 71.87 % of the variation in production quantity can be explained by the model. The F- statistic (22.29, $p < 0.001$) confirms that the model is statistically significant. These results suggest that the model effectively captures the relationship between the GI registration and production quantity.

The intercept ($\beta_0 = 7061$, $p < 0.001$) represents that the baseline outcome of the comparison group pre-GI period is significant. The coefficient of Treatment ($\beta_1 = -3665.76$, $p = 0.055$) suggests that the difference between the treatment and comparison group pre-GI period was relatively balanced as the effect is not statistically significant. The coefficient for Post_Treatment ($\beta_2 = 941$, $p = 0.056$) shows the change in the comparison group outcome pre and post GI registration. The results were not statistically significant which revealed that in the absence of the treatment there is only minimal natural change.

The DiD interaction term ($\beta_3 = -212.35$, $p = 0.24$) although negative is not statistically significant. Hence it is concluded that the GI certificate did not significantly influence the production quantity of Chengalikodan Nendran.

6.3.4 Impact Assessment of Geographical Indications on the Area of Production of Marayoor Sharkara

The effect of GI certification on the area of production of Marayoor Sharkara was analysed using DiD method of regression. Marayoor Sharkara received the GI tag in the year 2018. DiD regression model compares the changes in the area of

production of Marayoor Sharkara and comparison group pre and post GI. Table 6.23 reveals the pre- and post-GI comparison of the average area of production of Marayoor Sharkara and comparison group.

Table 6.23

Descriptive Statistics – Area of Production of Marayoor Sharkara and Comparison Group

Group	Pre-GI (Mean)	Post-GI (Mean)	Percentage Change
Treatment Group	639.78	711.6	+11.22 %
Comparison Group	363.43	391.34	+7.68%

Source: Data compiled from Krishi Bhavan and Principal Agricultural Office

The descriptive analysis in Table 6.23 reveals that the Marayoor Sharkara has seen an increase in the area of production by +11.22 % after receiving the GI tag. A DiD impact assessment was conducted in order to identify whether this increase in area of production of Marayoor Sharkara was due to the receipt of GI tag.

a. Results of DiD Regression Analysis

H_{6.11}: Geographical Indications certification leads to significant increase in the area of production of Marayoor Sharkara

The details of regression coefficients and model fit indices are given in Table 6.24 and Table 6.25 respectively.

Table 6.24

Regression Coefficients – Effect of GI on the Production Area of Marayoor Sharkara

Term	Estimate	Std. Error	t-value	p-value	Significance
Intercept (β_0)	647.43	185.61	3.49	<0.001	***
Treatment (β_1)	276.35	549.68	0.50	0.62	
Post_Treatment(β_2)	27.91	25.38	1.10	0.27	
Treatment × Post_Treatment(β_3)	43.912	27.23	1.61	0.11	

Significance Codes: *** p<0.001, ** p<0.01, * p<0.05

Source: Computed using data compiled from Krishi Bhavan and Principal Agricultural Office

Table 6.25*Model Fit Statistics –Effect of GI on the Production Area of Marayoor Sharkara*

Measure	Value
Residual Standard Error	242.2
Multiple R-squared	0.9162
Adjusted R-squared	0.9048
F-statistic	80.22 (p<0.001)
Degrees of Freedom (Model/Residual)	3/22

Source: Computed using data compiled from Krishi Bhavan and Principal Agricultural Office

The model fit indices in Table 6.25 showed a coefficient of determination value of 0.9048, which means that 90.48 % of the variation in area of production can be explained by the model. The F statistic (80.22, p<0.001) confirms that the model is statistically significant. These results suggest that the model effectively captures the relationship between GI registration and the area of production.

The intercept ($\beta_0 = 647.43$, $p < 0.001$) represents that the baseline outcome of the comparison group pre-GI period is significant. The coefficient for Treatment ($\beta_1 = 276.35$, $p=0.62$) suggests that the difference between the treatment and comparison group pre - GI period was relatively balanced as the effect is not statistically significant. The coefficient for Post_Treatment ($\beta_2 = 27.91$, $p = 0.27$) shows the change in the comparison group outcome pre and post – GI registration. The results were statistically not significant which reveal that in the absence of the treatment there is not much change in the area of production.

The DiD interaction term ($\beta_3 = 43.912$, $p= 0.11$) although positive is not statistically significant. Hence it is concluded that the GI certificate did not significantly increase the area of production of Marayoor Sharkara.

6.3.5 Impact Assessment of Geographical Indications on the Production Quantity of Marayoor Sharkara

The impact of GI certification on the production quantity of Marayoor Sharkara was also analysed. Table 6.26 indicates the descriptive statistics relating to the average

production quantity of Marayoor Sharkara and comparison product pre and post GI certification.

Table 6.26

Descriptive Statistics – Production Quantity of Marayoor Sharkara and Comparison Group

Group	Pre-GI (Mean)	Post-GI (Mean)	Percentage Change
Treatment Group	7126.05	8107.69	+13.77 %
Comparison Group	3515.73	3881.35	+10.40%

Source: Data compiled from Krishi Bhavan and Principal Agricultural Office

The descriptive analysis in Table 6.26 reveal that the Marayoor Sharkara has an increase in the production quantity by +13.77 % after the receipt of GI. A DiD impact assessment was conducted in order to identify whether this increase in production quantity of Marayoor Sharkara was due to the receipt of GI certification.

a. Results of DiD Regression Analysis

H_{6,12}: Geographical Indications certification leads to significant increase in the production quantity of Marayoor Sharkara.

The details of regression coefficients and model fit indices are given in Table 6.27 and Table 6.28.

Table 6.27

Regression Coefficients – Effect of GI on the Production Quantity of Marayoor Sharkara

Term	Estimate	Std. Error	t-value	p-value	Significance
Intercept (β_0)	5647.79	110.1	96.05	<0.001	***
Treatment (β_1)	1100	597.4	1.84	0.067	
Post_Treatment(β_2)	365.62	307.2	1.19	0.23	
Treatment × Post_Treatment(β_3)	616.02	421.6	1.46	0.14	

Significance Codes: *** p<0.001, ** p<0.01, * p<0.05

Source: Computed using data compiled from Krishi Bhavan and Principal Agricultural Office

Table 6.28*Model Fit Statistics –Effect of GI on the Production Quantity of Marayoor Sharkara*

Measure	Value
Residual Standard Error	349.2
Multiple R-squared	0.8163
Adjusted R-squared	0.7058
F-statistic	71.36 (p<0.001)
Degrees of Freedom (Model)	3/22

Source: Computed using data compiled from Krishi Bhavan and Principal Agricultural Office

The model fit indices in Table 6.28 showed a coefficient of determination value of 0.7058, which means that 70.58 % of the variation in production quantity can be explained by the model. The F- statistic (71.36, p<0.001) confirms that the model is statistically significant. These results suggest that the model effectively captures the relationship between GI registration and production quantity.

The intercept ($\beta_0 = 5647.79$, $p < 0.001$) represents that the baseline outcome of the comparison group pre - GI period is significant. The coefficient for Treatment ($\beta_1 = 1100$, $p=0.067$) suggests that the difference between the treatment and comparison group pre – GI period was relatively balanced as the effect is not statistically significant. The coefficient for Post_Treatment ($\beta_2 = 365.62$, $p = 0.23$) shows the change in the comparison group outcome pre- to post – GI registration. The results were statistically not significant which revealed that the change in the production quantity of comparison group post - GI period was random and statistically not significant.

The DiD interaction term ($\beta_3 = 616.02$, $p= 0.14$) although positive is not statistically significant suggesting that GI certification did not significantly impact the production quantity in the treatment group compared to the comparison group. Hence it is concluded that the GI certificate did not significantly increase the production quantity of Marayoor Sharkara.

6.3.6 Impact Assessment of Geographical Indications on the Area of Production of Tirur Vettla

An analysis on the impact of the GI tag, received in 2019, by Tirur Vettla on its area of production is conducted to analyse the quantitative influence of GI. A DiD regression model is employed to measure the effect of the GI tag by comparing changes in the area of production pre and post GI period between the treatment and comparison group.

Table 6.29

Descriptive Statistics – Area of Production of Tirur Vettla and Comparison Group

Group	Pre-GI (Mean)	Post-GI (Mean)	Percentage Change
Treatment Group	188.8	216.4	+14.62%
Comparison Group	82.4	91.8	+11.41%

Source: Data compiled from Krishi Bhavan and Principal Agricultural Office

The descriptive analysis in Table 6.29 reveals that the Tirur Vettla had an increase in the production area by +14.62 % after the receipt of GI, while the same is +11.41 % for the comparison group during the period. A DiD impact assessment was conducted in order to identify whether this increase in production area of Tirur Vettla was due to the receipt of GI certification.

a. Results of DiD Regression Analysis

H_{6.13}: Geographical Indications certification leads to significant increase in the production area of Tirur Vettla.

The details of regression coefficients and model fit indices are given in Table 6.30 and Table 6.31.

Table 6.30

Regression Coefficients – Effect of GI on the Production Area of Tirur Vettla

Term	Estimate	Std. Error	t-value	p-value	Significance
Intercept (β_0)	114.4	55.57	2.06	0.045	*
Treatment (β_1)	106.4	58.73	1.50	0.07	
Post_Treatment(β_2)	9.4	25.73	0.37	0.71	
Treatment $\times$ Post_Treatment(β_3)	18.2	11.147	1.63	0.11	

Significance Codes: *** p<0.001, ** p<0.01, * p<0.05

Source: Computed using data compiled from Krishi Bhavan and Principal Agricultural Office

Table 6.31*Model Fit Statistics –Effect of GI on the Production Area of Tirur Vettila*

Measure	Value
Residual Standard Error	6.384
Multiple R-squared	0.8888
Adjusted R-squared	0.7973
F-statistic	64.8 (p<0.001)
Degrees of Freedom (Model/Residual)	3/22

Source: Computed using data compiled from Krishi Bhavan and Principal Agricultural Office

The model fit indices in Table 6.31 showed a coefficient of determination value of 0.7973, which means that 79.73 % of the variation in area of production can be explained by the model. The F- statistic (64.8, p<0.001) confirms that the model is statistically significant. These results suggest that the model effectively captures the relationship between GI registration and area of production.

The intercept ($\beta_0 = 114.4$, $p < 0.045$) represents that the baseline outcome of the comparison group pre - GI period is significant. The coefficient for Treatment ($\beta_1 = 106.4$, $p=0.07$) suggests that the difference between the treatment and comparison group pre - GI period was relatively balanced as the effect is not statistically significant. The coefficient for Post_Treatment ($\beta_2 = 9.4$, $p = 0.71$) shows the change in the comparison and treatment group outcome pre - and post - GI registration. The change in the area of production post-GI is not statistically significant in the case of comparison group.

The DiD interaction term ($\beta_3 = 18.2$, $p= 0.11$) although positive is not statistically significant. Hence it is concluded that the GI certificate did not significantly increase the area of production of Tirur Vettila.

6.3.7 Impact Assessment of Geographical Indications on the Production Quantity of Tirur Vettila

An analysis of the impact of the GI tag, received in 2014, on the production quantity of Tirur Vettila was performed. A DiD regression model was employed to

measure the effect of the GI tag by comparing changes in production quantity pre and post GI registration for areas with the GI tag and areas without the GI tag.

Table 6.32

Descriptive Statistics – Production Quantity of Tirur Vettala and Comparison Group

Group	Pre-GI (Mean)	Post-GI (Mean)	Percentage Change
Treatment Group	6690.40	7350.37	+9.86%
Comparison Group	2209.5	2401.92	+8.71%

Source: Data compiled from Krishi Bhavan and Principal Agricultural Office

The descriptive analysis in Table 6.32 reveal that the Tirur Vettala had an increase in the production quantity by +9.86% after the receipt of GI, while the same was +8.71% for the counterfactual, non-GI product, taken for comparison during the period. A DiD impact assessment was conducted in order to identify whether this increase in production quantity of Tirur Vettala was due to the receipt of GI certification.

a. Results of DiD Regression Analysis

H_{6.14}: Geographical Indications certification leads to significant increase in the production quantity of Tirur Vettala.

The details of regression coefficients and model fit indices are given in Table 6.33 and Table 6.34.

Table 6.33

Regression Coefficients – Effect of GI on the Production Quantity of Tirur Vettala

Term	Estimate	Std. Error	t-value	p-value	Significance
Intercept (β_0)	2115.5	578.9	3.65	<0.001	***
Treatment (β_1)	4480.9	2318.7	1.93	0.055	
Post_Treatment(β_2)	192.42	333.4	0.58	0.56	
Treatment × Post_Treatment(β_3)	467.55	254.1	1.84	0.067	

Significance Codes: *** p<0.001, ** p<0.01, * p<0.05

Source: Computed using data compiled from Krishi Bhavan and Principal Agricultural Office

Table 6.34*Model Fit Statistics –Effect of GI on the Production Quantity of Tirur Vettala*

Measure	Value
Residual Standard Error	637
Multiple R-squared	0.8224
Adjusted R-squared	0.7845
F-statistic	24.886 (p=0.003)
Degrees of Freedom (Model/Residual)	3/22

Source: Computed using data compiled from Krishi Bhavan and Principal Agricultural Office

The model fit indices in Table 6.34 showed a coefficient of determination value of 0.7845, which means that 78.45 % of the variation in production quantity can be explained by the model. The F - statistic (24.886, p=0.003) confirms that the model is statistically significant. These results suggest that the model effectively captures the relationship between GI registration and production quantity.

The intercept ($\beta_0 = 2115.5$, $p < 0.001$) represents that the baseline outcome of the comparison group pre – GI period is significant. The coefficient for Treatment ($\beta_1 = 4480.9$, $p=0.055$) suggests that the difference between the treatment and comparison group pre-GI registration period was relatively balanced as the effect is not statistically significant. The coefficient for Post_Treatment ($\beta_2 = 192.42$, $p = 0.56$) showed the change in the comparison group outcome pre and post – GI registration. The result suggests that the change in the production quantity of comparison group post - GI was statistically not significant.

The DiD interaction term ($\beta_3 = 467.55$, $p= 0.067$) although positive is not statistically significant. Hence it is concluded that the GI certificate did not significantly increase the production quantity of Tirur Vettala.

6.4 SOCIAL IMPACT OF GI

Geographical indications have profound social implications. It ranges from community pride to social equity. It encompasses knowledge preservation, reduction in rural drift, youth engagement, and cultural highlight, ultimately leading to rural development. GIs help preserve the cultural heritage and traditional knowledge of the communities associated with it ensuring that the local practices are not lost. The recognition of GI fosters a sense of pride and belonging among the producers reinforcing social cohesion within the community. The demand for GI products can create employment opportunities both directly and indirectly. The small-scale producers can benefit from the economic benefits of GI which can reduce poverty and increase the standard of living in the rural areas. By making rural livelihoods more sustainable and profitable GIs can help retain people in rural areas. The younger generations may be motivated to participate in traditional industries when they see recognition and economic benefits.

6.4.1 GI-wise analysis of the Social Impact of Geographical Indications

This section explores the different dimensions of the ‘social impact of the GI tag’, namely the organisational and employment effect (six measures), development mechanism effect (seven measures) and protection and valorisation effect (ten measures), which were subjected to GI-wise analysis.

6.4.1.1 GI wise Analysis on Producers’ Perception of the Organisational and Employment Effect of GI

The six measures of ‘organisational and employment effect of GI’ were subjected to GI-wise analysis. The variables identified for measuring ‘organisational and employment effects’ were social cohesion, the role of the producers’ association in improving the relation among members and spreading awareness about GI, the activeness of the producers’ association and the increase in employment opportunities after the GI certification.

a. Descriptive Statistics - GI wise analysis on Producers' Perception of the Organisational and Employment Effect of GI

As per Table 6.35 the most prominent measure in the organisational and employment effect was found to be 'producers' association helped spread awareness about GI registration among its members' ($\bar{X}$ = 4.537 $\pm$ 0.505) in the case of Chengalikodan Nendran, whereas the least prominent one was 'more youth joining the production and farming activities' ($\bar{X}$ = 1.659 $\pm$ 0.530) that too in the case of Chengalikodan Nendran.

Table 6.35

Descriptive Statistics – GI wise Analysis on Producers' Perception of the Organisational and Employment Effect of GI

Variables	Name of the GI	Mean	SD	MPS
Increase in coordination among the producers	Chengalikodan Nendran	2.073	0.469	41.46
	Tirur Vettala	2.817	0.961	56.34
	Marayoor Sharkara	2.123	0.331	42.46
	Kaipad Rice	2.595	0.917	51.90
	Total	2.495	0.850	49.90
Producers' association has become more active	Chengalikodan Nendran	1.863	0.419	37.26
	Tirur Vettala	2.451	0.771	49.02
	Marayoor Sharkara	1.860	0.347	37.20
	Kaipad Rice	2.317	0.521	46.34
	Total	2.013	0.537	40.26
Relationship among producers in the association improved	Chengalikodan Nendran	1.927	0.755	38.54
	Tirur Vettala	3.000	0.986	60.00
	Marayoor Sharkara	1.902	0.298	38.04
	Kaipad Rice	1.945	0.329	38.90
	Total	2.108	0.683	42.16
Producers' association helped spread awareness about GI among members	Chengalikodan Nendran	4.537	0.505	90.74
	Tirur Vettala	4.310	0.623	86.20
	Marayoor Sharkara	4.027	0.164	80.54
	Kaipad Rice	4.251	0.435	85.02
	Total	4.250	0.467	85.63
Increase in employment opportunities in the area	Chengalikodan Nendran	1.805	0.511	36.10
	Tirur Vettala	2.338	0.877	46.76
	Marayoor Sharkara	1.890	0.315	37.80
	Kaipad Rice	1.874	0.332	37.48
	Total	1.953	0.521	39.06

Variables	Name of the GI	Mean	SD	MPS
More youth joining the production and farming activities	Chengalikodan Nendran	1.659	0.530	33.18
	Tirur Vettala	3.268	0.925	65.36
	Marayoor Sharkara	2.027	0.332	40.54
	Kaipad Rice	1.777	0.544	35.54
	Total	2.075	0.822	41.50

Source: Primary Data

The producers perceived that the effect of GI was high towards the statement ‘producers’ association helped to spread awareness about GI registration among members’ with an MPS of 85.63%. The producers perceived that the effect of GI was low in the case of the statements ‘increase in coordination among the producers’, ‘producers’ association has become more active’, ‘relationship among producers’ in the association improved’, ‘increase in employment opportunity in the area’ and ‘more youth joining the production and farming activities’ with an MPS of between 36% and 50%.

b. Multivariate Analysis of Variance - GI wise analysis on Producers’ Perception of the Organisational and Employment Effect of GI

Table 6.36 depicts the combined multivariate effect of all the variables identifying the construct of organisation and employment effect of GI.

H_{6.15}: There is significant difference in producers' perception on the combined effect of multiple dependent variables measuring the organisational and employment effect of the geographical indications between different GIs.

Table 6.36

Multivariate (MANOVA) Test Results – Difference in Producers’ Perception on the Organisational and Employment Effect of GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.316	30.954	18.000	1106.400	0.000

F tests the multivariate effect of type of GI.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The differences in producers' perception of different GIs on the combined dependent variables were statistically significant with the p value of F statistic lower than 0.05, $F [18, 1106.4] = 30.954$, $p < 0.05$, Wilks' $\Lambda = 0.316$; as shown in Table 6.36. This means that the producers of different GIs had different opinion relating to the multiple variables measuring the organisational and employment effect of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 6.37.

c. Univariate Analysis of Variance and Pair wise Comparison - GI wise Analysis on Producers' Perception of the Organisational and Employment Effect of GI

Univariate ANOVA was conducted for each of the six dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{6.16}: There is significant difference in the producers' perception on the individual measures of the organisational and employment effect of geographical indications between different GIs.

The univariate ANOVA test result in Table 6.37 indicate that statistically significant difference exists in the opinion of the producers of different GIs, in all the individual cases of variables measuring the organisational and employment effect of GIs.

Table 6.37

Estimated Margin of Means, SE, and ANOVA Results – Difference in Producers' Perception on the Organisational and Employment Effect of GI between different GIs

Variables	Name of the GI	Mean	SE	F	Sig.
Increase coordination among the producers	Chengalikodan Nendran	2.073	0.127	13.602	0.000
	Tirur Vettala	2.817	0.096		
	Marayoor Sharkara	2.123	0.095		
	Kaipad Rice	2.595	0.055		

Variables	Name of the GI	Mean	SE	F	Sig.
Producers' association has become more active	Chengalikodan Nendran	1.863	0.075	34.907	0.000
	Tirur Vettala	2.451	0.057		
	Marayoor Sharkara	1.860	0.056		
	Kaipad Rice	2.317	0.033		
Relationship among producers in the association improved	Chengalikodan Nendran	1.927	0.085	77.359	0.000
	Tirur Vettala	3.000	0.065		
	Marayoor Sharkara	1.902	0.064		
	Kaipad Rice	1.945	0.037		
Producers' association helped spread awareness about GI among members	Chengalikodan Nendran	4.537	0.070	11.981	0.000
	Tirur Vettala	4.310	0.053		
	Marayoor Sharkara	4.027	0.053		
	Kaipad Rice	4.251	0.031		
Increase in employment opportunities in the area	Chengalikodan Nendran	1.805	0.077	18.106	0.000
	Tirur Vettala	2.338	0.058		
	Marayoor Sharkara	1.890	0.057		
	Kaipad Rice	1.874	0.033		
More youth joining the production and farming activities	Chengalikodan Nendran	1.659	0.094	16.113	0.000
	Tirur Vettala	3.268	0.071		
	Marayoor Sharkara	2.027	0.070		
	Kaipad Rice	1.777	0.041		

Figures in bold indicate significant at 5% level.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.38.

Table 6.38

Bonferroni Adjusted Pairwise Comparisons – Difference in Producers' Perception on the Organisational and Employment Effect of GI between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Increase coordination among the producers	Chengalikodan Nendran	Tirur Vettila	-0.744 [*]	0.159	0.000
		Marayoor Sharkara	-0.050	0.158	0.812
		Kaipad Rice	-0.522 [*]	0.138	0.001
	Tirur Vettila	Marayoor Sharkara	0.694 [*]	0.135	0.000
		Kaipad Rice	0.222	0.111	0.281
	Marayoor Sharkara	Kaipad Rice	-0.472 [*]	0.110	0.000
Producers' association has become more active	Chengalikodan Nendran	Tirur Vettila	-0.588 [*]	0.080	0.000
		Marayoor Sharkara	0.003	0.065	0.121
		Kaipad Rice	-0.454 [*]	0.094	0.000
	Tirur Vettila	Marayoor Sharkara	0.591 [*]	0.066	0.000
		Kaipad Rice	0.134	0.094	0.935
	Marayoor Sharkara	Kaipad Rice	-0.457 [*]	0.082	0.000
Relationship among producers in the association improved	Chengalikodan Nendran	Tirur Vettila	-1.073 [*]	0.107	0.000
		Marayoor Sharkara	0.025	0.093	0.442
		Kaipad Rice	-0.018	0.106	0.144
	Tirur Vettila	Marayoor Sharkara	1.098 [*]	0.075	0.000
		Kaipad Rice	1.055 [*]	0.091	0.000
	Marayoor Sharkara	Kaipad Rice	-0.043	0.074	0.363
Producers' association helped spread awareness about GI among members	Chengalikodan Nendran	Tirur Vettila	0.227	0.088	0.062
		Marayoor Sharkara	0.510 [*]	0.088	0.000
		Kaipad Rice	0.286 [*]	0.076	0.001
	Tirur Vettila	Marayoor Sharkara	0.283 [*]	0.075	0.001
		Kaipad Rice	0.059	0.061	0.895
	Marayoor Sharkara	Kaipad Rice	-0.224 [*]	0.061	0.002

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Increase in employment opportunities in the area	Chengalikodan Nendran	Tirur Vettala	-0.533*	0.096	0.000
		Marayoor Sharkara	-0.086	0.096	0.858
		Kaipad Rice	-0.070	0.083	0.552
	Tirur Vettala	Marayoor Sharkara	0.448*	0.082	0.000
		Kaipad Rice	0.464*	0.067	0.000
	Marayoor Sharkara	Kaipad Rice	0.016	0.066	0.074
More youth joining the production and farming activities	Chengalikodan Nendran	Tirur Vettala	-1.609*	0.118	0.000
		Marayoor Sharkara	-0.369*	0.117	0.010
		Kaipad Rice	-0.118	0.102	0.626
	Tirur Vettala	Marayoor Sharkara	1.240*	0.100	0.000
		Kaipad Rice	1.491*	0.082	0.000
	Marayoor Sharkara	Kaipad Rice	0.251*	0.081	0.013

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

In the case of the statement ‘increase coordination among the producers’ statistically significant differences were found to exist between Chengalikodan Nendran and Tirur Vettala, between Chengalikodan Nendran and Kaipad Rice, between Tirur Vettala and Marayoor Sharkara, as well as between Marayoor Sharkara and Kaipad Rice. The pairwise comparison showed a maximum variance of 0.744 between the producers of Tirur Vettala and Chengalikodan Nendran.

In the case of the statement ‘The producers’ association becoming more active after receiving the tag’ significant differences were found to exist between Chengalikodan Nendran and Tirur Vettala, between Chengalikodan Nendran and Kaipad Rice, between Tirur Vettala and Marayoor Sharkara and between Marayoor Sharkara and Kaipad Rice. The pairwise comparison showed the highest variance between the producers of Tirur Vettala and Marayoor Sharkara with a mean difference of 0.591.

Pairwise comparison showed statistically significant differences between Tirur Vettila and all other types of GIs namely Chengalikodan Nendran, Marayoor Sharkara, and Kaipad Rice in the case of ‘relationship among producers in the association improved.’ It showed maximum variance between Tirur Vettila and Marayoor Sharkara with a mean difference of 1.098.

From the results of the above three indicators, the producers’ association of Tirur Vettila showed more effectiveness in improving the organisational relationship after receiving the GI tag which is a vital component for the successful use of the GI tag as GI is a collectively owned IPR.

When it comes to the case of ‘producers’ association helped spread awareness about GI registration among members’ statistically significant differences were traced between Marayoor Sharkara and all other types of GIs namely Chengalikodan Nendran, Tirur Vettila and Kaipad Rice. The statement ‘producers’ association help spread awareness about GI among its members’ after pairwise comparison showed maximum variance between Chengalikodan Nendran and Marayoor Sharkara with a mean difference of 0.510. The producers’ association of Chengalikodan Nendran have organised exhibitions during the Onam season in which the producers were encouraged to participate by displaying and selling their products, more over the producers’ association had organised meetings after the receipt of the GI tag to communicate with the producers about the significance of GI.

To the indicator ‘increase in employment opportunity in the area’ significant differences could be traced between Tirur Vettila and all other types of GIs namely Chengalikodan Nendran, Marayoor Sharkara and Kaipad Rice. In the case of ‘more youth joining the production and farming activities’ statistically significant differences exist between Tirur Vettila and all other types of GIs namely Chengalikodan Nendran, Marayoor Sharkara and Kaipad Rice as well as between Marayoor Sharkara and all other types of GI namely Chengalikodan Nendran, Tirur Vettila and Kaipad Rice.

The pairwise comparison of the statement ‘increase in employment opportunities in the area after the product received the GI tag’ and ‘more youth joining the production after the product received the GI tag’ showed the highest variance between Tirur Vettila and Chengalikodan Nendran with a mean difference of 0.533

and 1.609 respectively. More people getting involved in the Tirur Vettala cultivation after the receipt of GI can be due to the ease of adoption of Tirur Vettala production, which requires limited time, space and money when compared to other GIs in the study. So, when the product became popular after the receipt of GI certification as revealed in Table 6.39, more people stated adopting Tirur Vettala cultivation.

6.4.1.2 GI wise Analysis on Producers' Perception of the Development Mechanism Effect of GI

The seven measures of 'development mechanism effect of GI' were subjected to GI-wise analysis. The items measuring the 'development mechanism effect' of GI included the increase in popularity of the product, its influence on other products in the area, and its effect on migration and employment.

a. Descriptive Statistics - GI wise Analysis on Producers' Perception of the Development Mechanism Effect of GI

The most prominent measure of development mechanism effect of GI was found to be 'strengthened the social identity of the product' ($\bar{X} = 4.690 \pm 0.466$) in the case of Tirur Vettala, whereas the least prominent one was 'reduced the migration to the urban area' ($\bar{X} = 1.439 \pm 0.502$) in the case of Chengalikodan Nendran.

The descriptive statistics as shown in Table 6.39 revealed that the producers perceived high effect of GI in strengthening the social identity of the product with MPS of 85.96%. Low effect of GI was perceived in the cases of 'encouraged the settlement of younger generation in their hometown', 'reduced the migration to the urban area' 'increased the migration from outside to the region' 'increase in the allied job in the region' and 'increase in land value in the region' with MPS between 36 % and 50 %. The producers perceived very low effect of GI in the case of 'positive complementary effect on other products of the region' with MPS below 35%.

Table 6.39

Descriptive Statistics – GI wise Analysis on Producers’ Perception of the Development Mechanism Effect of GI

Variables	Name of the GI	Mean	SD	MPS
Strengthened the social identity of the product	Chengalikodan Nendran	4.634	0.488	92.68
	Tirur Vettila	4.690	0.466	93.80
	Marayoor Sharkara	4.301	0.462	86.02
	Kaipad Rice	4.102	0.304	82.04
	Total	4.298	0.458	85.96
Positive complementary effect on other products of the region	Chengalikodan Nendran	1.585	0.499	31.70
	Tirur Vettila	1.915	0.439	38.30
	Marayoor Sharkara	2.123	0.331	42.46
	Kaipad Rice	1.526	0.501	30.52
	Total	1.710	0.521	34.20
Encouraged the settlement of the younger generation in their hometown	Chengalikodan Nendran	1.634	0.536	32.68
	Tirur Vettila	2.676	0.907	53.52
	Marayoor Sharkara	2.110	0.356	42.20
	Kaipad Rice	1.563	0.497	31.26
	Total	1.868	0.715	37.36
Reduced migration to urban area	Chengalikodan Nendran	1.439	0.502	28.78
	Tirur Vettila	2.648	0.896	52.96
	Marayoor Sharkara	1.836	0.373	36.72
	Kaipad Rice	1.535	0.500	30.70
	Total	1.778	0.710	35.56
Increased migration from outside to the region	Chengalikodan Nendran	1.537	0.596	30.74
	Tirur Vettila	1.803	0.576	36.06
	Marayoor Sharkara	1.986	0.353	39.72
	Kaipad Rice	1.702	0.458	34.04
	Total	1.755	0.496	35.10
Increase in allied jobs in the region	Chengalikodan Nendran	1.659	0.530	33.18
	Tirur Vettila	2.310	0.623	46.20
	Marayoor Sharkara	3.726	0.692	74.52
	Kaipad Rice	1.619	0.487	32.38
	Total	2.130	0.972	42.60
Increase in land value in the region	Chengalikodan Nendran	1.537	0.505	30.74
	Tirur Vettila	1.746	0.499	34.92
	Marayoor Sharkara	2.023	0.373	40.00
	Kaipad Rice	1.549	0.499	30.98
	Total	1.665	0.508	33.30

Source: Primary Data

b. Multivariate Analysis of Variance - GI wise analysis on Producers' Perception of the Development Mechanism Effect of GI

Table 6.40 depicts the combined multivariate effect of all the variables identifying the construct of development mechanism effect of GI.

H_{6.17}: There is significant difference in the producers' perception on the combined effect of multiple dependent variables measuring the development mechanism effect of geographical indications between different GIs.

Table 6.40

Multivariate (MANOVA) Test Results - Producers' Perception on the Development Mechanism Effect of GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.129	55.595	21.000	1120.420	0.000

F tests the multivariate effect of type of GI.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The differences in the producers' perception of different GIs on the combined dependent variables were statistically significant with the p value of F statistic lower than 0.05, $F [21, 1120.42] = 55.595, p < 0.05$; Wilks' $\Lambda = .129$, as per Table 6.40. This means that the producers of different GIs had different opinion relating to the multiple variables measuring the development mechanism effect of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 6.41.

c. Univariate Analysis of Variance and Pair wise Comparison - GI wise analysis on Producers' Perception of the Development Mechanism Effect of GI

Univariate ANOVA was conducted for each of the seven dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{6,18}: *There is significant difference in the producers' perception on the individual measures of the development mechanism effect of geographical indications between different GIs.*

The univariate ANOVA test result in Table 6.41 indicate that statistically significant difference exists in the opinion of the producers of different GIs, in all the individual cases of variables measuring the development mechanism effect of GI.

Table 6.41

Estimated Margin of Means, SE, and ANOVA Results - Producers' Perception on the Development Mechanism Effect of GI between different GIs

Variables	Name of the GI	Mean	SE	F	Sig.
Strengthened the Social Identity of the Product	Chengalikodan Nendran	4.634	0.061	52.486	0.000
	Tirur Vettala	4.690	0.046		
	Marayoor Sharkara	4.301	0.045		
	Kaipad Rice	4.102	0.027		
Positive complementary effect on other products of the region	Chengalikodan Nendran	1.585	0.072	36.388	0.000
	Tirur Vettala	1.915	0.055		
	Marayoor Sharkara	2.123	0.054		
	Kaipad Rice	1.526	0.032		
Encouraged the settlement of the younger generation in their hometown	Chengalikodan Nendran	1.634	0.090	73.398	0.000
	Tirur Vettala	2.676	0.068		
	Marayoor Sharkara	2.110	0.067		
	Kaipad Rice	1.563	0.039		
Reduced migration to urban areas	Chengalikodan Nendran	1.439	0.089	72.591	0.000
	Tirur Vettala	2.648	0.068		
	Marayoor Sharkara	1.836	0.067		
	Kaipad Rice	1.535	0.039		
Increased migration from outside to the region	Chengalikodan Nendran	1.537	0.075	9.564	0.000
	Tirur Vettala	1.803	0.057		
	Marayoor Sharkara	1.986	0.056		
	Kaipad Rice	1.702	0.033		
Increase in allied jobs in the region	Chengalikodan Nendran	1.659	0.087	27.719	0.000
	Tirur Vettala	2.310	0.066		
	Marayoor Sharkara	3.726	0.065		
	Kaipad Rice	1.619	0.038		
Increase in land value in the region	Chengalikodan Nendran	1.537	0.075	17.782	0.000
	Tirur Vettala	1.746	0.057		
	Marayoor Sharkara	2.023	0.056		
	Kaipad Rice	1.549	0.033		

Figures in bold indicate significant at 5% level.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.42.

Table 6.42

Bonferroni Adjusted Pairwise Comparisons - Producers' Perception on the Development Mechanism Effect of GI between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Strengthened the social identity of the product	Chengalikodan Nendran	Tirur Vettila	-0.056	0.076	0.721
		Marayoor Sharkara	0.333*	0.076	0.000
		Kaipad Rice	0.532*	0.066	0.000
	Tirur Vettila	Marayoor Sharkara	0.389*	0.065	0.000
		Kaipad Rice	0.588*	0.053	0.000
	Marayoor Sharkara	Kaipad Rice	0.199*	0.053	0.001
Positive complementary effect on other products of the region	Chengalikodan Nendran	Tirur Vettila	-0.330*	0.091	0.002
		Marayoor Sharkara	-0.538*	0.090	0.000
		Kaipad Rice	0.060	0.079	0.662
	Tirur Vettila	Marayoor Sharkara	-0.208*	0.077	0.044
		Kaipad Rice	0.390*	0.063	0.000
	Marayoor Sharkara	Kaipad Rice	0.598*	0.063	0.000
Encouraged the settlement of the younger generation in their hometown	Chengalikodan Nendran	Tirur Vettila	-1.042*	0.113	0.000
		Marayoor Sharkara	-0.475*	0.112	0.000
		Kaipad Rice	0.071	0.098	0.552
	Tirur Vettila	Marayoor Sharkara	0.566*	0.096	0.000
		Kaipad Rice	1.113*	0.079	0.000
	Marayoor Sharkara	Kaipad Rice	0.547*	0.078	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Reduced migration to urban area	Chengalikodan Nendran	Tirur Vettala	-1.209*	0.112	0.000
		Marayoor Sharkara	-0.397*	0.112	0.003
		Kaipad Rice	-0.096	0.098	0.357
	Tirur Vettala	Marayoor Sharkara	0.812*	0.095	0.000
		Kaipad Rice	1.105*	0.078	0.000
	Marayoor Sharkara	Kaipad Rice	0.301*	0.078	0.001
Increased the migration from outside to the region	Chengalikodan Nendran	Tirur Vettala	-0.266*	0.094	0.030
		Marayoor Sharkara	-0.450*	0.094	0.000
		Kaipad Rice	-0.166	0.082	0.261
	Tirur Vettala	Marayoor Sharkara	-0.183	0.080	0.135
		Kaipad Rice	0.100	0.066	0.763
	Marayoor Sharkara	Kaipad Rice	0.284*	0.065	0.000
Increase in allied job in the region	Chengalikodan Nendran	Tirur Vettala	-0.651*	0.110	0.000
		Marayoor Sharkara	-2.067*	0.109	0.000
		Kaipad Rice	0.040	0.095	0.064
	Tirur Vettala	Marayoor Sharkara	-1.416*	0.093	0.000
		Kaipad Rice	0.691*	0.076	0.000
	Marayoor Sharkara	Kaipad Rice	2.107*	0.076	0.000
Increase in land value in the region	Chengalikodan Nendran	Tirur Vettala	-0.210	0.094	0.156
		Marayoor Sharkara	-0.463*	0.093	0.000
		Kaipad Rice	-0.012	0.082	0.911
	Tirur Vettala	Marayoor Sharkara	-0.254*	0.080	0.010
		Kaipad Rice	0.198*	0.066	0.016
	Marayoor Sharkara	Kaipad Rice	0.451*	0.065	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

The pairwise comparison revealed that in the case of ‘strengthened the social identity of the product’ statistically significant differences exist between the producers of Chengalikodan Nendran and Marayoor Sharkara, between Chengalikodan Nendran and Kaipad Rice, between Tirur Vettala and Marayoor Sharkara between Tirur Vettala and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice. The results of the post hoc test revealed maximum variance between Tirur Vettala and Kaipad Rice with a mean difference of 0.588. This result in conjunction with the results of the descriptive statistics shows that the receipt of the GI tag has strengthened the social identity of all the GIs in the study with Tirur Vettala having a slightly higher edge.

In the case of ‘positive complementary effect on other products of the region’ significant differences could be traced between the producers of Tirur Vettala and all other GIs namely Chengalikodan Nendran, Marayoor Sharkara and Kaipad Rice. Statistically significant difference was also traced between Marayoor Sharkara and all other types of GIs namely Chengalikodan Nendran, Tirur Vettala and Kaipad Rice. The pairwise comparison result revealed highest variance between Marayoor Sharkara and Kaipad Rice with a mean difference of 0.598. The producers of Marayoor Sharkara were of the opinion that the receipt of the GI tag has facilitated complementary effect on other products from the region. This means that the other products from the region have also been promoted due to the effect of the GI registration of Marayoor Sharkara, the main products mentioned by the producers were ginger and garlic from the region.

In the case of the statement ‘increase in allied jobs in the region’ statistically significant difference could be observed between the producers of Tirur Vettala and all other GIs such as Chengalikodan Nendran, Marayoor Sharkara and Kaipad Rice as well as between Marayoor Sharkara and all other GIs namely Chengalikodan Nendran, Tirur Vettala and Kaipad Rice. The post hoc test result showed the maximum mean difference between Marayoor Sharkara and Kaipad Rice with a mean difference of 2.107. The positive effect of the GI on other products in the area and in creating allied jobs in the region, in the case of Marayoor Sharkara, can be due to the increase in tourism prospects of the region after receipt of GI as revealed in Table 6.8. The increase in tourism prospects of the region on account of GI tag would have brought about other business/jobs like off-road trips, mini resorts, small eateries, Sharkara production visits, and vegetable and farm visits, to name a few in the area.

Similarly, in the case of ‘encouraged the settlement of younger generation in their hometown’ significant differences exist between the producers of Tirur Vettala and all other GIs namely Chengalikodan Nendran, Marayoor Sharkara and Kaipad Rice as well as between Marayoor Sharkara and all other GIs namely Chengalikodan Nendran, Tirur Vettala and Kaipad Rice. In the case of the statement ‘reduced the migration to urban area’ statistically significant differences exist between all the categories of GI, except between Chengalikodan Nendran and Kaipad Rice. However, in the case of ‘increased migration from outside to the region’, significant differences could be traced only between the producers of Chengalikodan Nendran and Tirur Vettala, between Chengalikodan Nendran and Marayoor Sharkara as well as between Marayoor Sharkara and Kaipad Rice.

The pairwise comparison of the statement ‘the GI registration has encouraged the settlement of younger generations in their hometown’ showed that there is maximum variance between the producers of Tirur Vettala and Kaipad Rice with a mean difference of 1.113. The pairwise comparison of the statement ‘GI tag has played a substantial role in reducing migration to urban areas (decreasing rural drift)’ revealed maximum variance between Tirur Vettala and Chengalikodan Nendran with a mean difference of 1.209. The results of these two statements can be interpreted together with the results of Table 6.35, which showed that the youth are interested in embracing the production of Tirur Vettala. This interest among youth to engage in Tirur Vettala cultivation can be the reason for reduced rural drift and their settlement in hometown.

The post hoc test result of the statements ‘the GI tag for the product has increased migration to the region from outside’ and ‘increase in land value of the region’ showed maximum variance between Marayoor Sharkara and Chengalikodan Nendran with a mean difference of 0.450 and 0.463 respectively. This result can be inferred relative to the results of the statement ‘increase in tourism prospects of the region’ as shown in Table 6.8. The results reveal that GI tag has facilitated increase in tourism prospects of Marayoor. The results of the statement relating to ‘creation of allied jobs in the region’ have also showed positive influence of GI in the case of Marayoor Sharkara. This increase in tourism prospects and creation of allied jobs in

the Marayoor due to GI would have acted as a catalyst for the movement of people in to the region from outside and increase in the land value.

6.4.1.3 GI wise Analysis on Producers' Perception of the Protection and Valorisation Effect of GI

The ten measures of 'protection and valorisation effect of GI' were subjected to GI-wise analysis. The variables used for measuring the 'protection and valorisation effect of GI tag' included protection of product name, indigenous species and traditional knowledge associated with the GI, attracting the attention of Local Self Government (LSG) and media to the place and change in the attitude towards the producers of GI and the farming profession among the public.

a. Descriptive Statistics – GI wise Analysis on the Producers' Perception of the Protection and Valorisation Effect of GI

The most prominent measure of the protection and valorisation effect of GI as per Table 6.43 was found to be 'ensures environmental protection' ($\bar{X} = 4.777 \pm 0.417$) in the case of Kaipad Rice, whereas the least prominent one was 'attitude of the youth towards farming has changed for good after the receipt of GI registration' ($\bar{X} = 1.479 \pm 0.501$) that too in the case of Kaipad Rice.

Among the protection and valorisation effect' the statements 'GI protection prevents the name from becoming generic', 'ensured protection of traditional knowledge', 'ensures environmental protection', 'GI registration has helped in attracting the attention of media' and 'GI registration has helped in increasing the popularity of the region' have high effect of GI with MPS above 75 %.

The statements 'protection of indigenous species of plant varieties', 'GI registration has helped in attracting the attention of LSG to the area', 'increase in the status of the farming profession' and 'attitude of the youth towards farming has changed for good after the receipt of GI registration' have medium effect of GI with MPS between 51% and 75%.

The statement 'more recognition is bestowed on producers after the receipt of GI registration' showed low effect of GI with MPS of 49.7 %.

Table 6.43

Descriptive Statistics -GI wise Analysis on Producers' Perception of the Protection and Valorisation of GI

Variables	Name of the GI	Mean	SD	MPS
GI protection prevents the name from becoming generic	Chengalikodan Nendran	4.512	0.506	90.24
	Tirur Vettala	4.577	0.497	91.54
	Marayoor Sharkara	3.616	0.793	72.32
	Kaipad Rice	3.851	0.746	77.02
	Total	4.005	0.779	80.10
Ensured protection of traditional knowledge	Chengalikodan Nendran	4.463	0.552	89.26
	Tirur Vettala	4.394	0.492	87.88
	Marayoor Sharkara	3.753	0.662	75.06
	Kaipad Rice	4.335	0.473	86.70
	Total	4.253	0.574	85.06
Ensures environmental protection	Chengalikodan Nendran	4.585	0.499	91.70
	Tirur Vettala	4.606	0.492	92.12
	Marayoor Sharkara	3.863	0.509	77.26
	Kaipad Rice	4.777	0.417	95.54
	Total	4.560	0.568	91.20
Protection of indigenous species of plant varieties	Chengalikodan Nendran	4.047	0.796	80.94
	Tirur Vettala	2.380	0.684	47.60
	Marayoor Sharkara	1.959	0.200	39.18
	Kaipad Rice	4.659	0.480	93.18
	Total	3.433	1.185	68.66
GI registration has helped in attracting the attention of LSG to the area	Chengalikodan Nendran	3.854	0.422	77.08
	Tirur Vettala	4.183	1.046	83.66
	Marayoor Sharkara	3.685	0.762	73.70
	Kaipad Rice	1.572	0.496	31.44
	Total	2.655	1.355	53.10
GI registration has helped in attracting the attention of media	Chengalikodan Nendran	4.512	0.506	90.24
	Tirur Vettala	4.634	0.485	92.68
	Marayoor Sharkara	3.932	0.653	78.64
	Kaipad Rice	4.377	0.486	87.54
	Total	4.355	0.565	87.10
GI registration has helped in increasing the popularity of the region	Chengalikodan Nendran	4.439	0.502	88.78
	Tirur Vettala	4.775	0.421	95.50
	Marayoor Sharkara	4.014	0.773	80.28
	Kaipad Rice	3.423	1.001	68.46
	Total	3.875	0.996	77.50

Variables	Name of the GI	Mean	SD	MPS
Increase in the status of the farming profession	Chengalikodan Nendran	3.927	0.985	78.54
	Tirur Vettala	4.592	0.495	91.84
	Marayoor Sharkara	2.110	0.678	42.20
	Kaipad Rice	1.679	0.468	33.58
	Total	2.505	1.311	50.10
Attitude of the youth towards farming has changed for good after the receipt of GI registration	Chengalikodan Nendran	2.829	0.919	56.58
	Tirur Vettala	4.014	0.463	80.28
	Marayoor Sharkara	1.932	0.254	38.64
	Kaipad Rice	1.479	0.501	29.58
	Total	2.150	1.089	51.27
More recognition is bestowed on producers after the receipt of GI registration	Chengalikodan Nendran	1.732	0.449	34.64
	Tirur Vettala	2.479	0.860	49.58
	Marayoor Sharkara	1.932	0.254	38.64
	Kaipad Rice	2.819	0.986	56.38
	Total	2.485	0.926	49.70

Source: Primary Data

b. Multivariate Analysis of Variance – Difference in Producers’ Perception on the Protection and Valorisation Effect of GI between different GIs

Table 6.44 depicts the combined multivariate effect of all the variables identifying the construct of protection and valorisation effect of GI.

H_{6,19}: There is significant difference in the producers’ opinion of different GIs on the combined effect of multiple dependent variables measuring the protection and valorisation effect of GI.

Table 6.44

Multivariate (MANOVA) Test Results – Difference in Producers’ Perception on the Protection and Valorisation Effect of GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.014	24.554	30.000	1136.597	0.000

F tests the multivariate effect of type of GI.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The difference in the producers' opinion of different GIs on the combined dependent variables were statistically significant with p value of F statistic lower than 0.05, $F [30, 1136.597] = 24.554, p < 0.05$; Wilks' $\Lambda = 0.014$. This means that the producers of different GIs had different opinion relating to the multiple variables measuring the Protection and Valorisation effect of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 6.45.

c. Univariate Analysis of Variance and Pair wise Comparison

Univariate ANOVA was conducted for each of the ten dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{6.20}: There is significant difference in the producers' perception on individual measures of the protection and valorisation effect of geographical indications between different GIs.

The univariate ANOVA test result shown in Table 6.45 indicate that a statistically significant difference exists in the opinion of the producers of different GIs, in all the individual cases of variables measuring the protection and valorisation effect of GIs.

Table 6.45

Estimated Margin of Means, SE, and ANOVA Results – Difference in Producers' Perception on the Protection and Valorisation Effect of GI between different GIs

Variables	Name of the GI	Mean	Std. Error	F	Sig.
GI protection prevents the name from becoming generic	Chengalikodan Nendran	4.512	0.109	34.312	0.000
	Tirur Vettala	4.577	0.083		
	Marayoor Sharkara	3.616	0.082		
	Kaipad Rice	3.851	0.047		
Ensured protection of traditional knowledge	Chengalikodan Nendran	4.463	0.082	27.827	0.000
	Tirur Vettala	4.394	0.062		
	Marayoor Sharkara	3.753	0.061		
	Kaipad Rice	4.335	0.036		

Variables	Name of the GI	Mean	Std. Error	F	Sig.
Ensures environmental protection	Chengalikodan Nendran	4.585	0.071	72.894	0.000
	Tirur Vettala	4.606	0.054		
	Marayoor Sharkara	3.863	0.054		
	Kaipad Rice	4.777	0.031		
Protection of indigenous species of plant varieties	Chengalikodan Nendran	4.047	0.046	27.969	0.000
	Tirur Vettala	2.380	0.080		
	Marayoor Sharkara	1.959	0.079		
	Kaipad Rice	4.659	0.105		
GI registration has helped in attracting the attention of LSG to the area	Chengalikodan Nendran	3.854	0.105	41.731	0.000
	Tirur Vettala	4.183	0.080		
	Marayoor Sharkara	3.685	0.078		
	Kaipad Rice	1.572	0.046		
GI registration has helped in attracting the attention of media	Chengalikodan Nendran	4.512	0.082	24.140	0.000
	Tirur Vettala	4.634	0.062		
	Marayoor Sharkara	3.932	0.061		
	Kaipad Rice	4.377	0.036		
GI registration has helped in increasing the popularity of the region	Chengalikodan Nendran	4.439	0.131	54.593	0.000
	Tirur Vettala	4.775	0.100		
	Marayoor Sharkara	4.014	0.098		
	Kaipad Rice	3.423	0.057		
Increase in the status of the farming profession	Chengalikodan Nendran	3.927	0.091	53.233	0.000
	Tirur Vettala	4.592	0.070		
	Marayoor Sharkara	2.110	0.069		
	Kaipad Rice	1.679	0.040		
The attitude of the youth towards the farming has changed for good after the receipt of GI registration	Chengalikodan Nendran	2.829	0.081	45.947	0.000
	Tirur Vettala	4.014	0.062		
	Marayoor Sharkara	1.932	0.061		
	Kaipad Rice	1.479	0.035		
More recognition is bestowed on producers after the receipt of GI registration	Chengalikodan Nendran	1.732	0.130	33.714	0.000
	Tirur Vettala	2.479	0.098		
	Marayoor Sharkara	1.932	0.097		
	Kaipad Rice	2.819	0.057		

Figures in bold indicate significant at 5% level.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.46.

Table 6.46

Bonferroni Adjusted Pairwise Comparisons – Difference in Producers' Perception on the Protection and Valorisation Effect of GI between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
GI protection prevents the name from becoming generic	Chengalikodan Nendran	Tirur Vettala	-0.065	0.137	0.219
		Marayoor Sharkara	0.896*	0.136	0.030
		Kaipad Rice	0.661*	0.119	0.000
	Tirur Vettala	Marayoor Sharkara	0.961*	0.116	0.000
		Kaipad Rice	0.726*	0.095	0.000
	Marayoor Sharkara	Kaipad Rice	-0.235	0.094	0.080
Ensured protection of traditional knowledge	Chengalikodan Nendran	Tirur Vettala	0.069	0.103	0.685
		Marayoor Sharkara	0.710*	0.102	0.007
		Kaipad Rice	0.129	0.089	0.904
	Tirur Vettala	Marayoor Sharkara	0.641*	0.087	0.000
		Kaipad Rice	0.059	0.072	0.852
	Marayoor Sharkara	Kaipad Rice	-0.581*	0.071	0.000
Ensures environmental protection	Chengalikodan Nendran	Tirur Vettala	-0.020	0.090	0.522
		Marayoor Sharkara	0.722*	0.089	0.000
		Kaipad Rice	-0.191	0.078	0.087
	Tirur Vettala	Marayoor Sharkara	0.743*	0.076	0.000
		Kaipad Rice	-0.171*	0.063	0.039
	Marayoor Sharkara	Kaipad Rice	-0.914*	0.062	0.001

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Protection of indigenous species of plant varieties	Chengalikodan Nendran	Tirur Vettala	1.667*	0.132	0.000
		Marayoor Sharkara	2.088*	0.132	0.000
		Kaipad Rice	-0.612*	0.115	0.000
	Tirur Vettala	Marayoor Sharkara	0.421*	0.112	0.001
		Kaipad Rice	-2.279*	0.092	0.000
	Marayoor Sharkara	Kaipad Rice	-2.700*	0.091	0.000
GI registration has helped in attracting the attention of LSG to the area	Chengalikodan Nendran	Tirur Vettala	-0.329	0.132	0.076
		Marayoor Sharkara	0.169	0.131	0.096
		Kaipad Rice	2.282*	0.114	0.000
	Tirur Vettala	Marayoor Sharkara	0.498*	0.112	0.000
		Kaipad Rice	2.611*	0.092	0.021
	Marayoor Sharkara	Kaipad Rice	2.113*	0.091	0.000
GI registration has helped in attracting the attention of media	Chengalikodan Nendran	Tirur Vettala	-0.122	0.102	0.089
		Marayoor Sharkara	0.581*	0.102	0.000
		Kaipad Rice	0.135	0.089	0.771
	Tirur Vettala	Marayoor Sharkara	0.702*	0.087	0.000
		Kaipad Rice	0.257*	0.071	0.002
	Marayoor Sharkara	Kaipad Rice	-0.445*	0.071	0.000
GI registration has helped in increasing the popularity of the region	Chengalikodan Nendran	Tirur Vettala	-0.336	0.165	0.297
		Marayoor Sharkara	0.425	0.164	0.059
		Kaipad Rice	1.016*	0.143	0.000
	Tirur Vettala	Marayoor Sharkara	0.761*	0.140	0.000
		Kaipad Rice	1.351*	0.115	0.000
	Marayoor Sharkara	Kaipad Rice	0.590*	0.114	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Increase in the status of the farming profession	Chengalikodan Nendran	Tirur Vettala	-0.665*	0.115	0.000
		Marayoor Sharkara	1.817*	0.114	0.000
		Kaipad Rice	2.248*	0.100	0.000
	Tirur Vettala	Marayoor Sharkara	2.482*	0.098	0.003
		Kaipad Rice	2.912*	0.080	0.000
	Marayoor Sharkara	Kaipad Rice	0.431*	0.079	0.000
The attitude of the youth towards the farming has changed for good after the receipt of GI registration	Chengalikodan Nendran	Tirur Vettala	-1.185*	0.102	0.000
		Marayoor Sharkara	0.898*	0.101	0.000
		Kaipad Rice	1.350*	0.089	0.011
	Tirur Vettala	Marayoor Sharkara	2.083*	0.087	0.000
		Kaipad Rice	2.535*	0.071	0.000
	Marayoor Sharkara	Kaipad Rice	0.452*	0.070	0.000
More recognition is bestowed on producers after the receipt of GI registration	Chengalikodan Nendran	Tirur Vettala	-0.747*	0.163	0.000
		Marayoor Sharkara	-0.200	0.162	0.745
		Kaipad Rice	-1.087*	0.141	0.000
	Tirur Vettala	Marayoor Sharkara	0.547*	0.138	0.001
		Kaipad Rice	-0.340*	0.114	0.018
	Marayoor Sharkara	Kaipad Rice	-0.887*	0.112	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

The pairwise comparisons as shown in Table 6.46 revealed that in the case of ‘GI protection prevents the name of the product from becoming generic’ statistically significant differences exist between the producers of Chengalikodan Nendran and Marayoor Sharkara, between Chengalikodan Nendran and Kaipad Rice, between Tirur Vettala and Marayoor Sharkara as well as between Tirur Vettala and Kaipad Rice. The post hoc test results revealed maximum variance of 0.96 were revealed between Tirur Vettala and Marayoor Sharkara.

In the case of ‘ensured protection of traditional knowledge’ statistically significant differences could be traced between the producers of Marayoor Sharkara and all other GIs namely Chengalikodan Nendran, Tirur Vettala and Kaipad Rice. The post hoc test revealed the maximum difference between Chengalikodan Nendran and Marayoor Sharkara with a mean difference score of 0.710. The results showed that the producers of Chengalikodan Nendran are seen to agree more with the statement relating to the effect of the GI tag in protecting the traditional knowledge relating to the produce. The production of Chengalikodan Nendran involves a traditional method of production which gives the nendran banana its unique colour and ‘red kara’.

Similarly, in the case of ‘ensures environmental protection,’ significant differences exist only between the producers of Marayoor Sharkara and all other GIs namely Chengalikodan Nendran, Tirur Vettala and Kaipad Rice as well as between Tirur Vettala and Kaipad Rice. The pairwise comparison of the statement ‘GI tag has ensured environmental preservation as the producers stick to the traditional method of production’ revealed maximum variance in the case of Kaipad Rice and Marayoor Sharkara with a mean difference score of 0.914. The significance of Kaipad Rice in the protection of the environment is manifold when compared to other GIs, the Kaipad Rice is a Rice variety that is cultivated in the brackish water close to the mangrove forests, so the preservation of the Kaipad ecosystem can support the preservation of the mangrove forests of the region.

In the case of ‘protection of indigenous species of plant varieties’ statistically significant differences exists between all the categories of GI. The post hoc test result gives maximum variance between Kaipad Rice and Marayoor Sharkara with a mean difference of 2.70. The research reveals that the producers of Kaipad Rice were of the opinion that GI tag has helped in protecting their traditional rice varieties such as kuthiru, orkayama, orpandy and punchakayama to name a few.

In the case of the statement ‘GI registration has helped in attracting the attention of LSG to the area’, significant differences could be traced between the producers of Tirur Vettala and Marayoor Sharkara, between Tirur Vettala and Kaipad Rice as well as between Kaipad Rice and all other GIs such as Chengalikodan Nendran, Tirur Vettala and Marayoor Sharkara. The pairwise comparison of the statement showed maximum variance in the case of Tirur Vettala and Kaipad Rice with a mean difference score of

2.611. The study has shown that the GI tag was beneficial for Tirur Vettila to gain the attention of LSG, the LSG along with the Principal Agricultural Office and Krishi Bhavan have shown interest in extending support to the producers of Tirur Vettila. The Tirur Krishi Bhavan was also supportive during the registration of GI.

In the case of ‘GI registration has helped in attracting the attention of Media’ significant differences could be observed between Chengalikodan Nendran and Marayoor Sharkara, between the producers of Tirur Vettila and Kaipad Rice, as well as between Marayoor Sharkara and all other GIs namely Chengalikodan Nendran, Tirur Vettila and Kaipad Rice. The pairwise comparison showed maximum variance between Tirur Vettila and Marayoor Sharkara with a mean difference of 0.702. In the case of the above two statements relating to gaining the attention of LSG and media, maximum effect of the GI tag is seen in the case of Tirur Vettila.

In the case of ‘GI registration has helped in increasing the popularity of the region’ statistically significant differences were traced between the producers of Tirur Vettila and Marayoor Sharkara as well as between Kaipad Rice and all other types of GIs namely Chengalikodan Nendran, Tirur Vettila and Marayoor Sharkara. The pairwise comparison showed maximum variance between the producers of Tirur Vettila and Kaipad Rice with a mean difference of 1.35. The higher effect of GI in promoting the popularity of the place in the case of Tirur Vettila and lesser in the case of Kaipad Rice can be on account of the use of the place name ‘Tirur’ in the case of Tirur Vettila, which is absent in the case of Kaipad Rice.

When it comes to the cases of ‘increase in the status of the farming profession’ and ‘attitude of the youth towards farming has changed for good after the receipt of GI registration’ significant differences exist between all types of GIs. The statement ‘the receipt of GI registration has increased the status of the farming profession among the public’ after pairwise comparison showed maximum variance between the producers of Tirur Vettila and Kaipad Rice with a mean difference of 2.912. The pairwise comparison of the statement ‘there is a change in the attitude of youth towards the farming after the receipt of the GI tag’ showed maximum variance among the producers of Tirur Vettila and Kaipad Rice with a mean difference of 2.535. This shows that the producers of Tirur Vettila agreed about the fact that GI registration has changed the attitude of the youth towards the farming for good and that the status of

the farming profession has improved. This result is consistent with the previous result that younger generation showed interest in joining the farming profession in the case of Tirur Vettla.

Finally in the case of ‘more recognition is bestowed on producers after the receipt of GI registration’ significant differences exist between Tirur Vettla and all other GIs namely Chengalikodan Nendran, Marayoor Sharkara and Kaipad Rice as well as between Kaipad Rice and Chengalikodan Nendran and between Kaipad Rice and Marayoor Sharkara. The post hoc test result of the statement ‘more recognition is being bestowed upon producers after the receipt of the GI tag’ revealed maximum variance between Kaipad Rice and Chengalikodan Nendran with a mean difference of 1.087.

6.4.2 Domicile wise Analysis on the Social Impact of GI

Domicile wise analysis of the social impact of GI were analysed inorder to find whether there is any difference in the opinion of farmers of different domicile regarding the social effect of GI.

6.4.2.1 Domicile wise Analysis on Producers’ Perception of the Organisational and Employment Effect of GI

The six measures of the ‘organisational and employment effect of GI’ were subjected to domicile wise analysis in order to explore whether there is difference in opinion of producers of different domiciles.

a. Descriptive Statistics – Domicile wise Analysis on Producers’ Perception of the Organisational and Employment Effect of GI

In Table 6.47 the most prominent measure of ‘organisational and employment effect of GI’ was found to be ‘producers’ association helped spread awareness about GI registration among members’ ($\bar{X}$ = 4.581 ± 0.502) in the case of semi-urban areas, whereas the least prominent one was ‘more youth joining the production and farming activities’ ($\bar{X}$ = 1.774 ± 0.497) that too in the case of semi-urban area.

Table 6.47

Descriptive Statistics – Domicile wise Analysis on Producers' Perception of the Organisational and Employment Effect of GI

Variables	Domicile	Mean	SD	MPS
Increase coordination among the producers	Urban	1.982	0.122	39.64
	Rural	2.536	0.868	50.72
	Semi-Urban	2.065	0.442	41.30
	Total	2.495	0.850	49.90
Producers' association has become more active	Urban	2.118	0.412	42.36
	Rural	1.989	0.534	39.78
	Semi-Urban	2.290	0.529	45.80
	Total	2.013	0.537	40.26
Relationships among producers in the association improved	Urban	2.017	0.146	40.34
	Rural	2.131	0.670	42.62
	Semi-Urban	1.839	0.820	36.78
	Total	2.108	0.683	42.16
Producers' association helped spread awareness about GI registration among members	Urban	4.025	0.622	80.50
	Rural	4.224	0.455	84.48
	Semi-Urban	4.581	0.502	91.62
	Total	4.250	0.467	85.00
Increase in employment opportunities in the area	Urban	2.211	0.428	44.22
	Rural	1.956	0.527	39.12
	Semi-Urban	1.903	0.473	38.06
	Total	1.953	0.521	39.06
More youth joining the production and farming activities	Urban	3.333	1.155	66.66
	Semi-Urban	2.090	0.831	41.80
	Rural	1.774	0.497	35.48
	Total	2.075	0.822	41.50

Source: Primary Data

b. Multivariate Analysis of Variance – Difference in Producers' Perception on the Organisational and Employment Effect of GI between different Domiciles

Table 6.48 depicts the combined multivariate effect of all the variables identifying the construct of organisational and employment effect of GI.

H_{6.21}: There is significant difference in the producers' perception on the combined effect of multiple dependent variables measuring the organisational and employment effect of geographical indications between different domiciles.

Table 6.48

Multivariate (MANOVA) Test Results – Difference in Producers’ Perception on the Organisational and Employment Effect of GI between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.521	6.751	12.000	784.000	0.000

F tests the multivariate effect of domicile.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The differences in the producers’ opinion of different domiciles on the combined dependent variables were statistically significant with p value of F statistic lower than 0.05, $F [12, 784] = 6.751$, $p < 0.05$; Wilks' $\Lambda = 0.521$ as shown in Table 6.48. This means that the producers of different domiciles had different opinion relating to the multiple variables measuring the organisational and employment effect of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 6.49.

c. Univariate Analysis of Variance and Pair wise Comparison - Difference in Producers’ Perception on the Organisational and Employment Effect of GI between different Domiciles

Univariate ANOVA was conducted for each of the six dependent variables to identify whether statistically significant differences exist between the various producers of different domiciles.

H_{6,22}: There is significant difference in the producers’ perception on the individual measures of the organisational and employment effect of geographical indications between different domiciles.

The univariate ANOVA test result indicate that a statistically significant difference exists in the opinion of the producers of different domiciles, in the individual cases of variables measuring the organisational and employment effect of GI relating to, ‘increase in coordination among the producers’, ‘producers’ association has become more active’, ‘producers’ association helped spread awareness about GI

registration among members’ and ‘more youth joining the production and farming activities’.

Table 6.49

Estimated Margin of Means, SE, and ANOVA Results – Difference in Producers’ Perception on the Organisational and Employment Effect of GI between different Domiciles

Variables	Domicile	Mean	SE	F	Sig.
Increase coordination among the producers	Urban	1.982	0.486	5.004	0.007
	Rural	2.536	0.044		
	Semi-Urban	2.065	0.151		
Producers’ association has become more active	Urban	2.118	0.307	4.584	0.011
	Rural	1.989	0.028		
	Semi-Urban	2.29	0.096		
Relationships among producers in the association improved	Urban	2.017	0.393	2.676	0.070
	Rural	2.131	0.036		
	Semi-Urban	1.839	0.122		
Producers’ association helped spread awareness about GI registration among members	Urban	4.025	0.264	9.124	0.000
	Rural	4.224	0.024		
	Semi-Urban	4.581	0.082		
Increase in employment opportunities in the area	Urban	2.211	0.301	0.160	0.852
	Rural	1.956	0.027		
	Semi-Urban	1.903	0.094		
More youth joining the production and farming activities	Urban	3.333	0.469	5.785	0.003
	Rural	2.090	0.042		
	Semi-Urban	1.774	0.146		

Figures in bold indicate significant at 5% level.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.50

Table 6.50

Bonferroni Pairwise Comparison – Difference in Producers' Perception on the Organisational and Employment Effect of GI between different Domiciles

Variables	(I) Domicile	(J) Domicile	Mean Difference (I-J)	Std. Error	Sig.#
Increase coordination among the producers	Urban	Rural	-0.554	0.488	0.818
		Semi-Urban	-0.083	0.509	0.085
	Rural	Urban	0.554	0.488	0.818
		Semi-Urban	0.471*	0.157	0.009
Producers' association has become more active	Urban	Rural	0.129	0.308	0.425
		Semi-Urban	-0.172	0.322	0.396
	Rural	Urban	-0.129	0.308	0.425
		Semi-Urban	-0.301*	0.100	0.008
Producers' association was helpful in spreading awareness about GI registration among members	Urban	Rural	-0.199	0.265	0.585
		Semi-Urban	-0.556	0.277	0.110
	Rural	Urban	0.199	0.265	0.585
		Semi-Urban	-0.357*	0.086	0.000
More youth joining the production and farming activities	Urban	Rural	1.243*	0.471	0.026
		Semi-Urban	1.559*	0.491	0.005
	Rural	Urban	-1.243*	0.471	0.026
		Semi-Urban	0.315	0.152	0.115

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

The post hoc test revealed that statistically significant differences were traced only between the producers of semi-urban and rural areas in the cases of 'increase in coordination among the producers', 'producers' association has become more active' and 'producers' association helped spread awareness about GI registration among members'.

In the case of 'increased coordination among the producers after getting GI registration (social cohesion)' pairwise comparison showed a maximum variance of 0.471 between rural and semi-urban domiciles. The effect of GI registration in bringing social cohesion among the producers was seen more in the case of rural domicile than in the case of semi-urban, which can be due to the conservative nature

of the producers of rural domicile. The producers of rural domicile cherish the receipt of GI tag which can protect their tradition.

In the case of ‘producers’ association has become more active after receiving the GI registration’ the post hoc test revealed maximum variance between semi-urban and rural areas with a mean difference of 0.301. The statement ‘producers’ association helped spread awareness about GI among its members’ has the maximum variance between the GI producers of semi-urban and rural domiciles with a mean difference of 0.357. In the case of these two statements, the producers of semi-urban domicile agreed more to the effect of the GI tag than the producers of rural domiciles.

However, in the case of ‘more youth joining the production and farming activities’ significant differences were traced between the GI producers of urban and rural as well as between urban and semi-urban. The statement ‘more youth joining the production after the product received the GI tag’ showed the highest variance between the GI producers of urban and semi-urban domiciles with a mean difference of 1.559 in pairwise comparison. The producers from urban domicile opined that the receipt of GI registration has increased the interest among youth to join farming, which can be due to the rising unemployment. The youth would have been motivated to take up farming of premium products like GI-tagged agricultural produce, which can attract consumers in the urban region.

6.4.2.2 Domicile-wise Analysis on Producers’ Perception of the Development Mechanism Effect of GI

The seven measures of ‘development mechanism effect of GI’ were subject to domicile-wise analysis to understand whether there is any difference in the opinion among the producers belonging to different domiciles.

a. Descriptive Statistics – Domicile wise Analysis on Producers’ Perception of the Development Mechanism Effect of GI

The most prominent measure of ‘development mechanism effect of GI’ was found to be ‘strengthened the social identity of the product’ ($\bar{X}$ = 4.581± 0.502) in the case of semi-urban area, whereas the least prominent one was ‘increase in the land value of the region’ ($\bar{X}$ = 1.333 ± 0.577) in the case of urban area as in Table 6.51.

Table 6.51

Descriptive Statistics – Domicile wise Analysis on Producers' Perception of the Development Mechanism Effect of GI

Variables	Domicile	Mean	SD	MPS
Strengthened the social identity of the product	Urban	4.333	0.577	86.66
	Rural	4.273	0.446	85.46
	Semi-Urban	4.581	0.502	91.62
	Total	4.298	0.458	85.96
Positive complementary effect on other products of the region	Urban	1.667	0.577	33.34
	Rural	1.716	0.525	34.32
	Semi-Urban	1.645	0.486	32.9
	Total	1.710	0.521	34.2
Encouraged the settlement of younger generation in their hometown	Urban	2.112	0.127	42.24
	Rural	1.883	0.729	37.66
	Semi-Urban	1.677	0.541	33.54
	Total	1.868	0.715	37.36
Reduced the migration to urban area	Urban	2.141	0.284	42.82
	Rural	1.801	0.722	36.02
	Semi-Urban	1.484	0.508	29.68
	Total	1.778	0.710	35.56
Increased the migration from outside to the region	Urban	1.667	0.577	33.34
	Rural	1.768	0.483	35.36
	Semi-Urban	1.613	0.615	32.26
	Total	1.755	0.496	35.10
Increase in allied job in the region	Urban	2.333	0.577	46.66
	Rural	2.167	0.994	43.34
	Semi-Urban	1.657	0.541	33.54
	Total	2.130	0.972	42.60
Increase in land value in the region	Urban	1.333	0.577	26.66
	Rural	1.675	0.508	33.50
	Semi-Urban	1.581	0.502	31.62
	Total	1.665	0.508	33.30

Source: Primary Data

b. Multivariate Analysis of Variance

Table 6.52 depicts the combined multivariate effect of all the variables identifying the construct of development mechanism effect of GI.

H_{6,23}: There is significant difference in the producers' perception on the combined effect of multiple dependent variables measuring the development mechanism effects of geographical indications between different domiciles.

Table 6.52

Multivariate (MANOVA) Test Results - Producers' Perception on Development Mechanism Effect of GI between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.408	2.759	14.000	782.000	0.001

F tests the multivariate effect of domicile.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The differences in the producers' opinion of different domiciles on the combined dependent variables measuring the Development mechanism effect of GI were statistically significant with p value of F statistic lower than 0.05, $F [14, 782] = 2.759, p < 0.05$; Wilks' $\Lambda = .408$ as per Table 6.52. This means that the producers of different domiciles had different opinion relating to the multiple variables measuring the development mechanism effect of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 6.53.

c. Univariate Analysis of Variance and Pair wise Comparison

Univariate ANOVA was conducted for each of the seven dependent variables to identify whether statistically significant differences exist between the various producers of different domiciles.

H_{6,24}: There is significant difference in the producers' perception on the individual measures of development mechanism effects of geographical indications between different domiciles.

The univariate ANOVA test result indicate that statistically significant difference exists in the opinion of the producers of different domiciles, in the individual cases of variables measuring the development mechanism effect of GI only in the cases of

‘strengthened the social identity of the product’, ‘reduced the migration to urban area’ and ‘increase in allied job in the region.’

Table 6.53

Estimated Margin of Means, SE, and ANOVA Results - Producers’ Perception on Development Mechanism Effect of GI between different Domiciles

Variables	Domicile	Mean	SE	F	Sig.
Strengthened the social identity of the product	Urban	4.333	0.261	6.637	0.001
	Rural	4.273	0.024		
	Semi-Urban	4.581	0.081		
Positive complementary effect on other products of the region	Urban	1.667	0.301	0.272	0.762
	Rural	1.716	0.027		
	Semi-Urban	1.645	0.094		
Encouraged the settlement of the younger generation in their hometown	Urban	2.112	0.413	1.229	0.294
	Rural	1.883	0.037		
	Semi-Urban	1.677	0.128		
Reduced migration to urban area	Urban	2.141	0.408	3.021	0.050
	Rural	1.801	0.037		
	Semi-Urban	1.484	0.127		
Increased migration from outside to the region	Urban	1.667	0.286	1.447	0.237
	Rural	1.768	0.026		
	Semi-Urban	1.613	0.089		
Increase in allied jobs in the region	Urban	2.333	0.558	3.734	0.025
	Rural	2.167	0.050		
	Semi-Urban	1.677	0.173		
Increase in land value in the region	Urban	1.333	0.293	1.135	0.322
	Rural	1.675	0.027		
	Semi-Urban	1.581	0.091		

Figures in bold indicate significant at 5% level.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.54.

Table 6.54

Bonferroni Pairwise Comparison - Producers' Perception on Development Mechanism Effect of GI between different Domiciles

Variables	(I) Domicile	(J) Domicile	Mean Difference (I-J)	Std. Error	Sig.#
Strengthened the social identity of the product	Urban	Rural	0.060	0.262	0.526
		Semi-Urban	-0.247	0.273	1.000
	Rural	Urban	-0.060	0.262	0.526
		Semi-Urban	-0.307*	0.084	0.001
Reduced migration to urban area	Urban	Rural	0.340	0.410	0.745
		Semi-Urban	0.657	0.427	0.683
	Rural	Urban	-0.340	0.410	0.745
		Semi-Urban	0.317	0.132	0.051
Increase in allied job in the region	Urban	Rural	0.167	0.560	0.458
		Semi-Urban	0.656	0.584	0.786
	Rural	Urban	-0.167	0.560	0.458
		Semi-Urban	0.489*	0.181	0.021

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

Pairwise comparison results reveal that in the cases of 'strengthened the social identity of the product' and 'increase in allied job in the region', statistically significant differences exist between semi-urban and rural areas only. However, in the case of 'reduced migration to urban area' no statistically significant differences could be traced across any of the categories of domicile, though ANOVA results showed a statistically significant difference across categories of domicile.

The statement 'GI tag has strengthened the social identity of the product' (maintaining a good public image/ popularity) has the highest mean difference score of 0.307 between the GI producers of semi-urban and rural areas as revealed in the pairwise comparison result.

The statement 'GI tag has an increase in allied jobs in the region' has the highest mean difference score of 0.489 between the GI producers of rural and semi-urban areas as per the pairwise comparison result.

6.4.2.3 Domicile-wise analysis on Producers' Perception of the Protection and Valorisation Effect of GI

The ten measures of the 'protection and valorisation effect of GI' were subjected to domicile-wise analysis in order to observe whether there is any difference in the opinion among the producers belonging to different domiciles.

a. Descriptive Statistics – Domicile wise Analysis on Producers' Perception of the Protection and Valorisation Effect of GI

The most prominent measure of the protection and valorisation effect of GI was found to be 'increase in the status of the farming profession' ($\bar{X} = 4.874 \pm 0.241$) in the case of urban area and the least prominent one was 'more recognition is bestowed on producers after the receipt of GI registration' ($\bar{X} = 1.742 \pm 0.445$) in the case of urban area, as shown in Table 6.55.

Table 6.55

Descriptive Statistics – Domicile wise Analysis on Producers' Perception of the Protection and Valorisation Effect of GI

Variables	Domicile	Mean	SD	MPS
GI protection prevents the name from becoming generic	Urban	4.333	0.577	86.66
	Rural	3.962	0.786	79.24
	Semi-Urban	4.484	0.508	89.68
	Total	4.005	0.779	80.10
Ensured protection of traditional knowledge	Urban	4.333	0.577	86.66
	Rural	4.238	0.574	84.76
	Semi-Urban	4.419	0.564	88.38
	Total	4.253	0.574	85.06
Ensures environmental protection	Urban	4.667	0.577	93.34
	Rural	4.549	0.575	90.98
	Semi-Urban	4.677	0.475	93.54
	Total	4.56	0.568	91.20
Protection of indigenous species of plant varieties	Urban	2.117	0.544	42.34
	Rural	3.342	1.168	66.84
	Semi-Urban	4.645	0.486	92.90
	Total	3.433	1.185	68.66
GI registration has helped in attracting the attention of LSG to the area	Urban	2.667	1.155	53.34
	Rural	2.552	1.359	51.04
	Semi-Urban	3.871	0.428	77.42
	Total	2.655	1.355	53.10

Variables	Domicile	Mean	SD	MPS
GI registration has helped in attracting the attention of media	Urban	4.21	0.124	84.20
	Rural	4.333	0.567	86.66
	Semi-Urban	4.645	0.486	92.90
	Total	4.355	0.565	87.10
GI registration has helped in increasing the popularity of the region	Urban	4.667	0.577	93.34
	Rural	3.82	1.012	76.40
	Semi-Urban	4.452	0.506	89.04
	Total	3.875	0.996	77.50
Increase in the status of the farming profession	Urban	4.874	0.241	97.48
	Rural	2.352	1.243	47.04
	Semi-Urban	4.065	0.814	81.30
	Total	2.505	1.311	50.10
Attitude of the youth towards farming has changed for good after the receipt of GI registration	Urban	4.259	0.532	85.18
	Rural	2.068	1.067	41.36
	Semi-Urban	2.935	0.929	58.70
	Total	2.15	1.089	43.00
More recognition is bestowed on producers after the receipt of GI registration	Urban	2.144	0.214	42.88
	Rural	2.552	0.931	51.04
	Semi-Urban	1.742	0.445	34.84
	Total	2.485	0.926	49.70

Source: Primary Data

b. Multivariate Analysis of Variance – Difference in Producers' Perception on the Protection and Valorisation Effect of GI between different Domiciles

Table 6.56 depicts the combined multivariate effect of all the variables identifying the construct of protection and valorisation effect of GI.

H_{6.25}: There is significant difference in the producers' perception on the combined effect of multiple dependent variables measuring the protection and valorisation effect of geographical indications between different domiciles.

Table 6.56

Multivariate (MANOVA) Test Results – Difference in Producers' Perception on Protection and Valorisation effect of GI between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.487	11.857	20.000	776.000	0.000

F tests the multivariate effect of domicile.

Figure in bold indicates significant at 5% level.

Source: Primary Data

The differences in the producers' opinion of different domiciles on the combined dependent variables measuring the protection and valorisation effect of GI were statistically significant with the p value of F statistic lower than 0.05, $F [20, 776] = 11.857$, $p < 0.05$; Wilks' $\Lambda = 0.487$ as per Table 6.56. This means that the producers of different domiciles have different opinion relating to the multiple variables measuring the protection and valorisation effect of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 6.57.

c. Univariate Analysis of Variance and Pair wise Comparison - Difference in Producers' Perception on the Protection and Valorisation Effect of GI between different Domiciles

Univariate ANOVA was conducted for each of the ten dependent variables to identify whether statistically significant differences exist between the various producers of different domiciles.

H_{6.26}: There is significant difference in the producers' perception on individual measures of the protection and valorisation effect of geographical indications between different domiciles.

The univariate ANOVA test result indicate that a statistically significant difference exists in the opinion of the producers of different domiciles, in all the individual cases of variables measuring the protection and valorisation effect of GI except in the case of 'GI tag ensures protection of traditional knowledge' and 'GI registration ensures protection of environment'.

Table 6.57

Estimated Margin of Means, SE, and ANOVA Results – Difference in Producers' Perception on Protection and Valorisation Effect of GI between different Domiciles

Variable	Domicile	Mean	SE	F	Sig.
GI protection prevents the name from becoming generic	Urban	4.333	0.443	6.889	0.001
	Rural	3.962	0.040		
	Semi-Urban	4.484	0.138		
Ensured protection of traditional knowledge	Urban	4.333	0.331	1.464	0.233
	Rural	4.238	0.030		
	Semi-Urban	4.419	0.103		

Variable	Domicile	Mean	SE	F	Sig.
Ensures environmental protection	Urban	4.667	0.328	0.782	0.458
	Rural	4.549	0.030		
	Semi-Urban	4.677	0.102		
Protection of indigenous species of plant varieties	Urban	2.117	0.651	21.512	0.000
	Rural	3.342	0.059		
	Semi-Urban	4.645	0.203		
GI registration has helped in attracting the attention of LSG to the area	Urban	2.667	0.757	14.459	0.000
	Rural	2.552	0.069		
	Semi-Urban	3.871	0.236		
GI registration has helped in attracting the attention of media	Urban	4.210	0.323	5.041	0.007
	Rural	4.333	0.029		
	Semi-Urban	4.645	0.101		
GI registration has helped in increasing the popularity of the region	Urban	4.667	0.567	6.907	0.001
	Rural	3.820	0.051		
	Semi-Urban	4.452	0.176		
Increase in the status of the farming profession	Urban	4.874	0.700	34.904	0.000
	Rural	2.352	0.063		
	Semi-Urban	4.065	0.218		
Attitude of the youth towards farming has changed for good after the receipt of GI registration	Urban	4.259	0.609	14.325	0.000
	Rural	2.068	0.055		
	Semi-Urban	2.935	0.189		
More recognition is bestowed on producers after the receipt of GI registration	Urban	2.144	0.520	11.980	0.000
	Rural	2.552	0.047		
	Semi-Urban	1.742	0.162		

Figures in bold indicate significant at 5% level.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.58.

Table 6.58

Bonferroni Pairwise Comparison – Difference in Producers' Perception on Protection and Valorisation Effect of GI between different Domiciles

Variable	(I) Domicile	(J) Domicile	Mean Difference (I-J)	Std. Error	Sig.#
GI protection prevents the name from becoming generic	Urban	Rural	0.372	0.445	0.445
		Semi-Urban	-0.151	0.464	0.078
	Rural	Urban	-0.372	0.445	0.445
		Semi-Urban	-0.522*	0.144	0.001
Protection of indigenous species of plant varieties	Urban	Rural	-1.225	0.654	0.123
		Semi-Urban	-2.528*	0.682	0.000
	Rural	Urban	1.225	0.654	0.123
		Semi-Urban	-1.304*	0.211	0.000

Variable	(I) Domicile	(J) Domicile	Mean Difference (I-J)	Std. Error	Sig.#
GI registration has helped in attracting the attention of LSG to the area	Urban	Rural	0.115	0.760	0.711
		Semi-Urban	-1.204	0.793	0.389
	Rural	Urban	-0.115	0.760	0.711
		Semi-Urban	-1.319*	0.245	0.000
GI registration has helped in attracting the attention of media	Urban	Rural	-0.123	0.325	0.915
		Semi-Urban	-0.435	0.339	0.172
	Rural	Urban	0.123	0.325	0.915
		Semi-Urban	-0.312*	0.105	0.009
GI registration has helped in increasing the popularity of the region	Urban	Rural	0.847	0.569	0.412
		Semi-Urban	0.215	0.593	0.852
	Rural	Urban	-0.847	0.569	0.412
		Semi-Urban	-0.632*	0.184	0.002
Increase in the status of the farming profession	Urban	Rural	2.522*	0.703	0.001
		Semi-Urban	0.809	0.733	0.608
	Rural	Urban	-2.522*	0.703	0.001
		Semi-Urban	-1.712*	0.227	0.000
Attitude of the youth towards farming has changed for good after the receipt of GI registration	Urban	Rural	2.191*	0.611	0.005
		Semi-Urban	1.324	0.637	0.287
	Rural	Urban	-2.191*	0.611	0.005
		Semi-Urban	-0.867*	0.197	0.000
More recognition is bestowed on producers after the receipt of GI registration	Urban	Rural	-0.408	0.522	0.874
		Semi-Urban	0.402	0.545	0.783
	Rural	Urban	0.408	0.522	0.874
		Semi-Urban	0.810*	0.169	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

The pairwise comparisons revealed that in the cases of, ‘GI protection prevents the name from becoming generic’, ‘GI registration has helped in attracting the attention of LSG to the area’, ‘GI registration has helped in attracting the attention of media’, ‘GI registration has helped in increasing the popularity of the region’ and ‘more recognition is bestowed on producers after the receipt of GI registration’, statistically significant differences exist between the GI producers of semi-urban and rural areas only.

The statement 'GI registration has protected the name of the produce from becoming generic' has showed the highest variance of 0.522 between the producers of semi-urban and rural domiciles during pairwise comparison.

The pairwise comparison of the statement 'the receipt of the GI helped attract the attention of local self-government towards the area' showed maximum variance in the case of the GI producers of semi-urban and rural with a mean difference score of 1.319.

The post hoc test results of the statements 'receipt of the GI helped to attract the attention of the media towards the area' and 'GI registration has increased the popularity of the place among the public' showed maximum variance between the GI producers of semi-urban and rural domicile with a mean difference of 0.312 and 0.632 respectively.

The statement 'more recognition is being bestowed upon producers after the receipt of the GI tag' after pairwise comparison revealed maximum difference of 0.810 between the GI producers of rural and semi-urban domicile.

In the case of 'protection of indigenous species of plant varieties' statistically significant differences could be traced across the GI producers of urban and semi-urban areas as well as between semi-urban and rural areas. The post hoc test reveals that the maximum variance exists between semi-urban and urban with a mean difference of 2.582.

The above results depicts that the GI producers of semi-urban domiciles have more agreement about the positive effect of GI registration regarding in majority of the variables measuring the protection and valorization effect of GI.

Finally, in the cases of 'increase in the status of the farming profession' and 'attitude of the youth towards farming has changed for good after the receipt of GI registration' significant differences were found to exist between the GI producers of urban and rural areas as well as between semi-urban and rural areas.

The pairwise comparison of the statement 'the receipt of GI registration has increased the status of the farming profession among the public' showed maximum variance between the GI producers of urban and rural domiciles with a mean

difference of 2.522. The pairwise comparison of the statement ‘there is a change in the attitude of youth towards the farming after the receipt of the GI tag’ showed maximum variance among the GI producers of urban and rural with a mean difference of 2.191. This shows that the acceptance of GI product farming as a profession and change in the attitude towards farming was seen more in the case of producers from urban domiciles. This can be on account of the overall change in the perception of people in urban areas and their positive outlook towards sustainable development. All the GI products in the study support organic and sustainable farming practices.

6.5 MARKETING BENEFITS OF GI

The process of searching for reliable information is considered complex and time consuming. The common ways in which the customers cover the information asymmetry is by relying on opinion of friends or family, referring to journals/magazines, advertisements and even their own previous experiences. In the world of information asymmetry the reputation often conveyed through unique name and mark plays a crucial commercial role in signalling about the quality expected by the customers (Rangnekar, 2004). Branding is done by the companies in order to communicate the uniqueness and premium quality of their products to the customers. An exclusive way of branding is the usage of the geographical origin of the product (Agarwal & Barone, n.d.). GIs are geographical origin-based branding strategies used world over to gain market advantage. GI acts similar to that of trademarks as both are associated with marketing of products. While the trademarks are signs that recognise manufacturing units, the GIs identify goods as originating from a particular geographical location having unique qualities. Another difference between trademarks and GIs is that the latter is an individual mark whereas the former is a collective mark. The producers of the registered GIs can be considered as a part of a strategic alliance, which gives them an edge over the market intermediaries, these benefits are measured under the dimension ‘supply chain effects’ of GI.

The marketing benefits of GI were studied in terms of product differentiation (six measures) and effect on supply chain and value (five measures). These aspects of marketing benefits of GI were separately analysed in terms of GI wise and domicile wise.

6.5.1 GI wise Analysis on the Marketing Benefits of GI

The six measures of product differentiation benefits of GI and five measures of supply chain and value benefits of GI were subject to GI-wise analysis to understand whether there is any difference in the opinion among the producers belonging to different GI regarding the marketing benefits of GI.

6.5.1.1 GI wise Analysis on the Product Differentiation Benefits of GI

The six measures of ‘product differentiation benefits of GI’ were subjected to GI wise analysis. The six items that are used for measuring the product differentiation dimension of marketing benefits of GIs are, differentiating the products from that of the competitors, originality of the products, communicating genuine quality of the product, reducing information search cost, reduced unauthorised external intrusion and reduced instances of counterfeit products in the market.

a. Descriptive Statistics - GI wise Analysis on the Product Differentiation Benefits of GI Tag

In Table 6.59 the most prominent measure product differentiation benefit of GI was found to be ‘GI helps in communicating the quality of the produce’ ($\bar{X}$ = 4.775 $\pm$ 0.421) in the case of Tirur Vettila, whereas the least prominent one was ‘GI registration has reduced the unauthorised external intrusions to the area’ ($\bar{X}$ = 1.474 $\pm$ 0.501) in the case of Kaipad Rice.

Table 6.59

Descriptive Statistics – GI wise Analysis on the Product Differentiation Benefits of GI

Variables	Name of the GI	Mean	SD	MPS
GI differentiates the products from that of competitors	Chengalikodan Nendran	3.220	0.988	64.4
	Tirur Vettila	4.620	0.489	92.4
	Marayoor Sharkara	2.392	0.812	47.84
	Kaipad Rice	1.591	0.493	31.82
	Total	2.455	1.303	49.1
GI helps in ensuring the originality of product	Chengalikodan Nendran	3.184	0.781	63.68
	Tirur Vettila	4.704	0.460	94.08
	Marayoor Sharkara	2.466	0.842	49.32
	Kaipad Rice	4.274	0.447	85.48
	Total	3.913	0.994	78.26

Variables	Name of the GI	Mean	SD	MPS
GI helps in communicating the quality of the produce	Chengalikodan Nendran	3.195	0.980	63.9
	Tirur Vettla	4.775	0.421	95.5
	Marayoor Sharkara	2.436	0.793	48.72
	Kaipad Rice	4.384	0.523	87.68
	Total	3.923	1.002	78.46
GI reduces the information search cost of the customers	Chengalikodan Nendran	3.341	1.063	66.82
	Tirur Vettla	4.704	0.460	94.08
	Marayoor Sharkara	2.823	0.782	56.46
	Kaipad Rice	4.409	0.493	88.18
	Total	3.998	1.032	79.96
GI registration has reduced the unauthorised external intrusions to the area	Chengalikodan Nendran	1.732	0.449	34.64
	Tirur Vettla	1.944	0.504	38.88
	Marayoor Sharkara	1.890	0.315	37.8
	Kaipad Rice	1.474	0.501	29.48
	Total	1.660	0.510	33.2
Entry of counterfeit products into the market has reduced	Chengalikodan Nendran	1.634	0.488	32.68
	Tirur Vettla	2.014	0.586	40.28
	Marayoor Sharkara	1.562	0.500	31.24
	Kaipad Rice	1.805	0.397	36.1
	Total	1.778	0.483	35.56

Source: Primary Data

In the case of the statements ‘GI helps in ensuring the originality of product’, ‘GI helps in communicating the quality of the produce’ and ‘GI reduces the information search cost of the customers’ the overall MPS is above 75 % which shows that the producers of all GIs perceived that GI tag has a positive marketing benefit relating to these three indicators.

The overall MPS in the case of ‘entry of counterfeit products into the market have reduced’ is 35.56 % which reveals that the GI tag has a low effect in reducing the entry of counterfeit products in to the market.

The analysis results of the statement ‘GI registration has reduced the unauthorised external intrusions to the area’ has an overall has an overall MPS of 33.2 % which means that the effect of GI in reducing unauthorised external intrusion is very low.

The results of the last two statements are not in consistent with the studies of (Barjolle & Thevenod-Mottet, 2002) and (Belletti et al., 2011).

b. Multivariate Analysis of Variance - GI wise Analysis on Producers' Perception of the Product Differentiation Benefits of GI

Table 6.60 depicts the combined multivariate effect of all the variables identifying the construct of product differentiation benefits of GI.

H_{6,27}: There is significant difference in the producers' perception on the combined effect of multiple dependent variables measuring the product differentiation benefits of geographical indications between different GIs.

Table 6.60

Multivariate (MANOVA) Test Results - Difference in Producers' Perception on the Product Differentiation Effect of GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	.036	36.725	18.00	1106.4	0.000

F tests the multivariate effect of type of GI

Figure in bold indicates significant at 5% level

Source: Primary Data

The differences in the producers' opinion of different GIs on the combined dependent variables of product differentiation benefits of GI were statistically significant with p value of the F statistic lower than 0.05, $F [18, 1106.4] = 36.725, p < 0.05$; Wilks' $\Lambda = .036$, as shown in Table 6.60. This means that the producers of different GIs were having different opinion relating to the multiple variables measuring the product differentiation benefits of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 6.61.

c. Univariate Analysis of Variance and Pair wise Comparison - GI wise Analysis on Producers' Perception of the Product Differentiation Benefits of GI

Univariate ANOVA was conducted for each of the six dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{6,28}: *There is significant difference in the producers' opinion relating to the individual measures of product differentiation benefits of geographical indications between different GIs.*

Table 6.61

Estimated Margin of Means, SE, and ANOVA Results - Difference in Producers' Perception on the Product Differentiation Effect of GI between different GIs

Variables	Name of the GI	Mean	SE	F	Sig.
GI differentiates the products from that of competitors	Chengalikodan Nendran	3.220	0.099	42.022	0.000
	Tirur Vettala	4.621	0.075		
	Marayoor Sharkara	2.392	0.074		
	Kaipad Rice	1.591	0.043		
GI helps in ensuring the originality of product	Chengalikodan Nendran	3.184	0.096	21.492	0.000
	Tirur Vettala	4.704	0.073		
	Marayoor Sharkara	2.466	0.072		
	Kaipad Rice	4.274	0.042		
GI helps in communicating the quality of the produce	Chengalikodan Nendran	3.195	0.095	30.663	0.000
	Tirur Vettala	4.775	0.072		
	Marayoor Sharkara	2.436	0.071		
	Kaipad Rice	4.384	0.041		
GI reduces the information search cost of the customers	Chengalikodan Nendran	3.341	0.101	20.750	0.000
	Tirur Vettala	4.704	0.076		
	Marayoor Sharkara	2.823	0.075		
	Kaipad Rice	4.409	0.044		
GI registration has reduced the unauthorised external intrusions to the area	Chengalikodan Nendran	1.732	0.073	26.236	0.000
	Tirur Vettala	1.944	0.055		
	Marayoor Sharkara	1.890	0.055		
	Kaipad Rice	1.474	0.032		
Entry of counterfeit products into the market has reduced	Chengalikodan Nendran	1.634	0.072	12.255	0.000
	Tirur Vettala	2.014	0.055		
	Marayoor Sharkara	1.562	0.054		
	Kaipad Rice	1.805	0.032		

Figures in bold indicate significant at 5% level

Source: Primary Source

The univariate ANOVA test results indicate that statistically significant difference exists in the opinion of the producers of different GIs, in all the individual cases of variables measuring the product differentiation benefits of GI.

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.62.

Table 6.62

Bonferroni Pairwise Comparison - Difference in Producers' Perception on the Product Differentiation Effect of GI between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
GI differentiates the products from that of competitors	Chengalikodan Nendran	Tirur Vettila	-1.400 [*]	0.125	0.000
		Marayoor Sharkara	0.754 [*]	0.124	0.000
		Kaipad Rice	1.629 [*]	0.108	0.000
	Tirur Vettila	Marayoor Sharkara	2.154 [*]	0.106	0.000
		Kaipad Rice	3.029 [*]	0.087	0.000
	Marayoor Sharkara	Kaipad Rice	0.875 [*]	0.086	0.000
GI helps in ensuring the originality of product	Chengalikodan Nendran	Tirur Vettila	-1.485 [*]	0.120	0.000
		Marayoor Sharkara	0.754 [*]	0.120	0.000
		Kaipad Rice	-1.055 [*]	0.104	0.000
	Tirur Vettila	Marayoor Sharkara	2.238 [*]	0.102	0.000
		Kaipad Rice	0.430 [*]	0.084	0.000
	Marayoor Sharkara	Kaipad Rice	-1.809 [*]	0.083	0.000
GI helps in communicating the quality of the produce	Chengalikodan Nendran	Tirur Vettila	-1.580 [*]	0.119	0.000
		Marayoor Sharkara	0.729 [*]	0.118	0.000
		Kaipad Rice	-1.079 [*]	0.103	0.000
	Tirur Vettila	Marayoor Sharkara	2.309 [*]	0.101	0.000
		Kaipad Rice	0.500 [*]	0.083	0.000
	Marayoor Sharkara	Kaipad Rice	-1.809 [*]	0.082	0.000
GI reduces the information search cost of the customers	Chengalikodan Nendran	Tirur Vettila	-1.363 [*]	0.126	0.000
		Marayoor Sharkara	0.876 [*]	0.126	0.000
		Kaipad Rice	-1.068 [*]	0.110	0.000
	Tirur Vettila	Marayoor Sharkara	2.238 [*]	0.107	0.000
		Kaipad Rice	0.295 [*]	0.088	0.005
	Marayoor Sharkara	Kaipad Rice	-1.944 [*]	0.087	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
GI registration has reduced the unauthorised external intrusions to the area	Chengalikodan Nendran	Tirur Vettila	-0.211	0.092	0.128
		Marayoor Sharkara	-0.158	0.091	0.497
		Kaipad Rice	0.257*	0.080	0.008
	Tirur Vettila	Marayoor Sharkara	0.053	0.078	0.785
		Kaipad Rice	0.469*	0.064	0.000
	Marayoor Sharkara	Kaipad Rice	0.416*	0.063	0.000
Entry of counterfeit products into the market has reduced	Chengalikodan Nendran	Tirur Vettila	-0.366*	0.091	0.000
		Marayoor Sharkara	0.072	0.091	0.524
		Kaipad Rice	-0.170	0.079	0.190
	Tirur Vettila	Marayoor Sharkara	0.438*	0.077	0.000
		Kaipad Rice	0.195*	0.064	0.013
	Marayoor Sharkara	Kaipad Rice	-0.243*	0.063	0.001

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

In the cases of statements ‘GI differentiates the products from that of competitors’, ‘GI helps in ensuring the originality of product’, ‘GI helps in communicating the quality of the produce’ and ‘GI reduces the information search cost of the customers’ statistically significant differences exist between the producers of all GIs.

The pairwise comparison of the statement ‘the GI tag has helped in differentiating the product from that of the competitors’ showed maximum variance between the producers of Tirur Vettila and Kaipad Rice with mean difference of 3.029. To the statements ‘the GI tag has helped to ensure the genuineness of the product (original product)’, ‘the GI tag has helped in communicating the genuine quality of the products/ produce to the customers’ and ‘the GI tag has reduced the information search cost for customers’ pairwise comparison showed maximum variance between Tirur Vettila and Marayoor Sharkara with a mean difference of 2.238, 2.309 and 2.238 respectively. The results revealed that the producers of Tirur Vettila perceived that the

GI tag has helped them with the benefits of product differentiation more, when compared to the producers of other GIs.

In the case of the statement ‘GI registration has reduced the unauthorised external intrusions to the area’ statistically significant differences were found to exist between the producers of Chengalikodan Nendran and Kaipad Rice, between Tirur Vettala and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice.

When it comes to the case of ‘entry of counterfeit products into the market have reduced’ statistically significant differences were traced between Tirur Vettala and all other types of GI under study namely Chengalikodan Nendran, Marayoor Sharkara and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice.

The post hoc test result of the statement ‘GI registration has reduced the unauthorized external intrusions to the area’ revealed highest variance between Tirur Vettala and Kaipad Rice with the mean difference of 0.416

The post hoc test result of the indicator ‘GI registrations have reduced the instances of counterfeit products in the market’ showed maximum variance between Tirur Vettala and Marayoor Sharkara with a mean difference of 0.438. The producers of the Marayoor Sharkara opined that they still face the issue of counterfeit products from Tamil Nadu which mimics the unique characteristics of the Marayoor Sharkara in colour and shape.

The overall analysis of the dimension ‘product differentiation effect of GI’ showed that all the indicators were more advantageous to the producers of Tirur Vettala, which can be an indication that the GI tags are more useful in the case of those products whose unique characteristics cannot be easily identified by casual observations by common people.

6.5.1.2 GI wise Analysis on the Supply Chain and Value Benefits of Geographical Indications

The five measures of ‘supply chain and value benefits of GI’ were subjected to GI wise analysis.

The five items measured were ‘ensuring stable relationship with market intermediaries’, ‘greater bargaining power for the producers’, ‘obtaining single long-term contracts with the market intermediary’, ‘stable business’ and ‘equal benefit sharing between producers and market intermediary’.

a. Descriptive Statistics - GI wise Analysis on the Supply Chain and Value Benefits of GI

Table 6.63 revealed that the most prominent measure of supply chain and value benefits of GI was found to be ‘benefits of GI registration are enjoyed by the traders and producers alike’ ($\bar{X}$ = 4.380 $\pm$ 0.489) in the case of Tirur Vettala, whereas the least prominent one was ‘GI helps in obtain long term contracts with the market intermediaries’ ($\bar{X}$ = 1.340 $\pm$ 0.484) in the case of Kaipad Rice.

The statement ‘GI ensures stable relationship with the market intermediaries’ has an overall MPS of 74.2 %, with Tirur Vettala having the highest MPs of 81.1 %. The result shows that the GI registration has helped in gaining consistent orders from the market intermediaries. The result is consistent with the results of previous studies which remarked that GI tags promote vertical integration of supply chains, that is relation between the producers and the market intermediaries can be improved with GI registration.

‘GI increases the bargaining power of the producers over the market intermediaries’ has an overall MPS of 63.8 %, which reveals a moderate effect of GI. The Kaipad Rice have the highest MPS of 77.0 %. The GI tag is moderately effective in improving the bargaining power of the producers, at the same time it has shown higher influence in the case of Kaipad Rice.

The indicator ‘GI helps to obtain long term contracts with the market intermediaries’ has overall MPS of 32.5 %, which shows a very low effect of GI. The results shows that the GI tag was not helpful in gaining long term contracts with the market intermediaries.

The factor ‘GI aids in improved relation with market intermediaries which increased stability of business’ has an overall MPS of 74.6 %. The results reveals that

the GI tag was helpful in establishing steady business with the help of market intermediaries.

The statement ‘benefits of GI registration are enjoyed by the traders and producers alike’ has an overall MPS of 73.3 % with Marayoor Sharkara having the least MPS of 44.9 %. In the case of Marayoor Sharkara the producers were of the opinion that the market intermediaries are more at benefit from the product receiving the GI tag.

Table 6.63

Descriptive Statistics - Difference in Producers’ Perception on Supply Chain and Value Benefits of GI between different GIs

Variables	Name of the GI	Mean	SD	MPS
GI ensures stable relationship with the market intermediaries	Chengalikodan Nendran	3.341	0.938	66.8
	Tirur Vettala	4.056	0.333	81.1
	Marayoor Sharkara	2.877	0.897	57.5
	Kaipad Rice	3.949	0.763	79.0
	Total	3.710	0.871	74.2
GI increases the bargaining power of the producers over the market intermediaries	Chengalikodan Nendran	3.024	0.987	60.5
	Tirur Vettala	1.746	0.499	34.9
	Marayoor Sharkara	2.740	0.866	54.8
	Kaipad Rice	3.851	0.695	77.0
	Total	3.190	1.087	63.8
GI helps to obtain long term contracts with the market intermediaries	Chengalikodan Nendran	1.707	0.559	34.1
	Tirur Vettala	1.732	0.506	34.6
	Marayoor Sharkara	2.301	0.570	46.0
	Kaipad Rice	1.340	0.484	26.8
	Total	1.623	0.625	32.5
GI aids in improved relation with market intermediaries which increased stability of business	Chengalikodan Nendran	3.366	0.915	67.3
	Tirur Vettala	4.056	0.333	81.1
	Marayoor Sharkara	2.849	0.892	57.0
	Kaipad Rice	3.986	0.788	79.7
	Total	3.728	0.889	74.6
Benefits of GI registration are enjoyed by the traders and producers alike	Chengalikodan Nendran	3.463	0.869	69.3
	Tirur Vettala	4.380	0.489	87.6
	Marayoor Sharkara	2.247	0.641	44.9
	Kaipad Rice	3.949	0.763	79.0
	Total	3.665	1.005	73.3

Source: Primary Data

b. Multivariate Analysis of Variance - GI wise Analysis on Producers' Perception of the Supply Chain and Value Benefits of GI

Table 6.64 depicts the combined multivariate effect of all the variables identifying the construct of supply chain and value benefits of GI.

H_{6,29}: There is significant difference in the producers' perception on the combined effect of multiple dependent variables measuring the supply chain and value benefits of geographical indications between different GIs.

Table 6.64

Multivariate (MANOVA) Test Results - Difference in Producers' Perception on Supply Chain and Value Benefits of GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	.085	10.456	15.000	1082.541	0.000

F tests the multivariate effect of type of GI

Figure in bold indicates significant at 5% level

Source: Primary Data

The differences in the producers' opinion of different GIs on the combined dependent variables were statistically significant with the p value of F statistic lower than 0.05, $F [15, 1082.541] = 10.456, p < 0.05$; Wilks' $\Lambda = 0.085$ as revealed in Table 6.64. This means that the producers of different GIs were having different opinion relating to the multiple variables measuring the supply chain and value benefits of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 6.65.

c. Univariate Analysis of Variance and Pair wise Comparison - GI wise Analysis on Producers' Perception of the Supply Chain and Value Benefits of GI

Univariate ANOVA was conducted for each of the five dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{6.30}: *There is significant difference in the producers' perception on the individual measures of supply chain and value benefits of geographical indications between different GIs.*

The univariate ANOVA test results indicate that statistically significant difference exists in the opinion of the producers of different GIs, in all the individual cases of variables measuring the supply chain and value benefits of GI.

Table 6.65

Estimated Margin of Means, SE, and ANOVA Results - Difference in Producers' Perception on Supply Chain and Value Benefits of GI between different GIs

Variables	Name of the GI	Mean	SE	F	Sig.
GI ensures stable relationship with the market intermediaries	Chengalikodan Nendran	3.341	0.118	45.131	0.000
	Tirur Vettala	4.056	0.090		
	Marayoor Sharkara	2.877	0.088		
	Kaipad Rice	3.949	0.051		
GI increases the bargaining power of the producers over the market intermediaries	Chengalikodan Nendran	3.024	0.115	15.271	0.000
	Tirur Vettala	1.746	0.087		
	Marayoor Sharkara	2.740	0.086		
	Kaipad Rice	3.851	0.050		
GI helps in obtain long term contracts with the market intermediaries	Chengalikodan Nendran	1.707	0.080	66.021	0.000
	Tirur Vettala	1.732	0.061		
	Marayoor Sharkara	2.301	0.060		
	Kaipad Rice	1.340	0.035		
GI aids in improved relation with market intermediaries which increased stability of business	Chengalikodan Nendran	3.366	0.119	47.713	0.000
	Tirur Vettala	4.056	0.091		
	Marayoor Sharkara	2.849	0.090		
	Kaipad Rice	3.986	0.052		
Benefits of GI registration are enjoyed by the traders and producers alike	Chengalikodan Nendran	3.463	0.111	13.826	0.000
	Tirur Vettala	4.380	0.085		
	Marayoor Sharkara	2.247	0.083		
	Kaipad Rice	3.949	0.049		

Figures in bold indicate significant at 5% level

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.66.

Table 6.66

Bonferroni Pairwise Comparison - Difference in Producers' Perception on Supply Chain and Value Benefits of GI between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
GI ensures stable relationship with the market intermediaries	Chengalikodan Nendran	Tirur Vettala	-0.715 [*]	0.148	0.000
		Marayoor Sharkara	0.465 [*]	0.147	0.010
		Kaipad Rice	-0.607 [*]	0.129	0.000
	Tirur Vettala	Marayoor Sharkara	1.180 [*]	0.126	0.000
		Kaipad Rice	0.108	0.103	0.246
	Marayoor Sharkara	Kaipad Rice	-1.072 [*]	0.102	0.000
GI increases the bargaining power of the producers over the market intermediaries	Chengalikodan Nendran	Tirur Vettala	1.278 [*]	0.144	0.000
		Marayoor Sharkara	0.284	0.143	0.287
		Kaipad Rice	-0.827 [*]	0.125	0.000
	Tirur Vettala	Marayoor Sharkara	-0.993 [*]	0.122	0.000
		Kaipad Rice	-2.105 [*]	0.101	0.000
	Marayoor Sharkara	Kaipad Rice	-1.111 [*]	0.100	0.000
GI helps in obtain long term contracts with the market intermediaries	Chengalikodan Nendran	Tirur Vettala	-0.0251	0.101	0.547
		Marayoor Sharkara	-0.594 [*]	0.100	0.000
		Kaipad Rice	0.368 [*]	0.087	0.000
	Tirur Vettala	Marayoor Sharkara	-0.569 [*]	0.085	0.000
		Kaipad Rice	0.393 [*]	0.070	0.000
	Marayoor Sharkara	Kaipad Rice	0.962 [*]	0.069	0.000
GI aids in improved relation with market intermediaries which increased stability of business	Chengalikodan Nendran	Tirur Vettala	-0.690 [*]	0.150	0.000
		Marayoor Sharkara	0.517 [*]	0.149	0.004
		Kaipad Rice	-0.620 [*]	0.130	0.000
	Tirur Vettala	Marayoor Sharkara	1.207 [*]	0.127	0.000
		Kaipad Rice	0.070	0.105	0.745
	Marayoor Sharkara	Kaipad Rice	-1.137 [*]	0.104	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Benefits of GI registration are enjoyed by the traders and producers alike	Chengalikodan Nendran	Tirur Vettila	-0.917*	0.140	0.000
		Marayoor Sharkara	1.217*	0.139	0.000
		Kaipad Rice	-0.485*	0.121	0.000
	Tirur Vettila	Marayoor Sharkara	2.134*	0.119	0.000
		Kaipad Rice	0.431*	0.098	0.000
	Marayoor Sharkara	Kaipad Rice	-1.702*	0.096	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

Pairwise comparisons results revealed that in the case of ‘GI ensures stable relationship with the market intermediaries’ statistically significant differences exist between the producers of Chengalikodan Nendran and all other GIs namely Tirur Vettila, Marayoor Sharkara and Kaipad Rice, between Tirur Vettila and Marayoor Sharkara as well as between Marayoor Sharkara and Kaipad Rice. In the case of ‘GI aids in improved relation with market intermediaries which increased stability of business’ statistically significant differences exist between the producers of Chengalikodan Nendran and all other GIs namely Tirur Vettila, Marayoor Sharkara and Kaipad Rice, between Tirur Vettila and Marayoor Sharkara as well as between Marayoor Sharkara and Kaipad Rice.

The pairwise comparison of the statement ‘the GI registration has helped to ensure a stable relationship between the producers and market intermediaries’ and ‘the stability of business has increased due to improved relations with market intermediaries’ shows maximum variance between Tirur Vettila and Marayoor Sharkara with a mean difference of 1.180 and 1.207 respectively. The results shows that the producers of Tirur Vettila are getting more benefit out of GI tag towards ensuring stable relationship with the market intermediaries. The stable relationship with the market intermediaries has increased the stability of the business in the case of Tirur Vettila.

In the case of ‘GI increases the bargaining power of the producers over the market intermediaries’ differences could be traced between the producers of Tirur

Vettila and all other GIs namely Chengalikodan Nendran, Marayoor Sharkara and Kaipad Rice, between Chengalikodan Nendran and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice. 'GI registration has helped in enabling greater bargaining power over intermediaries (bilateral negotiation)' when subject to pairwise comparison revealed maximum variance between Kaipad Rice and Tirur Vettila with a mean difference of 2.105.

Similarly, in the case of the statement 'GI helps to obtain long term contracts with the market intermediaries' significant differences exist between the producers of Marayoor Sharkara and all other GIs namely Chengalikodan Nendran, Tirur Vettila and Kaipad Rice, between Chengalikodan Nendran and Kaipad Rice as well as between Tirur Vettila and Kaipad Rice

The post hoc test results of the statement 'GI registration has helped in obtaining single long-term contracts with intermediaries' showed maximum variance between Marayoor Sharkara and Kaipad Rice with a mean difference of 0.962.

However, in the case of 'benefits of GI registration are enjoyed by the traders and producers alike', differences could be traced between the producers of all types of GIs.

The post hoc results of the statement 'the benefit of GI registration is enjoyed by traders and producers alike' showed maximum variance between Tirur Vettila and Marayoor Sharkara with mean difference of 2.134. The producers of Marayoor Sharkara are of the opinion that the market intermediaries are benefitting more from the GI tag.

6.5.2 Domicile wise Analysis on the Marketing Benefits of GI

The six measures of product differentiation benefits of GI and five measures of supply chain and value benefits of GI were subject to domicile-wise analysis to understand whether there is any difference in the opinion among the producers belonging to different domiciles regarding the marketing benefits of GI.

6.5.2.1 Domicile wise analysis of Product Differentiation Benefits of Geographical Indications

The six measures of ‘product differentiation benefits of GI’ were subjected to domicile wise analysis in order to understand the difference in the opinion of GI producers of different domiciles.

a. Descriptive Statistics - Domicile wise analysis on the Product Differentiation Benefits of GI

Table 6.67 revealed that the most prominent measure product differentiation benefits of GI were found to be ‘GI helps in ensuring the originality of product’ ($\bar{X}=4.667 \pm 0.511$) in the case of urban area, whereas the least prominent one was ‘entry of counterfeit products into the market has reduced’ ($\bar{X}=1.333 \pm 0.577$) that too in the case of urban area.

Except in the cases of entry of counterfeit products into the market and reduced unauthorised external intrusion to the area all other ‘product differentiation’ indicators have high effect of GI in the case of urban domicile. This can be due to the nature of the market in the urban domicile, which give importance to product uniqueness and quality.

Table 6.67

Descriptive Statistics – Domicile wise Analysis on the Product Differentiation Benefits of GI between different Domiciles

Variables	Domicile	Mean	SD	MPS
GI differentiates the products from that of competitors	Urban	4.563	0.577	91.26
	Rural	2.372	1.294	47.44
	Semi-Urban	3.226	0.990	64.52
	Total	3.387	1.303	67.74
GI helps in ensuring the originality of product	Urban	4.667	0.511	93.34
	Rural	3.964	0.974	79.28
	Semi-Urban	3.155	0.990	63.11
	Total	3.913	0.994	78.26
GI helps in communicating the quality of the produce	Urban	4.667	0.415	93.34
	Rural	3.973	0.987	79.46
	Semi-Urban	3.258	0.965	65.16
	Total	3.923	1.002	78.46

Variables	Domicile	Mean	SD	MPS
GI reduces the information search cost of the customers	Urban	4.62	0.524	92.4
	Rural	4.055	1.003	81.1
	Semi-Urban	3.314	1.087	66.3
	Total	3.967	1.032	79.34
GI registration has reduced the unauthorised external intrusions to the area	Urban	2.128	0.325	42.56
	Rural	1.650	0.516	33.0
	Semi-Urban	1.742	0.445	34.84
	Total	1.84	0.510	36.8
Entry of counterfeit products into the market has reduced	Urban	1.333	0.577	26.66
	Rural	1.792	0.480	35.84
	Semi-Urban	1.645	0.486	32.9
	Total	1.778	0.483	35.56

Source: Primary Data

b. Multivariate Analysis of Variance - Domicile wise Analysis on Producers' Perception of the Product Differentiation Benefits of GI

Table 6.68 depicts the combined multivariate effect of all the variables identifying the construct of product differentiation benefits of GI.

$H_{6.31}$: *There is significant difference in the producers' perception on the combined effect of multiple dependent variables measuring the product differentiation benefits of geographical indications between different domiciles.*

Table 6.68

Multivariate (MANOVA) Test Results - Difference in Producers' Perception on Product Differentiation Effect of GI between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	.458	5.199	12.000	784.000	0.000

F tests the multivariate effect of domicile

Figure in bold indicates significant at 5% level

Source: Primary Data

The differences in the producers' opinion of different domiciles on the combined dependent variables of product differentiation benefits were statistically significant with p value of F statistic lower than 0.05, $F [12, 784] = 5.199, p < 0.05$; Wilks' $\Lambda = .458$ as shown in Table 6.68. This means that the producers of different domiciles

were having different opinions relating to the multiple variables measuring the product differentiation benefits of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 6.69.

c. Univariate Analysis of Variance and Pair wise Comparison - Domicile wise Analysis on Producers' Perception of the Product Differentiation Benefits of GI

Univariate ANOVA was conducted for each of the six dependent variables to identify whether statistically significant differences exist between the various producers of different domiciles.

H_{6,32}: There is significant difference in the producers' perception on the individual measures of the product differentiation benefits of geographical indications between different domiciles.

The univariate ANOVA test results shown in Table 6.69 indicate that statistically significant difference exists in the opinion of the producers of different domiciles, in all the individual cases of variables measuring the product differentiation benefits of GI except in the case of 'GI registration has reduced the unauthorised external intrusions to the area' and 'entry of counterfeit products into the market has reduced'.

Table 6.69

Estimated Margin of Means, SE, and ANOVA Results - Difference in Producers' Perception on Product Differentiation Effect of GI between different Domiciles

Variables	Domicile	Mean	SE	F	Sig.
GI differentiates the products from that of competitors	Urban	4.563	0.734	11.027	0.000
	Rural	2.372	0.066		
	Semi-Urban	3.226	0.228		
GI helps in ensuring the originality of product	Urban	4.667	0.562	9.125	0.000
	Rural	3.964	0.051		
	Semi-Urban	3.155	0.175		
GI helps in communicating the quality of the produce	Urban	4.667	0.568	8.402	0.000
	Rural	3.973	0.051		
	Semi-Urban	3.258	0.177		
GI reduces the information search cost of the customers	Urban	4.620	0.581	11.185	0.000
	Rural	4.055	0.053		
	Semi-Urban	3.314	0.181		

Variables	Domicile	Mean	SE	F	Sig.
GI registration has reduced the unauthorised external intrusions to the area	Urban	2.128	0.294	1.134	0.323
	Rural	1.651	0.027		
	Semi-Urban	1.742	0.092		
Entry of counterfeit products into the market has reduced	Urban	1.333	0.278	2.623	0.074
	Rural	1.792	0.025		
	Semi-Urban	1.645	0.086		

Figures in bold indicate significant at 5% level

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.70.

Table 6.70

Bonferroni Pairwise Comparison - Difference in Producers' Perception on Product Differentiation Effect of GI between different Domiciles

Variables	(I) Domicile	(J) Domicile	Mean Difference (I-J)	Std. Error	Sig.#
GI differentiates the products from that of competitors	Urban	Rural	2.295*	0.737	0.006
		Semi-Urban	1.441	0.769	0.185
	Rural	Urban	-2.295*	0.737	0.006
		Semi-Urban	-0.854*	0.238	0.001
GI helps in ensuring the originality of product	Urban	Rural	0.702	0.565	0.643
		Semi-Urban	1.441*	0.589	0.045
	Rural	Urban	-0.702	0.565	0.643
		Semi-Urban	0.739*	0.182	0.000
GI helps in communicating the quality of the produce	Urban	Rural	0.694	0.570	0.673
		Semi-Urban	1.409	0.595	0.055
	Rural	Urban	-0.694	0.570	0.673
		Semi-Urban	0.715*	0.184	0.000
GI reduces the information search cost of the customers	Urban	Rural	0.945	0.584	0.318
		Semi-Urban	1.774*	0.609	0.011
	Rural	Urban	-0.945	0.584	0.318
		Semi-Urban	0.829*	0.188	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

In the case of statement 'GI differentiates the products from that of the competitors' statistically significant differences exist between the producers of urban

and rural areas as well as between semi-urban and rural areas. The pairwise comparison of the statement ‘the GI tag has helped in differentiating the product from that of the competitors’ showed maximum variance between urban and rural domiciles with mean difference of 2.295.

In the case of ‘GI helps in ensuring the originality of product’ statistically significant differences were found to exist between the producers of urban and semi-urban areas as well as between semi-urban and rural areas.

When it comes to the case of ‘GI helps in communicating the quality of the produce’ statistically significant differences were traced only between the producers of rural and semi-urban area with mean difference of 0.715.

Finally, in the case of ‘GI reduces the information search cost of the customers’ statistically significant differences exist between the producers of urban and semi-urban areas as well as between semi-urban and rural areas.

To the statements ‘the GI tag has helped to ensure the genuineness of the product (original product)’, and ‘the GI tag has reduced the information search cost for customers’ pairwise comparison showed maximum variance between urban and semi-urban with a mean difference of 1.441 and 1.774 respectively. The results of pairwise comparison reveals that it is the urban domicile that benefited the most from product differentiation benefits of GI tag. This can be due the nature of the market and customers of the urban domicile who give more importance to the uniqueness and quality of the product, more over the urban market is more brand cognizant than other domiciles.

6.5.2.2 Domicile wise analysis on Supply Chain and Value Benefits of Geographical Indications

The five measures of ‘supply chain and value benefits of GI’ were subjected to domicile wise analysis to analyse the difference in opinion among the GI producers belonging to different domicile.

a. Descriptive Statistics - Domicile wise Analysis on the Supply Chain and Value Benefits of GI

Table 6.71 revealed that the most prominent measure of supply chain and value benefits of GI was found to be ‘benefits of GI registration are enjoyed by the traders and producers alike’ ($\bar{X}$ = 4.333 $\pm$ 0.577) in the case of urban producers, whereas the least prominent one was ‘GI helps in obtain long term contracts with the market intermediaries’ ($\bar{X}$ = 1.612 $\pm$ 0.630) in the case of rural producers.

Table 6.71

Descriptive Statistics – Domicile wise Analysis on the Supply Chain and Value Benefits of GI

Variables	Domicile	Mean	SD	MPS
GI ensures stable relationship with the market intermediaries	Urban	4.121	0.112	82.42
	Rural	3.751	0.851	75.02
	Semi-Urban	3.194	0.980	63.88
	Total	3.71	0.871	74.2
GI increases the bargaining power of the producers over the market intermediaries	Urban	2.247	0.423	44.94
	Rural	3.224	1.092	64.48
	Semi-Urban	2.903	0.978	58.06
	Total	3.19	1.087	63.8
GI helps in obtain long term contracts with the market intermediaries	Urban	2.145	0.124	42.9
	Rural	1.612	0.630	32.24
	Semi-Urban	1.71	0.588	34.2
	Total	1.623	0.625	32.46
GI aids in improved relation with market intermediaries which increased stability of business	Urban	3.956	0.317	79.12
	Rural	3.768	0.875	75.36
	Semi-Urban	3.226	0.956	64.52
	Total	3.728	0.889	74.56
Benefits of GI registration are enjoyed by the traders and producers alike	Urban	4.333	0.577	86.66
	Rural	3.686	1.011	73.72
	Semi-Urban	3.355	0.915	67.1
	Total	3.665	1.005	73.3

Source: Primary Data

In the case of the statement ‘GI registration has helped in gaining greater bargaining power over market intermediaries (bilateral negotiation)’ the maximum MPS is found in the case of rural domicile at 64.48 %. The GI tag as a collective IPR would have instilled a sense of synergy among the producers of rural domicile which

would have in turn increased their bargaining power, more over the interaction with fellow producers would have given them better information about the market movements.

The statement ‘GI registration has helped in obtaining single long-term contracts with intermediaries’ and ‘the benefit of GI registration is enjoyed by traders and producers alike’ has the highest MPS is seen in the case of urban domicile with MPS 42.9 % and 86.66 % respectively.

b. Multivariate Analysis of Variance - Domicile wise Analysis on Producers’ Perception of the Supply Chain and Value Benefits of GI

Table 6.72 depicts the combined multivariate effect of all the variables identifying the construct of supply chain and value benefits of GI.

H_{6.33}: There is significant difference in producers’ perception on the combined effect of multiple dependent variables measuring the supply chain and value benefits of geographical indications between different domiciles.

Table 6.72

Multivariate (MANOVA) Test Results - Difference in Producers’ Perception on Supply Chain and Value Benefits of GI between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	.643	2.342	10.000	786.000	0.010

F tests the multivariate effect of domicile

Figure in bold indicates significant at 5% level

Source: Primary Data

The differences in the producers’ opinion of different domiciles on the combined dependent variables measuring supply chain and value benefits of GI were statistically significant with p value of F statistic lower than 0.05, $F [10, 786] = 2.342, p < 0.05$; Wilks' $\Lambda = .643$ as shown in Table 6.72. This means that the producers of different domiciles were having different opinion relating to the multiple variables measuring the supply chain and value benefits of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 6.73.

c. Univariate Analysis of Variance - Domicile wise Analysis on Producers' Perception of the Supply Chain and Value Benefits of GI

Univariate ANOVA was conducted for each of the five dependent variables to identify whether statistically significant differences exist between the various producers of different domiciles.

H_{6.34}: There is significant difference in the producers' perception on the individual measures of supply chain and value benefits of geographical indications between different domiciles.

The univariate ANOVA test result indicate that statistically significant difference exists in the opinion of the producers of different domiciles, in all the individual cases of variables measuring the supply chain and value benefits of GI except, 'GI helps in obtain long term contracts with the market intermediaries' and 'benefits of GI registration are enjoyed by the traders and producers alike', indicating that statistically significant difference exists across categories of domicile in all the other cases of supply chain and value benefits.

Table 6.73

Estimated Margin of Means, SE, and ANOVA Results - Difference in Producers' Perception on Supply Chain Effect of GI between different Domiciles

Variables	Domicile	Mean	SE	F	Sig.
GI ensures stable relationship with the market intermediaries	Urban	4.121	0.496	6.1923	0.002
	Rural	3.751	0.045		
	Semi-Urban	3.194	0.154		
GI increases the bargaining power of the producers over the market intermediaries	Urban	2.247	0.624	3.0873	0.047
	Rural	3.224	0.057		
	Semi-Urban	2.903	0.194		
GI helps in obtain long term contracts with the market intermediaries	Urban	2.145	0.361	0.899	0.408
	Rural	1.612	0.033		
	Semi-Urban	1.711	0.112		

Variables	Domicile	Mean	SE	F	Sig.
GI aids in improved relation with market intermediaries which increased stability of business	Urban	3.956	0.507	5.5784	0.004
	Rural	3.768	0.046		
	Semi-Urban	3.226	0.158		
Benefits of GI registration are enjoyed by the traders and producers alike	Urban	4.333	0.579	2.2311	0.109
	Rural	3.686	0.052		
	Semi-Urban	3.355	0.180		

Figures in bold indicate significant at 5% level

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 6.74.

Table 6.74

Bonferroni Pairwise Comparison - Difference in Producers' Perception on Supply Chain and Value Effect of GI between different Domiciles

Variables	(I) Domicile	(J) Domicile	Mean Difference (I-J)	Std. Error	Sig.#
GI ensures stable relationship with the market intermediaries	Urban	Rural	0.370	0.498	0.752
		Semi-Urban	0.806	0.520	0.364
	Rural	Urban	-0.370	0.498	0.912
		Semi-Urban	0.558*	0.161	0.002
GI increases the bargaining power of the producers over the market intermediaries	Urban	Rural	-1.224	0.627	0.155
		Semi-Urban	-0.903	0.654	0.504
	Rural	Urban	1.224	0.627	0.155
		Semi-Urban	0.321	0.202	0.341
GI aids in improved relation with market intermediaries which increased stability of business	Urban	Rural	0.232	0.510	0.124
		Semi-Urban	0.774	0.531	0.438
	Rural	Urban	-0.232	0.510	0.537
		Semi-Urban	0.542*	0.164	0.003

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

Pairwise comparisons revealed that in the case of 'GI ensures stable relationship with the market intermediaries' and 'GI aids in improved relation with market intermediaries which increased stability of business' statistically significant differences exist only between rural and semi-urban domiciles, with mean difference of 0.558 and 0.542 respectively, which shows that the GI tag was helpful in enhancing

the relationship between the producers and market intermediaries in the case of rural domicile.

6.6 CONCLUSION

The present chapter was set out to assess the socio-economic and marketing benefits of GI tag. The producers' perception of the economic and social variations that the GI have brought about was analysed, with economic effect assessment in both objective and subjective method. The analysis revealed high level of perceived impact of GI in the case of earning price premium and price stability. Even though the producers perceived that the GI has helped in increasing the reputation of the product and demand for the product, it was noted that the GI did not have much effect either on increasing the export or accessing new markets. The GI producers have seen an increase in Govt. schemes for their benefit, though easy access to credit has not been fulfilled. There was difference in the perception of GI producers with the Kaipad Rice producers perceiving higher price related benefits and the Marayoor Sharkara producers perceiving higher market value and finance related benefit. The producers of the Marayoor Sharkara perceived that GI tag for their product could bring positive complementary benefit to other products in the region which has increased the allied job opportunities in the region. There was unanimous agreement among the GI producers that the GI tag strengthened the social identity of the product, helped in protecting traditional knowledge and environment and enhancing the popularity of the region. The producers of Tirur Vettala perceived greater contribution of GI tag in bringing positive attitude towards farming among the youth and attracting more youth to adopt the agricultural profession. In the case of domicile wise analysis, the producers of semi-urban domiciles perceived higher socio-economic benefits from GI tag.

The GI tag is ultimately a marketing tools aimed at providing similar benefits like trademarks, The analysis of the marketing benefits revealed the product differentiation and supply chain benefits of GI as perceived by the GI producers. The findings high light that GI tag was helpful in ensuring the originality of the product and in communicating the quality of the product to customers. GI tag has also been instrumental in improving the relationship of the producers with the market intermediaries. The producers were able to gain better bargaining power over the

market intermediaries and ensure stable relationship with them. The GI producers also stated that the instances of unauthorised intrusion to the market and counterfeit products in the markets still exists especially in the case of Marayoor Sharkara. This shows that outsiders are trying to exploit the reputation of GI tag. The producers of Tirur Vettala perceived greater marketing benefits when compared to other GI producers in the study. The findings of the domicile wise analysis showed that the producers of the urban domicile perceived greater product differentiation benefits whereas producers of the rural domicile were able to gain better relationship with the market intermediary. The results of the analysis underscores that the GI tag did have marketing benefits, their full realisation can be achieved through coordinated effect among the GI producers.

Although GI tag has the potential to generate socio-economic and marketing benefits, their full potential can be realised only if the challenges associated with it is analysed. The following chapter examines the challenges faced by the producers in the effective utilisation of GI.

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Chapter 7
***Assessment of the Challenges in the
Successful Use of GI***

7.1 INTRODUCTION

India has to its credit GI registrations in diverse categories right from agricultural produce to handicrafts and from natural products to manufactured items. These GI registrations were initiated with an intention to reap the socio-economic and marketing benefits out of GI protection. Even though India has introduced the strongest form of sui-generis protection for its GI products, doubts remain as to whether the benefits of GI registration reach the actual producers (Das, 2010). The present section tries to examine the practical challenges confronted by the producers of GI products in a quest to gain the benefits of GI registration.

For the present study the challenges identified were grouped into three dimensions, which are challenges relating to the Registration and Govt. support, Organisational support and Procedural. The documentation challenges relating to GI registration includes, possibilities of exclusion of eligible producers and ambiguities in the geographical maps registered with the GI Registry. For getting GI registration the producers must interact with each other and come to consensus relating to matters of production process, geographical jurisdiction, quality standards etc. These discussions can result in conflict of interest among the producers, which in turn hinders the utilisation of GI tag.

Organisational and institutional support are very crucial in various stages of pre and post GI registrations. In the initial stages of GI registration support is indispensable for bringing the producers together and fulfilling the various documentation requirements for the registration, the post- GI registration support includes promotion assistance and legal support. The producers of GI products can find it challenging to execute these activities without institutional and organisational support.

The issues that prevent producers from taking legal action are lack of knowledge and the challenges associated with the processes for filing a legal complaint in the event of GI Act violations. Even the strongest law fails to deliver the intended results if the beneficiaries find it difficult to exercise the legal proceedings. GI, being a collective mark, needs collective initiative for its successful usage. The non-cooperation of the members of the producers' association can act as a barrier to the GI's success.

The data required for the measurement of practical challenges faced by the producers in the successful usage of the GI tag were collected from 400 producers of agricultural GIs in Kerala. These challenges are studied in terms of ‘registration and Govt. support challenges’ (seven measures), ‘organisational support challenges’ (seven measures) and ‘procedural challenges’ (six measures). These aspects of challenges in the successful usage of the GI tag were separately analysed in terms of GI and domicile.

7.2 GI WISE ANALYSIS ON PRODUCERS’ PERCEPTION OF CHALLENGES IN THE SUCCESSFUL USE OF GI

The differences in the opinion of producers belonging to various GIs regarding the challenges in the successful use of GI were examined in three dimensions namely, ‘registration and Govt. support’, ‘organisational support’ and ‘procedural’.

7.2.1 GI wise Analysis on the Registration and Govt. Support Challenges of Geographical Indications

The current section addresses the technical challenges faced by the producers during the registration of GI, as well as, the possible issues caused due to the lack of Governmental support. The seven measures of challenges related to ‘registration and Govt. support’ were subjected to GI wise analysis. The seven measures include technicalities in the registration process such as registering the accurate geographical map indicating the place of production, inclusion of all eligible producers, registering the traditional CoP, willingness of the producers to adopt the CoP and affordability of the registration. The section also analyses whether the producers are getting support from the Government in matters relating to GI promotion and management.

a. Descriptive Statistics – GI wise Analysis on Producers’ Perception of Registration and Govt. Support Challenges of GI

Table 7.1 showed that the highest combined mean score is for ‘registration and Govt. support challenges’ was found to be ‘cost of GI registration is affordable’ ($\bar{X}=4.507 \pm 0.501$) in the case of ‘Kaipad Rice’, whereas the least combined mean score was towards the statement ‘Government has taken initiatives to spread awareness about managing GI’ ($\bar{X}=1.561 \pm 0.502$) in the case of ‘Chengalikodan Nendran.’

Table 7.1*Descriptive Statistics - Registration and Govt. Support Challenges of GI*

Variables	Name of the GI	Mean	SD	MPS
GI registration was initiated by including all eligible producers	Chengalikodan Nendran	3.780	0.475	75.6
	Tirur Vettala	3.831	0.377	76.62
	Marayoor Sharkara	3.822	0.561	76.44
	Kaipad Rice	4.256	0.437	85.12
	Total	4.053	0.505	81.06
Specification of geographical map included eligible production area	Chengalikodan Nendran	3.829	0.381	76.58
	Tirur Vettala	3.831	0.377	76.62
	Marayoor Sharkara	3.808	0.593	76.16
	Kaipad Rice	4.340	0.475	86.8
	Total	4.100	0.539	82
Registration was done with production technique accepted by the producers	Chengalikodan Nendran	4.146	0.358	82.92
	Tirur Vettala	4.366	0.485	87.32
	Marayoor Sharkara	4.120	0.354	82.4
	Kaipad Rice	4.409	0.493	88.18
	Total	4.300	0.459	86
Cost of GI registration is affordable	Chengalikodan Nendran	3.634	0.733	72.68
	Tirur Vettala	4.445	0.485	88.9
	Marayoor Sharkara	3.973	0.234	79.46
	Kaipad Rice	4.507	0.501	90.14
	Total	4.295	0.573	85.9
Producers are willing to follow uniform CoP prescribed in registration process	Chengalikodan Nendran	4.220	0.419	84.4
	Tirur Vettala	3.901	0.565	78.02
	Marayoor Sharkara	4.117	0.457	82.34
	Kaipad Rice	4.288	0.454	85.76
	Total	4.160	0.458	83.2
Government has taken initiatives to spread awareness about managing GI	Chengalikodan Nendran	1.561	0.502	31.22
	Tirur Vettala	1.620	0.544	32.4
	Marayoor Sharkara	2.241	0.421	44.82
	Kaipad Rice	3.521	0.842	70.42
	Total	2.705	1.119	54.1
Government is taking initiative for promoting GI	Chengalikodan Nendran	3.463	0.809	69.26
	Tirur Vettala	2.789	1.027	55.78
	Marayoor Sharkara	2.258	0.334	45.16
	Kaipad Rice	3.544	0.824	70.88
	Total	3.120	0.986	62.4

Source: Primary Data

The factor 'GI registration was initiated by including all eligible producers' has an overall MPS of 81.06 %, this reveals high level of agreement to the statement and shows that all the eligible producers were included in the registration process.

The indicator 'specification of geographical map included eligible production area' has an overall MPS of 82 %. The result discloses that the producers of all GIs in the study have high level of agreement that the geographical map which was registered at the time of GI registration covers all eligible production area. This further ensure that the dispute over the geographical boundaries which can result in imperfect exclusion of eligible producers is not found in the present study.

The statement 'registration was done with production technique accepted by the producers' has an overall MPS of 86 %. The producers of all the GIs in the study have high level of agreement that the production technique recorded at the time of GI registration was the one accepted by them. This shows that the challenges mentioned by various studies regarding the non-acceptance of CoP among the producers which results in the exclusion of producers from the benefit of GI tag was not seen in the present study.

The indicator 'cost of GI registration is affordable' has an overall MPS of 85.9%. The results showed that the producers of all the GIs in the study highly agreed that the GI registration fees is affordable.

The variable 'producers are willing to follow uniform CoP prescribed in registration process' has an overall MPS of 83.2 % with all the GIs in the study having an MPS of above 75 %. This shows that the producers of all the GIs in the study have high level of agreement that the GI producers were willing to follow the CoP registered at the time of GI registration.

The statement 'Government has taken initiatives to spread awareness about managing GI' has medium level of an agreement among the producers with overall MPS of 54.1%, with Chengalikodan Nendran and Tirur Vettala having the least MPS of 31.22% and 32.4% respectively. The results shows that the producers of GI in the study are of the opinion that the Government is taking only moderate level of initiative for spreading awareness about managing GI. The producers of Chengalikodan Nendran and Tirur Vettala have very low level of agreement to the statement. The statement 'Government is taking initiative for promoting GI' has an overall MPS of

62.4% which shows that the producers of GIs under study have only medium level of agreement to the statement. Both the statements relating to the Government support towards the management and promotion of GI reveal that GI producers perceive only moderate level of support from the Government.

b. Multivariate Analysis of Variance - GI wise Analysis on Producers' Perception of Registration and Govt. Support Challenges of GI

Table 7.2 depicts the combined multivariate effect of all the variables identifying the construct of registration and Govt. support challenges of GI.

H_{7.1}: There is significant difference in the producers' perception on the combined effect of multiple dependent variables, measuring the registration and Govt. support challenges of geographical indications between different GIs.

Table 7.2

Multivariate (MANOVA) Test Results- Difference in Producers' Perception on Registration and Govt. Support Challenges of GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.140	52.335	21.000	1120.420	0.000

F tests the multivariate effect of type of GI

Figure in bold indicates significant at 5% level

Source: Primary Data

The differences in the producers' opinion, of different GIs, on the combined effect of dependent variables relating to 'registration and Govt. support challenges' were statistically significant with the p value of F statistic lower than 0.05, F [21, 1120.42] = 52.335, $p < 0.05$; Wilks' $\Lambda = .140$, as shown in Table 7.2. This means that the producers of different GIs were having different opinion relating to the multiple variables measuring the 'registration and Govt. support challenges' of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 7.3.

c. Univariate Analysis of Variance and Pair wise Comparison - GI wise Analysis on Producers' Perception of Registration and Govt. Support Challenges of GI

Univariate ANOVA was conducted for each of the seven dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{7.2}: There is significant difference in the producers' perception on the individual measures of registration and Govt. support challenges of geographical indications between different GIs.

The univariate ANOVA test result indicate that statistically significant difference exists in the opinion of the producers of different GIs, in all the individual cases of variables measuring the 'registration and Govt. support challenges' of GI.

Table 7.3

Estimated Margin of Means, SE, and ANOVA Results- Difference in Producers' Perception on Registration and Govt. Support Challenges of GI between different GIs

Variables	Name of the GI	Mean	SE	F	Sig.
GI registration was initiated by including all eligible producers	Chengalikodan Nendran	3.780	0.071	30.816	0.000
	Tirur Vettala	3.831	0.054		
	Marayoor Sharkara	3.822	0.053		
	Kaipad Rice	4.256	0.031		
Specification of geographical map included eligible production area	Chengalikodan Nendran	3.829	0.074	39.456	0.000
	Tirur Vettala	3.831	0.056		
	Marayoor Sharkara	3.808	0.056		
	Kaipad Rice	4.341	0.032		
Registration was done with production technique accepted by the producers	Chengalikodan Nendran	4.146	0.067	18.689	0.000
	Tirur Vettala	4.366	0.051		
	Marayoor Sharkara	4.12	0.050		
	Kaipad Rice	4.409	0.029		
Cost of GI registration is affordable	Chengalikodan Nendran	3.634	0.077	48.997	0.000
	Tirur Vettala	4.445	0.058		
	Marayoor Sharkara	3.973	0.058		
	Kaipad Rice	4.507	0.034		
Producers are willing to follow uniform CoP prescribed in registration process	Chengalikodan Nendran	4.22	0.067	18.518	0.000
	Tirur Vettala	3.901	0.051		
	Marayoor Sharkara	4.117	0.050		
	Kaipad Rice	4.288	0.029		

Variables	Name of the GI	Mean	SE	F	Sig.
Government has taken initiatives to spread awareness about managing GI	Chengalikodan Nendran	1.561	0.106	22.086	0.000
	Tirur Vettala	1.62	0.081		
	Marayoor Sharkara	2.241	0.079		
	Kaipad Rice	3.521	0.046		
Government is taking initiative for promoting GI	Chengalikodan Nendran	3.463	0.123	76.870	0.000
	Tirur Vettala	2.789	0.093		
	Marayoor Sharkara	2.258	0.092		
	Kaipad Rice	3.544	0.054		

Figures in bold indicate significant at 5% level

Source: Primary Data

Pairwise comparison employing Bonferroni multiple adjustments were conducted in all instances where ANOVA test results indicated statistically significant difference among the producers of different GIs. Table 7.4 displays that outcome of the pairwise comparison.

Table 7.4

Bonferroni Pairwise Comparison- Difference in Producers' Perception on Registration and Govt. Support Challenges of GI between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
GI registration was initiated by including all eligible producers	Chengalikodan Nendran	Tirur Vettala	-0.050	0.090	0.852
		Marayoor Sharkara	-0.041	0.089	0.566
		Kaipad Rice	-0.475*	0.078	0.000
	Tirur Vettala	Marayoor Sharkara	0.009	0.076	0.525
		Kaipad Rice	-0.425*	0.063	0.000
		Marayoor Sharkara	-0.434*	0.062	0.000
Specification of geographical map included eligible production area	Chengalikodan Nendran	Tirur Vettala	-0.002	0.093	0.124
		Marayoor Sharkara	0.021	0.093	0.471
		Kaipad Rice	-0.510*	0.081	0.000
	Tirur Vettala	Marayoor Sharkara	0.023	0.079	0.956
		Kaipad Rice	-0.509*	0.065	0.000
		Marayoor Sharkara	-0.531*	0.064	0.000
Registration was done with production technique accepted by the producers	Chengalikodan Nendran	Tirur Vettala	-0.220	0.085	0.058
		Marayoor Sharkara	0.146	0.084	0.496
		Kaipad Rice	-0.263*	0.073	0.002
	Tirur Vettala	Marayoor Sharkara	0.366*	0.072	0.000
		Kaipad Rice	-0.043	0.059	0.745
		Marayoor Sharkara	-0.409*	0.058	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Cost of GI registration is affordable	Chengalikodan Nendran	Tirur Vettala	-0.732*	0.096	0.000
		Marayoor Sharkara	-0.338*	0.096	0.003
		Kaipad Rice	-0.873*	0.084	0.000
	Tirur Vettala	Marayoor Sharkara	0.394*	0.082	0.000
		Kaipad Rice	-0.140	0.067	0.222
	Marayoor Sharkara	Kaipad Rice	-0.534*	0.067	0.000
Producers are willing to follow uniform CoP prescribed in registration process	Chengalikodan Nendran	Tirur Vettala	0.318*	0.084	0.001
		Marayoor Sharkara	0.220	0.084	0.056
		Kaipad Rice	-0.068	0.073	1.000
	Tirur Vettala	Marayoor Sharkara	-0.099	0.072	0.854
		Kaipad Rice	-0.387*	0.059	0.000
	Marayoor Sharkara	Kaipad Rice	-0.288*	0.058	0.000
Government has taken initiatives to spread awareness about managing GI	Chengalikodan Nendran	Tirur Vettala	-0.059	0.133	0.625
		Marayoor Sharkara	-0.439*	0.132	0.006
		Kaipad Rice	-1.960*	0.116	0.000
	Tirur Vettala	Marayoor Sharkara	-0.380*	0.113	0.005
		Kaipad Rice	-1.901*	0.093	0.000
	Marayoor Sharkara	Kaipad Rice	-1.521*	0.092	0.000
Government is taking initiative for promoting GI	Chengalikodan Nendran	Tirur Vettala	0.675*	0.154	0.000
		Marayoor Sharkara	1.463*	0.154	0.000
		Kaipad Rice	-0.080	0.134	0.255
	Tirur Vettala	Marayoor Sharkara	0.789*	0.131	0.000
		Kaipad Rice	-0.755*	0.108	0.000
	Marayoor Sharkara	Kaipad Rice	-1.544*	0.107	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

In the cases of ‘GI registration was initiated by including all eligible producers’ and ‘specification of geographical map included eligible production area’ statistically significant differences exist between the producers of Kaipad Rice and all other GIs namely Chengalikodan Nendran, Tirur Vettala and Marayoor Sharkara.

The pairwise comparison to the statement ‘the GI registration was initiated by including all the genuinely eligible producers’ showed highest variance between the producers of Kaipad Rice and Chengalikodan Nendran with a mean difference of 0.475. To the statement ‘the geographical map registered includes all the areas where the production takes place’ maximum variance is revealed between producers of Kaipad Rice and Marayoor Sharkara with a mean difference of 0.531. This shows that

the geographical markings and inclusion of eligible producers belonging to the geographical area was more inclusive in the case of Kaipad Rice.

The pairwise comparison of the statement ‘registration was done with production technique accepted by the producers’ showed that statistically significant differences exist between the producers of Chengalikodan Nendran and Kaipad Rice, between Tirur Vettala and Marayoor Sharkara as well as between Marayoor Sharkara and Kaipad Rice. The pairwise comparison showed maximum significant difference between producers of Kaipad Rice and Marayoor Sharkara with mean difference of 0.409. The active involvement of the Kaipad Rice Producers’ Association during the GI registration process and ensuring the practise of CoP by their producers are acknowledged in the results presented in Table 4.17. These instances signify that the producers’ association of Kaipad Rice has ensured that the GI registration was initiated with the CoP accepted by the member producers.

When it comes to the statement ‘cost of GI registration is affordable’ statistically significant differences were traced between the producers of Chengalikodan Nendran and all other GIs, between Tirur Vettala and Marayoor Sharkara as well as between Marayoor Sharkara and Kaipad Rice. The pairwise comparison result revealed maximum statistical variance between the producers of Kaipad Rice and Chengalikodan Nendran with a mean difference of 0.873.

In the case of the statement ‘producers are willing to follow uniform CoP prescribed in registration process’ significant differences exist between the producers of Chengalikodan Nendran and Tirur Vettala, between Tirur Vettala and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice. The statement showed highest significant variance between the producers of Kaipad Rice and Tirur Vettala with mean difference of 0.387. The higher level of willingness on the part of producers of Kaipad Rice to follow CoP can be because they have higher level of acceptance towards the registered CoP as already presented. The lower level of agreement among the producers of Tirur Vettala to follow CoP can be due to their difficulty in practising strict organic farming.

In the case of ‘Government has taken initiatives to spread awareness about managing GI’ statistically significant differences were traced between the producers of Chengalikodan Nendran and Marayoor Sharkara, between Chengalikodan Nendran

and Kaipad Rice, between Tirur Vettala and Marayoor Sharkara, between Tirur Vettala and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice.

Finally, the post hoc test results of the statement ‘Government is taking initiative for promoting GI’ showed significant differences between the producers of Chengalikodan Nendran and Marayoor Sharkara, as well as between Tirur Vettala and all other types of GIs. The pairwise comparison results of the statement ‘the government is taking the initiative to promote GI’ revealed maximum variance between the producers of Kaipad Rice and Marayoor Sharkara with a mean difference of 1.544 and the statement ‘Government has taken the initiative to provide an awareness programme relating to managing GI rights’ showed maximum variance between the producers of Kaipad Rice and Chengalikodan Nendran with a mean difference of 1.960. This shows that the producers of Kaipad Rice were having higher level of agreement regarding the Government support towards managing and promoting GI.

7.2.2 GI wise Analysis on the Organisational Support Challenges of Geographical Indications

The seven measures of ‘organisational support challenges’ were subjected to GI wise analysis. The initiatives of the inspection bodies in ensuring the quality of the GI produce are measured using the variables, inspection body ensures the practise of CoP by the producers, inspection body is consistent with the quality assurance check, inspection body takes corrective steps and presence of inspection body guarantees the genuineness of the product. The cooperation of the producers in the association, which is vital for a successful GI, are measured using the statements, the is cooperation among the producers helps in reaping the benefits of GI, all producers are working equally in protecting GI tag and that the GI tag has helped reduce insider competition between the producers.

a. Descriptive Statistics – GI- wise Analysis on Producers’ Perception on Organisational Support Challenges of GI

The most prominent measure of organisational support challenges was found to be ‘inspection body do take corrective action when non-compliance of CoP is found’ ($\bar{X}$ = 2.442 ± 0.198) in the case of Marayoor Sharkara, whereas the least prominent one

was ‘presence of inspection body is guaranteeing the genuineness of the product’ ($\bar{X}=1.391 \pm 0.506$) in the case of Chengalikodan Nendran as shown in Table 7.5.

Table 7.5

Descriptive Statistics - Organisational Support Challenges of GI

Variables	Name of the GI	Mean	SD	MPS
Inspection body ensure that the producers follow uniform CoP	Chengalikodan Nendran	1.488	0.506	29.76
	Tirur Vettala	1.479	0.503	29.58
	Marayoor Sharkara	2.012	0.124	40.24
	Kaipad Rice	1.609	0.489	32.18
	Total	1.645	0.479	32.9
Inspection body is consistent with quality assurance checks	Chengalikodan Nendran	1.439	0.502	28.78
	Tirur Vettala	1.606	0.492	32.12
	Marayoor Sharkara	2.332	0.147	46.64
	Kaipad Rice	1.549	0.499	30.98
	Total	1.63	0.483	32.6
Inspection body does take corrective action when non-compliance of CoP is found	Chengalikodan Nendran	1.394	0.494	27.8
	Tirur Vettala	1.624	0.489	32.4
	Marayoor Sharkara	2.442	0.198	48.24
	Kaipad Rice	1.623	0.486	32.46
	Total	1.668	0.472	33.36
Presence of inspection body is guaranteeing the genuineness of the product	Chengalikodan Nendran	1.391	0.506	27.88
	Tirur Vettala	1.507	0.504	30.14
	Marayoor Sharkara	2.154	0.168	43.08
	Kaipad Rice	1.633	0.483	32.66
	Total	1.663	0.473	33.26
Cooperation among producers aids the reaping of GI benefits	Chengalikodan Nendran	1.537	0.505	30.74
	Tirur Vettala	1.676	0.580	33.52
	Marayoor Sharkara	2.412	0.113	48.24
	Kaipad Rice	1.642	0.481	32.84
	Total	1.703	0.479	34.06
All producers are equally working towards the protection of GI tag	Chengalikodan Nendran	1.61	0.494	32.2
	Tirur Vettala	1.606	0.520	32.12
	Marayoor Sharkara	2.125	0.173	42.5
	Kaipad Rice	1.66	0.475	33.2
	Total	1.708	0.461	34.16
Competition among the producers reduced after receiving the GI tag	Chengalikodan Nendran	1.512	0.506	30.24
	Tirur Vettala	1.408	0.495	28.16
	Marayoor Sharkara	2.221	0.129	44.42
	Kaipad Rice	1.851	0.357	37.02
	Total	1.765	0.425	35.3

Source: Primary Data

The statements ‘inspection body was consistent with quality assurance checks’, ‘inspection body do take corrective action when non-compliance of CoP is found’ and ‘presence of inspection body is guaranteeing the genuineness of the product’ have an overall MPS of 32.6 %, 33.36 % and 33.23 % respectively, which shows that the producers of the GIs in the study has very low level of agreement to these statements. This reveal that the inspection body formed at the time of the GI registration is not providing enough support to the producers for the management of GI. The reason for the inactiveness of the inspection bodies can be due to the lack of specific guidelines as to their functioning.

The statements ‘cooperation among producers aids the reaping of GI benefits’, ‘all producers are equally working towards the protection of GI tag’ and ‘competition among the producers reduced after receiving the GI tag’ has an overall MPS of 34.06 %, 34.16 % and 35.3 % respectively, which shows that the producers are taking very low initiative for managing the GI received.

b. Multivariate Analysis of Variance - GI- wise Analysis on Producers’ Perception on Organisational Support Challenges of GI

Table 7.6 depicts the combined multivariate effect of all the variables identifying the construct of organisational support challenges of GI.

H_{7.3}: There is significant difference in the producers’ perception on the combined effect of multiple dependent variables measuring the organisational support challenges of geographical indications between different GIs.

Table 7.6

Multivariate (MANOVA) Test Results- Difference in Producers’ Perception on Organisational Support Challenges of GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.454	16.910	21.000	1120.420	0.000

F tests the multivariate effect of type of GI

Figure in bold indicates significant at 5% level

Source: Primary Data

The differences in the producers’ opinion of different GIs on the combined dependent variables relating to ‘organisational support challenges’ of GI were

statistically significant with p value of F statistic lower than 0.05, $F [21, 1120.42] = 16.910$, $p < 0.05$; Wilks' $\Lambda = 0.454$ as depicted in Table 7.6. This means that the producers of different GIs were having different opinion relating to the multiple variables measuring the 'organisational support challenges' of GIs.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 7.7.

c. Univariate Analysis of Variance and Pair wise Comparison - GI- wise Analysis on Producers' Perception on Organisational Support Challenges of GI

Univariate ANOVA was conducted for each of the seven dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{7.4}: There is significant difference in the producers' perception on the individual measures of organisational support challenges of geographical indications between different GIs.

The univariate ANOVA test result indicate that statistically significant difference exists in the opinion of the producers of different GIs, in all the individual cases of variables measuring the 'organisational support challenges' of GIs as shown in Table 7.7.

Table 7.7

Estimated Margin of Means, SE, and ANOVA Results - Difference in Producers' Perception on Organisational Support Challenges of GI between different GIs

Variables	Name of the GI	Mean	SE	F	Sig.
Inspection body ensure that the producers follow uniform CoP	Chengalikodan Nendran	1.488	0.070	20.759	0.000
	Tirur Vettala	1.479	0.053		
	Marayoor Sharkara	2.012	0.052		
	Kaipad Rice	1.609	0.030		
Inspection body is consistent with quality assurance checks	Chengalikodan Nendran	1.439	0.070	21.286	0.000
	Tirur Vettala	1.606	0.053		
	Marayoor Sharkara	2.332	0.053		
	Kaipad Rice	1.549	0.031		
Inspection body does take corrective action when non-compliance of CoP is found	Chengalikodan Nendran	1.39	0.069	20.245	0.000
	Tirur Vettala	1.62	0.052		
	Marayoor Sharkara	2.412	0.052		
	Kaipad Rice	1.623	0.030		

Variables	Name of the GI	Mean	SE	F	Sig.
Presence of inspection body is guaranteeing the genuineness of the product	Chengalikodan Nendran	1.394	0.069	19.429	0.000
	Tirur Vettla	1.507	0.053		
	Marayoor Sharkara	2.154	0.052		
	Kaipad Rice	1.633	0.030		
Cooperation among producers aids the reaping of GI benefits	Chengalikodan Nendran	1.537	0.072	13.379	0.000
	Tirur Vettla	1.676	0.054		
	Marayoor Sharkara	2.412	0.054		
	Kaipad Rice	1.642	0.031		
All producers are equally working towards the protection of GI tag	Chengalikodan Nendran	1.61	0.069	13.469	0.000
	Tirur Vettla	1.606	0.052		
	Marayoor Sharkara	2.125	0.052		
	Kaipad Rice	1.66	0.030		
Competition among the producers reduced after receiving the GI tag	Chengalikodan Nendran	1.512	0.058	41.734	0.000
	Tirur Vettla	1.408	0.044		
	Marayoor Sharkara	2.221	0.043		
	Kaipad Rice	1.851	0.025		

Figures in bold indicate significant at 5% level

Source: Primary Data

Pairwise comparison employing Bonferroni multiple adjustments were conducted in all the instances where ANOVA test results indicated statistically significant difference among the producers of different GIs. Table 7.8 displays that outcome of the pairwise comparison.

Table 7.8

Bonferroni Pairwise Comparison- Difference in Producers' Perception on Organisational Support Challenges of GI between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Inspection body ensure that the producers follow uniform CoP	Chengalikodan Nendran	Tirur Vettla	0.009	0.088	0.525
		Marayoor Sharkara	-0.512*	0.087	0.000
		Kaipad Rice	-0.121	0.076	0.669
	Tirur Vettla	Marayoor Sharkara	-0.521*	0.075	0.000
		Kaipad Rice	-0.130	0.061	0.202
	Marayoor Sharkara	Kaipad Rice	0.391*	0.061	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Inspection body is consistent with quality assurance checks	Chengalikodan Nendran	Tirur Vettala	-0.167	0.088	0.360
		Marayoor Sharkara	-0.561*	0.088	0.000
		Kaipad Rice	-0.110	0.077	0.919
	Tirur Vettala	Marayoor Sharkara	-0.394*	0.075	0.000
		Kaipad Rice	0.057	0.062	0.362
	Marayoor Sharkara	Kaipad Rice	0.451*	0.061	0.000
Inspection body does take corrective action when non-compliance of CoP is found	Chengalikodan Nendran	Tirur Vettala	-0.229*	0.086	0.050
		Marayoor Sharkara	-0.610*	0.086	0.000
		Kaipad Rice	-0.233*	0.075	0.012
	Tirur Vettala	Marayoor Sharkara	-0.380*	0.073	0.000
		Kaipad Rice	-0.004	0.060	0.748
	Marayoor Sharkara	Kaipad Rice	0.377*	0.060	0.000
Presence of inspection body is guaranteeing the genuineness of the product	Chengalikodan Nendran	Tirur Vettala	-0.019	0.087	0.089
		Marayoor Sharkara	-0.512*	0.087	0.000
		Kaipad Rice	-0.145	0.076	0.338
	Tirur Vettala	Marayoor Sharkara	-0.493*	0.074	0.000
		Kaipad Rice	-0.126	0.061	0.236
	Marayoor Sharkara	Kaipad Rice	0.367*	0.060	0.000
Cooperation among producers aids the reaping of GI benefits	Chengalikodan Nendran	Tirur Vettala	-0.139	0.090	0.729
		Marayoor Sharkara	-0.463*	0.089	0.000
		Kaipad Rice	-0.105	0.078	0.229
	Tirur Vettala	Marayoor Sharkara	-0.324*	0.076	0.000
		Kaipad Rice	0.034	0.063	0.696
	Marayoor Sharkara	Kaipad Rice	0.358*	0.062	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
All producers are equally working towards the protection of GI tag	Chengalikodan Nendran	Tirur Vettala	0.004	0.086	0.855
		Marayoor Sharkara	-0.390*	0.086	0.000
		Kaipad Rice	-0.051	0.075	0.652
	Tirur Vettala	Marayoor Sharkara	-0.394*	0.073	0.000
		Kaipad Rice	-0.055	0.060	0.089
	Marayoor Sharkara	Kaipad Rice	0.340*	0.060	0.000
Competition among the producers reduced after receiving the GI tag	Chengalikodan Nendran	Tirur Vettala	0.104	0.073	0.932
		Marayoor Sharkara	-0.488*	0.072	0.000
		Kaipad Rice	-0.339*	0.063	0.000
	Tirur Vettala	Marayoor Sharkara	-0.592*	0.062	0.000
		Kaipad Rice	-0.443*	0.051	0.000
	Marayoor Sharkara	Kaipad Rice	0.149*	0.050	0.020

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

The pairwise comparisons revealed that in the cases of ‘inspection body ensure that the producers follow uniform CoP, ‘inspection body is consistent with quality assurance checks’, ‘presence of inspection body is guaranteeing the genuineness of the product’, ‘cooperation among producers aids in reaping of GI benefits’ and ‘all producers are equally working towards the protection of GI Tag’, statistically significant differences exist between the producers of Chengalikodan Nendran and Marayoor Sharkara, between Tirur Vettala and Marayoor Sharkara as well as between Marayoor Sharkara and Kaipad Rice.

In the case of ‘inspection body does take corrective action when non-compliance of CoP is found’ differences could be traced between the producers of Chengalikodan Nendran and all other GIs namely Tirur Vettala, Marayoor Sharkara and Kaipad Rice, between Tirur Vettala and Marayoor Sharkara as well as between Marayoor Sharkara and Kaipad Rice.

The post hoc test results of the statements ‘the inspection body ensures that the uniform CoP is followed by all the producers of the product’ revealed maximum significant variance between the producers of Marayoor Sharkara and Tirur Vettla with mean difference of 0.521.

The pairwise comparison results of the statements ‘the inspection body constituted at the time of GI registration is consistent with quality assurance checks’, ‘the inspection body do take corrective measures when non-compliance of CoP is found’ and ‘the presence of inspection body helps in guaranteeing the genuineness of the GI product’ showed maximum significant variance between the producers of Marayoor Sharkara and Chengalikodan Nendran with a mean difference of 0.561, 0.610 and 0.512 respectively. These results relating to the influence of inspection body in managing GI showed that the influence of inspection body was higher in the case of Marayoor Sharkara when compared to other GIs in the study.

Finally, in the case of ‘competition among the producers reduced after receiving the GI Tag’ statistically significant differences were traced between the producers of Chengalikodan Nendran and Marayoor Sharkara, between Chengalikodan Nendran and Kaipad Rice, between Tirur Vettla and Marayoor Sharkara, between Tirur Vettla and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice.

The results of post hoc test to the statements ‘the cooperation among the producers is making it easy to reap the benefit of the GI tag’ showed maximum significant difference between the producers of Marayoor Sharkara and Chengalikodan Nendran with mean difference of 0.463. The statements ‘all producers are equally working towards the protection of the GI tag’ has maximum significant difference between the producers of Marayoor Sharkara and Tirur Vettla with mean difference of 0.394 and ‘the GI registration has reduced the competition between the producers’ has maximum significant variance between the producers of Marayoor Sharkara and Tirur Vettla with a mean difference of 0.592. The pairwise comparison test results as to the influence of producers in managing GI shows higher effort from the part of the producers of Marayoor Sharkara when compared to other GIs in the study.

7.2.3 GI wise Analysis on the Procedural Challenges of Geographical Indications

The six measures of ‘procedural challenges’ were subjected to GI wise analysis. This section measures the variables relating to the ease of procedures involved in GI registrations and legal procedures involved during the violation of the GI Act.

a. Descriptive Statistics – GI wise Analysis on the Producers’ Perception on the Procedural Challenges of GI

The highest mean among ‘procedural challenges’ was found to be ‘State / institutional support makes it easier to protect GI rights’ ($\bar{X} = 2.214 \pm 0.229$) in the case of Marayoor Sharkara, whereas the least mean was ‘process of GI registration is easy’ ($\bar{X} = 1.195 \pm 0.397$) in the case of Kaipad Rice as shown in Table 7.9.

Table 7.9

Descriptive Statistics - Procedural Challenges of GI

Variables	Name of the GI	Mean	SD	MPS
Process of GI registration is easy	Chengalikodan Nendran	1.585	0.499	31.7
	Tirur Vettala	1.732	0.533	34.64
	Marayoor Sharkara	1.987	0.114	39.74
	Kaipad Rice	1.195	0.397	23.9
	Total	1.478	0.515	29.56
GI registration is possible without external support	Chengalikodan Nendran	1.463	0.505	29.26
	Tirur Vettala	1.366	0.485	27.32
	Marayoor Sharkara	2.142	0.147	42.84
	Kaipad Rice	1.237	0.426	24.74
	Total	1.423	0.495	28.46
Steps to ensure legal protection to GI is strong	Chengalikodan Nendran	1.537	0.505	30.74
	Tirur Vettala	1.338	0.476	26.76
	Marayoor Sharkara	1.956	0.079	39.12
	Kaipad Rice	1.558	0.498	31.16
	Total	1.598	0.491	31.96
Easy to file legal suite when there is a breach of GI rights	Chengalikodan Nendran	1.585	0.499	31.7
	Tirur Vettala	1.394	0.492	27.88
	Marayoor Sharkara	1.951	0.391	39.02
	Kaipad Rice	1.586	0.494	31.72
	Total	1.628	0.484	32.56
There is coordination among the producers when it comes to taking legal initiative	Chengalikodan Nendran	1.537	0.505	30.74
	Tirur Vettala	1.465	0.502	29.3
	Marayoor Sharkara	2.124	0.145	42.48
	Kaipad Rice	1.623	0.486	32.46
	Total	1.655	0.476	33.1

Variables	Name of the GI	Mean	SD	MPS
State / Institutional support makes it easier to protect GI rights	Chengalikodan Nendran	1.512	0.506	30.24
	Tirur Vettala	1.437	0.527	28.74
	Marayoor Sharkara	2.214	0.229	44.28
	Kaipad Rice	1.595	0.492	31.9
	Total	1.633	0.488	32.66

Source: Primary Data

The statement ‘process of GI registration is easy’ has an overall MPS of 29.56% which depicts very low level of agreement to this statement and the statement ‘GI registration is possible without external support’ has an overall MPS of 28.46 % which also shows a very low level of agreement to the statement among the producers. It can be inferred from the results of these statements that the producers of GI in the study were of the opinion that the process of GI registration is complicated and cannot be done without external support. The registration procedure involves a lot of work mostly involving consolidation of documents for proving the history and uniqueness of the product. There were also instances where they had to go to the GI Registry, Chennai for meeting the officials relating to GI registration. They were also of the opinion that the registration of GI could not have been possible without external support. In the case of GIs in the study the producers were supported by either Kerala Agricultural University or Krishi Bhavan during the registration process.

The indicators ‘steps to ensure legal protection to GI is strong’ and ‘it is easy to file legal suite when there is breach of GI rights’ has an overall MPS of 31.96% and 32.56 % respectively. Which shows, the producers are of the opinion that the GI tag as an IPR is not providing enough legal protection and that the procedures for seeking legal protection is complex. The complication in the filing of legal file suite in the event of GI violation would have prevented the producers from getting optimum protection from GI registration. Moreover, it is already revealed in Table 5.14 that the producers of GI were having very low level of awareness about the procedures of filing legal proceedings in the event of GI Act violation. This would have affected their opinion about the strength of GI Act. Previous researches also have stated that the procedural formalities in GI are complex and that the GI tag so received is not providing adequate legal protection.

The statement ‘there is coordination among the producers when it comes to taking legal initiative’ has an overall MPS of 33.1 % which shows very low level of

agreement among the producers to the statement. This lack of effort from the part of the producers to stand together to seek legal protection can be due to the complexity of the legal procedures and can be due to lack of real experience in receiving legal protection when there is a situation of breach of IPR.

The factor ‘State / institutional support makes it easier to protect GI rights’ has an overall MPS of 32.66 % which shows that the producers are not getting State or institutional support for protecting their rights relating to GI.

b. Multivariate Analysis of Variance - GI wise Analysis on the Producers’ Perception on the Procedural Challenges of GI

Table 7.10 depicts the combined multivariate effect of all the variables identifying the construct of procedural challenges of GI.

H_{7.5} : There is significant difference in producers’ perception on the combined effect of multiple dependent variables measuring the procedural challenges of geographical indications between different GIs.

Table 7.10

Multivariate (MANOVA) Test Results- Difference in Producers’ Perception on Procedural Challenges of GI between different GIs

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.380	25.036	18.000	1106.400	0.000

F tests the multivariate effect of type of GI

Figure in bold indicates significant at 5% level

Source: Primary Data

The differences in the producers’ opinion of different GIs on the combined effect of dependent variables measuring procedural challenges were statistically significant as the p value of the F statistic is lower than 0.05, $F [18, 1106.4] = 25.036$, $p < 0.05$; Wilks' $\Lambda = 0.380$, as revealed in Table 7.10. This means that the producers of different GIs were having different opinions relating to the multiple variables measuring the procedural challenges of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various GIs. The results of univariate test are depicted in Table 7.11.

c. Univariate Analysis of Variance and Pair wise Comparison - GI wise Analysis on the Producers' Perception on the Procedural Challenges of GI

Univariate ANOVA was conducted for each of the six dependent variables to identify whether statistically significant differences exist between the various producers of different GIs.

H_{7.6}: There is significant difference in the producers' perception on the individual measures of procedural challenges of geographical indications between different GIs.

Table 7.11

Estimated Margin of Means, SE, and ANOVA Results- Difference in Producers' Perception on Procedural Challenges of GI between different GIs

Variables	Name of the GI	Mean	SE	F	Sig.
Process of registration is easy	Chengalikodan Nendran	1.585	0.063	87.366	0.000
	Tirur Vettala	1.732	0.048		
	Marayoor Sharkara	1.987	0.047		
	Kaipad Rice	1.195	0.027		
GI registration is possible without external support	Chengalikodan Nendran	1.463	0.064	64.456	0.000
	Tirur Vettala	1.366	0.048		
	Marayoor Sharkara	2.142	0.048		
	Kaipad Rice	1.237	0.028		
Steps to ensure legal protection to GI is strong	Chengalikodan Nendran	1.537	0.070	28.520	0.000
	Tirur Vettala	1.338	0.053		
	Marayoor Sharkara	1.956	0.052		
	Kaipad Rice	1.558	0.030		
Easy to file legal suite when there is a breach of GI rights	Chengalikodan Nendran	1.585	0.070	24.091	0.000
	Tirur Vettala	1.394	0.053		
	Marayoor Sharkara	1.951	0.052		
	Kaipad Rice	1.586	0.030		
There is coordination among the producers when it comes to taking legal initiative	Chengalikodan Nendran	1.537	0.069	20.302	0.000
	Tirur Vettala	1.465	0.053		
	Marayoor Sharkara	2.124	0.052		
	Kaipad Rice	1.623	0.030		
State / Institutional support makes it easier to protect GI rights	Chengalikodan Nendran	1.512	0.071	21.821	0.000
	Tirur Vettala	1.437	0.054		
	Marayoor Sharkara	2.214	0.053		
	Kaipad Rice	1.595	0.031		

Figures in bold indicate significant at 5% level

Source: Primary Data

The univariate ANOVA test result indicate that statistically significant difference exists in the opinions of the producers of different GIs, in all the individual cases of variables measuring the procedural challenges of GI.

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 7.12.

Table 7.12

Bonferroni Pairwise Comparison- Difference in Producers' Perception on Procedural Challenges of GI between different GIs

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
Process of registration is easy	Chengalikodan Nendran	Tirur Vettala	-0.147	0.079	0.374
		Marayoor Sharkara	-0.415*	0.078	0.000
		Kaipad Rice	0.390*	0.068	0.000
	Tirur Vettala	Marayoor Sharkara	-0.268*	0.067	0.000
		Kaipad Rice	0.537*	0.055	0.000
	Marayoor Sharkara	Kaipad Rice	0.805*	0.054	0.000
GI registration is possible without external support	Chengalikodan Nendran	Tirur Vettala	0.097	0.080	0.074
		Marayoor Sharkara	-0.537*	0.079	0.000
		Kaipad Rice	0.226*	0.069	0.007
	Tirur Vettala	Marayoor Sharkara	-0.634*	0.068	0.000
		Kaipad Rice	0.129	0.056	0.126
	Marayoor Sharkara	Kaipad Rice	0.763*	0.055	0.000
Steps to ensure legal protection to GI is strong	Chengalikodan Nendran	Tirur Vettala	0.199	0.088	0.144
		Marayoor Sharkara	-0.463*	0.087	0.000
		Kaipad Rice	-0.022	0.076	1.000
	Tirur Vettala	Marayoor Sharkara	-0.662*	0.074	0.000
		Kaipad Rice	-0.220*	0.061	0.002
	Marayoor Sharkara	Kaipad Rice	0.442*	0.061	0.000
Easy to file legal suite when there is a breach of GI rights	Chengalikodan Nendran	Tirur Vettala	0.191	0.088	0.179
		Marayoor Sharkara	-0.415*	0.087	0.000
		Kaipad Rice	-0.001	0.076	0.445
	Tirur Vettala	Marayoor Sharkara	-0.606*	0.074	0.000
		Kaipad Rice	-0.192*	0.061	0.011
	Marayoor Sharkara	Kaipad Rice	0.414*	0.061	0.000

Variables	(I) Name of the GI	(J) Name of the GI	Mean Difference (I-J)	Std. Error	Sig.#
There is coordination among the producers when it comes to taking legal initiative	Chengalikodan Nendran	Tirur Vettala	0.072	0.087	0.225
		Marayoor Sharkara	-0.463*	0.087	0.000
		Kaipad Rice	-0.087	0.076	0.069
	Tirur Vettala	Marayoor Sharkara	-0.535*	0.074	0.000
		Kaipad Rice	-0.158	0.061	0.058
	Marayoor Sharkara	Kaipad Rice	0.377*	0.060	0.000
State / Institutional support makes it easier to protect GI rights	Chengalikodan Nendran	Tirur Vettala	0.076	0.089	0.125
		Marayoor Sharkara	-0.488*	0.089	0.000
		Kaipad Rice	-0.083	0.077	0.785
	Tirur Vettala	Marayoor Sharkara	-0.563*	0.076	0.000
		Kaipad Rice	-0.159	0.062	0.066
	Marayoor Sharkara	Kaipad Rice	0.405*	0.061	0.000

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

Pairwise comparisons revealed that in the case of ‘process of registration is easy’, statistically significant differences exist between Chengalikodan Nendran and Marayoor Sharkara, between Chengalikodan Nendran and Kaipad Rice, between Tirur Vettala and Marayoor Sharkara, between Tirur Vettala and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice.

In the case of the statement ‘GI registration is possible without external support’ significant differences could be traced between Chengalikodan Nendran and Marayoor Sharkara, between Chengalikodan Nendran and Kaipad Rice, between Tirur Vettala and Marayoor Sharkara as well as between Marayoor Sharkara and Kaipad Rice.

The post hoc test results of the statements ‘the process of GI registration is easy’ showed maximum significant difference between Marayoor Sharkara and Kaipad Rice with mean difference of 0.805 and ‘producers can do GI registration without external support’ revealed maximum significant variance between Marayoor Sharkara and Kaipad Rice with a mean difference of 0.763, the results of the two statements showed higher level of agreement among the producers of Marayoor Sharkara and least in the case of Kaipad Rice.

In the cases of ‘steps to ensure legal protection to GI is strong’ and ‘easy to file legal suite when there is a breach of GI rights’ statistically significant differences

could be traced between Chengalikodan Nendran and Marayoor Sharkara, between Tirur Vettala and Marayoor Sharkara, between Tirur Vettala and Kaipad Rice as well as between Marayoor Sharkara and Kaipad Rice.

However, in the cases of ‘there is coordination among the producers when it comes to taking legal initiative’ and ‘State / institutional support makes it easier to protect GI rights’ differences were found to exist between Marayoor Sharkara and all other GIs namely Chengalikodan Nendran, Tirur Vettala and Kaipad Rice.

The post hoc test results of the statements ‘the steps to ensure legal protection for GI tags are Strong’, ‘it is easy to register for a legal suite in case of a breach of GI tag rights’, ‘coordination among the producers when it comes to taking legal initiatives towards GI tag abuse’ and ‘State / institutional support is making it easier to protect the GI tag and the rights attached’ revealed maximum significant difference between Marayoor Sharkara and Tirur Vettala with a mean difference of 0.662, 0.606, 0.535 and 0.563 respectively. Which shows that the producers of the Marayoor Sharkara have higher level of agreement to the statements and the producers of Tirur Vettala are having least level of agreement.

7.3 DOMICILE WISE ANALYSIS ON PRODUCERS’ PERCEPTION OF CHALLENGES IN THE SUCCESSFUL USE OF GI

The differences in the opinion of producers belonging to various domiciles regarding the challenges in the successful use of GI were examined in three dimensions namely, ‘registration and Govt. support’, ‘organisational support’ and ‘procedural’.

7.3.1 Domicile wise analysis of Registration and Govt. Support Challenges of Geographical Indications

The seven measures of registration and Govt. support challenges were subjected to domicile wise analysis.

a. Descriptive Statistics – Domicile wise Analysis on Producers’ Perception on Registration and Govt. Support Challenges of GI

The most prominent measure of registration and Govt. support challenges was found to be ‘cost of GI registration is affordable’ ($\bar{X}$ = 4.352 ± 0.527) in the case of rural producers, whereas the least prominent one was ‘Government has taken

initiatives to spread awareness about managing GI' ($\bar{X}= 1.333 \pm 0.577$) in the case of urban producers as shown in Table 7.13.

Table 7.13

Descriptive Statistics - Registration and Govt. Support Challenges of GI between Different Domiciles

Variables	Domicile	Mean	SD	MPS
GI registration was initiated by including all eligible producers	Urban	4.054	0.124	81.08
	Rural	4.074	0.505	81.48
	Semi-Urban	3.806	0.477	76.12
	Total	4.053	0.505	81.06
Specification of geographical map included eligible production area	Urban	4.048	0.411	80.96
	Rural	4.120	0.551	82.4
	Semi-Urban	3.871	0.341	77.42
	Total	4.100	0.539	82.02
Registration was done with production technique accepted by the producers	Urban	4.112	0.124	82.24
	Rural	4.314	0.465	86.28
	Semi-Urban	4.161	0.374	83.22
	Total	4.300	0.459	86.00
Cost of GI registration is affordable	Urban	3.988	0.215	79.76
	Rural	4.352	0.527	87.04
	Semi-Urban	3.645	0.709	72.90
	Total	4.295	0.573	85.90
Producers are willing to follow uniform CoP prescribed in registration process	Urban	4.041	0.114	80.82
	Rural	4.156	0.463	83.12
	Semi-Urban	4.226	0.425	84.52
	Total	4.160	0.458	83.20
Government has taken initiatives to spread awareness about managing GI	Urban	1.333	0.577	26.66
	Rural	2.809	1.104	56.18
	Semi-Urban	1.613	0.495	32.26
	Total	2.705	1.119	54.10
Government is taking initiative for promoting GI	Urban	2.667	1.155	53.34
	Rural	3.104	0.996	62.08
	Semi-Urban	3.355	0.839	67.10
	Total	3.120	0.986	62.40

Source: Primary Data

b. Multi Variate Analysis of Variance - Domicile wise Analysis on Producers' Perception on Registration and Govt. Support Challenges of GI

Table 7.14 depicts the combined multivariate effect of all the variables identifying the construct of registration and Govt. support challenges of GI.

H_{7.7} : There is significant difference in the producers' perception on the combined effect of multiple dependent variables measuring the registration and Govt. support challenges of geographical indications between different domiciles.

Table 7.14

Multivariate (MANOVA) Test Results- Difference in Producers' Perception on Registration and Govt. Support Challenges of GI between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.424	9.796	14.000	782.000	0.000

F tests the multivariate effect of domicile

Figure in bold indicates significant at 5% level

Source: Primary Data

The differences in the producers' opinion of different domiciles on the combined dependent variables relating to 'registration and Govt. support challenges' were statistically significant as the p value of the F statistic is lower than 0.05, $F [14, 782] = 9.796, p < 0.05$; Wilks' $\Lambda = 0.424$, as shown in Table 7.14. This means that the producers of different domiciles were having different opinion relating to the multiple variables measuring registration and Govt. support challenges of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 7.15.

c. Univariate Analysis of Variance and Pair wise Comparison - Domicile wise Analysis on Producers' Perception on Registration and Govt. Support Challenges of GI

Univariate ANOVA was conducted for each of the seven dependent variables to identify whether statistically significant differences exist between the various producers of different domiciles.

$H_{7.8}$: *There is significant difference in the producers' perception on the individual measures of registration and Govt. support challenges of geographical indications between different domiciles.*

The univariate ANOVA test results indicate statistically significant difference in the opinion of the producers of different GIs, in all the individual cases of variables measuring the 'registration and Govt. support' related challenges of GI except for three variables, 'registration was done with production technique accepted by the producers', 'producers are willing to follow uniform CoP prescribed in registration process' and 'Government is taking initiative for promoting GI'

Table 7.15

Estimated Margin of Means, SE, and ANOVA Results- Difference in Producers' Perception on Registration and Govt. Support Challenges of GI between different Domiciles

Variables	Domicile	Mean	SE	F	Sig.
GI registration was initiated by including all eligible producers	Urban	4.054	0.29	4.077	0.018
	Rural	4.074	0.026		
	Semi-Urban	3.806	0.09		
Specification of geographical map included eligible production area	Urban	4.048	0.31	3.139	0.044
	Rural	4.12	0.028		
	Semi-Urban	3.871	0.096		
Registration was done with production technique accepted by the producers	Urban	4.112	0.264	2.247	0.107
	Rural	4.314	0.024		
	Semi-Urban	4.161	0.082		
Cost of GI registration is affordable	Urban	3.988	0.313	24.781	0.000
	Rural	4.352	0.028		
	Semi-Urban	3.645	0.097		
Producers are willing to follow uniform CoP prescribed in registration process	Urban	4.041	0.265	0.517	0.597
	Rural	4.156	0.024		
	Semi-Urban	4.226	0.082		
Government has taken initiatives to spread awareness about managing GI	Urban	1.333	0.616	20.417	0.000
	Rural	2.809	0.056		
	Semi-Urban	1.613	0.192		
Government is taking initiative for promoting GI	Urban	2.667	0.569	1.246	0.289
	Rural	3.104	0.052		
	Semi-Urban	3.355	0.177		

Figures in bold indicate significant at 5% level

The following null hypothesis was tested.

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 7.16.

Table 7.16

Bonferroni Pairwise Comparison- Difference in Producers' Perception on Registration and Govt. Support Challenges of GI between different Domiciles

Variables	(I) Domicile	(J) Domicile	Mean Difference (I-J)	Std. Error	Sig.#
GI registration was initiated by including all eligible producers	Urban	Rural	-0.074	0.291	0.741
		Semi-Urban	0.194	0.303	0.221
	Rural	Urban	0.074	0.291	0.741
		Semi-Urban	0.267*	0.094	0.014
Specification of geographical map included eligible production area	Urban	Rural	-0.120	0.311	0.859
		Semi-Urban	0.129	0.324	0.425
	Rural	Urban	0.120	0.311	0.663
		Semi-Urban	0.249*	0.100	0.040
Cost of GI registration is affordable	Urban	Rural	-0.352	0.314	0.788
		Semi-Urban	0.355	0.328	0.839
	Rural	Urban	0.352	0.314	0.788
		Semi-Urban	0.707*	0.101	0.000
Government has taken initiatives to spread awareness about managing GI	Urban	Rural	-0.156	0.266	0.784
		Semi-Urban	-0.226	0.277	0.621
	Rural	Urban	0.156	0.266	0.784
		Semi-Urban	-0.071	0.086	0.911

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

In the cases of 'GI registration was initiated by including all eligible producers', 'specification of geographical map included eligible production area' and 'cost of GI registration is affordable', statistically significant differences exist only between semi-urban and rural areas.

Pair wise comparison of the statements 'the GI registration was initiated by including all the genuinely eligible producers', 'the geographical map registered includes all the areas where the production takes place' and 'the cost of GI registration is affordable' showed maximum variance between rural and semi-urban domiciles with a mean difference of 0.267, 0.249 and 0.707 respectively. The test results reveal

that the producers of rural domicile did not find the registration related challenges as much as the producers from the semi-urban domicile.

However, in the case of ‘Government has taken initiatives to spread awareness about managing GI’, no statistically significant differences were found to exist between any of the categories of domicile, though ANOVA results revealed the existence of difference. Hence it can be concluded that the producers of all the domicile felt the same medium level of support from the Government in GI management and promotion.

7.3.2 Domicile wise Analysis on the Organisational Support Challenges of Geographical Indications

The seven measures of ‘organisational support challenges’ were subjected to domicile wise analysis.

a. Descriptive Statistics – Domicile wise Analysis on Producers’ Perception of Organisational Support Challenges of GI

The most prominent measure of organisational support challenges was found to be ‘all producers are equally working towards the protection of GI Tag’ ($\bar{X} = 2.128 \pm 0.425$) in the case of urban producers, whereas the least prominent measure was ‘inspection body ensure that the producers follow uniform CoP’ ($\bar{X} = 1.114 \pm 0.227$) in the case of urban producers as depicted in Table 7.17.

Table 7.17

Descriptive Statistics - Organisational Support Challenges of GI between Different Domiciles

Variables	Domicile	Mean	SD	MPS
Inspection body ensure that the producers follow uniform CoP	Urban	1.114	0.277	22.28
	Rural	1.661	0.474	33.22
	Semi-Urban	1.516	0.508	30.32
	Total	1.645	0.479	32.9
Inspection body is consistent with quality assurance checks	Urban	1.333	0.577	26.66
	Rural	1.648	0.478	32.96
	Semi-Urban	1.452	0.506	29.04
	Total	1.630	0.483	32.6
Inspection body does take corrective action when non-compliance of CoP is found	Urban	1.667	0.577	33.34
	Rural	1.691	0.463	33.82
	Semi-Urban	1.387	0.495	27.74
	Total	1.668	0.472	33.36

Variables	Domicile	Mean	SD	MPS
Presence of inspection body is guaranteeing the genuineness of the product	Urban	1.048	0.129	20.96
	Rural	1.672	0.470	33.44
	Semi-Urban	1.613	0.495	32.26
	Total	1.663	0.473	33.26
Cooperation among producers aids the reaping of GI benefits	Urban	1.612	0.577	32.24
	Rural	1.716	0.475	34.32
	Semi-Urban	1.548	0.506	30.96
	Total	1.703	0.479	34.06
All producers are equally working towards the protection of GI tag	Urban	2.128	0.425	42.56
	Rural	1.708	0.461	34.16
	Semi-Urban	1.677	0.475	33.54
	Total	1.708	0.461	34.16
Competition among the producers reduced after receiving the GI tag	Urban	1.333	0.577	26.66
	Rural	1.790	0.408	35.8
	Semi-Urban	1.516	0.508	30.32
	Total	1.765	0.425	35.3

Source: Primary Data

b. Multivariate Analysis of Variance – Domicile wise Analysis on the Producers’ Perception of Organisational Support Challenges of GI

Table 7.18 depicts the combined multivariate effect of all the variables identifying the construct of organisational support challenges of GI.

H_{7.9}: There is significant difference in the producers’ perception on the combined effect of multiple dependent variables measuring the organisational support challenges of geographical indications between different domiciles.

Table 7.18

Multivariate (MANOVA) Test Results- Difference in Producers’ Perception Organisational Support Challenges of GI between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.598	3.074	14.000	782.000	0.000

F tests the multivariate effect of domicile

Figure in bold indicates significant at 5% level

Source: Primary Data

The differences in the producers’ opinion of different domiciles on the combined dependent variables measuring ‘organisational support challenges’ were statistically significant as the p value of F statistic is below 0.05, F [14, 782] = 3.074, $p < 0.05$;

Wilks' $\Lambda = 0.598$ as shown in Table 7.18. This means that the producers of different domiciles were having different opinions relating to the multiple variables measuring the organisational support challenges of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 7.19.

c. Univariate Analysis of Variance and Pair wise Comparison – Domicile wise Analysis on the Producers' Perception of Organisational Support Challenges of GI

Univariate ANOVA was conducted for each of the seven dependent variables to identify whether statistically significant differences exist between the various producers of different domiciles.

H_{7,10}: There is significant difference in the producers' perception on the individual measures of organisational support challenges of geographical indications between different domiciles.

The univariate ANOVA test result indicate that statistically significant difference exists in the opinion of the producers of different domicile in the cases of 'inspection body ensure that the producers follow uniform CoP', 'inspection body does take corrective action when non-compliance of CoP is found', 'presence of inspection body is guaranteeing the genuineness of the product' and 'competition among the producers reduced after receiving the GI tag'.

Table 7.19

Estimated Margin of Means, SE, and ANOVA Results- Difference in Producers' Perception on Organisational Support Challenges of GI between different Domiciles

Variables	Domicile	Mean	SE	F	Sig.
Inspection body ensure that the producers follow uniform CoP	Urban	1.114	0.274	4.112	0.017
	Rural	1.661	0.025		
	Semi-Urban	1.516	0.085		
Inspection body is consistent with quality assurance checks	Urban	1.333	0.278	2.945	0.054
	Rural	1.648	0.025		
	Semi-Urban	1.452	0.086		
Inspection body does take corrective action when non-compliance of CoP is found	Urban	1.667	0.269	6.093	0.002
	Rural	1.691	0.024		
	Semi-Urban	1.387	0.084		

Variables	Domicile	Mean	SE	F	Sig.
Presence of inspection body is guaranteeing the genuineness of the product	Urban	1.048	0.272	3.218	0.041
	Rural	1.672	0.025		
	Semi-Urban	1.613	0.085		
Cooperation among producers aids the reaping of GI benefits	Urban	1.612	0.276	1.761	0.173
	Rural	1.716	0.025		
	Semi-Urban	1.548	0.086		
All producers are equally working towards the protection of GI tag	Urban	2.128	0.266	0.669	0.513
	Rural	1.708	0.024		
	Semi-Urban	1.677	0.083		
Competition among the producers reduced after receiving the GI tag	Urban	1.333	0.241	7.746	0.001
	Rural	1.790	0.022		
	Semi-Urban	1.516	0.075		

Figures in bold indicate significant at 5% level

Source: Primary Data

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 7.20.

Table 7.20

Bonferroni Pairwise Comparison- Difference in Producers' Perception on Organisational Support Challenges of GI between different Domiciles

Variables	(I) Domicile	(J) Domicile	Mean Difference (I-J)	Std. Error	Sig.#
Inspection body ensure that the producers follow uniform CoP	Urban	Rural	-0.661	0.276	0.051
		Semi-Urban	-0.516	0.287	0.220
	Rural	Urban	0.661	0.276	0.051
		Semi-Urban	0.145	0.089	0.311
Inspection body does take corrective action when non-compliance of CoP is found	Urban	Rural	-0.025	0.270	0.624
		Semi-Urban	0.280	0.282	0.964
	Rural	Urban	0.025	0.270	0.624
		Semi-Urban	0.304*	0.087	0.002
Presence of inspection body is guaranteeing the genuineness of the product	Urban	Rural	-0.672*	0.273	0.043
		Semi-Urban	-0.613	0.285	0.096
	Rural	Urban	0.672*	0.273	0.043
		Semi-Urban	0.059	0.088	0.741
Competition among the producers reduced after receiving the GI tag	Urban	Rural	-0.456	0.242	0.180
		Semi-Urban	-0.183	0.252	0.821
	Rural	Urban	0.456	0.242	0.180
		Semi-Urban	0.273*	0.078	0.002

* The mean difference is significant at 5% level. Sig indicated in bold

Adjustments for multiple comparisons: Bonferroni; Source: Primary Data

The pairwise comparison results revealed that in the case of ‘inspection body ensure that the producers follow uniform CoP’ no statistically significant differences exist across any of the categories of domicile, though ANOVA test results indicated the existence of differences.

In the case of the statements ‘inspection body do take corrective action when non-compliance of CoP is found’ and ‘competition among the producers reduced after receiving the GI tag’ significant differences could be traced only between rural and semi-urban areas with a mean difference of 0.304 and 0.273 respectively.

Finally, in the case of ‘presence of inspection body is guaranteeing the genuineness of the product’ statistically significant difference exists only between rural and urban domiciles with a mean difference of 0.672.

The above results point to the fact that the initiatives of the inspection bodies in managing GI compliance are better in rural domicile when compared to others.

7.3.3 Domicile wise analysis of Procedural Challenges of Geographical Indications

The six measures of procedural challenges of GI were subjected to domicile wise analysis.

a. Descriptive Statistics – Domiciles wise Analysis on the Producers’ Perception of Procedural Challenges of GI

The most prominent measure of procedural challenges of GI was found to be ‘process of registration is easy’ ($\bar{X}$ = 2.115 $\pm$ 0.178) in the case of urban producers, whereas the least one was ‘State / institutional support makes it easier to protect GI rights’ ($\bar{X}$ = 1.385 $\pm$ 0.577) that too in the case of urban producers as depicted in Table 7.21.

Table 7.21

Descriptive Statistics - Procedural Challenges of GI between different Domiciles

Variables	Domicile	Mean	SD	MPS
Process of GI registration is easy	Urban	2.115	0.178	42.3
	Rural	1.459	0.515	29.18
	Semi-Urban	1.645	0.486	32.9
	Total	1.478	0.515	29.56

Variables	Domicile	Mean	SD	MPS
GI registration is possible without external support	Urban	1.119	0.128	22.38
	Rural	1.421	0.494	28.42
	Semi-Urban	1.484	0.508	29.68
	Total	1.423	0.495	28.46
Steps to ensure legal protection to GI is strong	Urban	1.333	0.577	26.66
	Rural	1.601	0.490	32.02
	Semi-Urban	1.581	0.502	31.62
	Total	1.598	0.491	31.96
Easy to file legal suite when there is a breach of GI rights	Urban	2.117	0.152	42.34
	Rural	1.626	0.485	32.52
	Semi-Urban	1.613	0.495	32.26
	Total	1.628	0.484	32.56
There is coordination among the producers when it comes to taking legal initiative	Urban	1.670	0.577	33.4
	Rural	1.664	0.473	33.28
	Semi-Urban	1.548	0.506	30.96
	Total	1.655	0.476	33.1
State / Institutional support makes it easier to protect GI rights	Urban	1.385	0.577	27.7
	Rural	1.639	0.487	32.78
	Semi-Urban	1.581	0.502	31.62
	Total	1.633	0.488	32.66

Source: Primary Data

b. Multivariate Analysis of Variance - Domiciles wise Analysis on the Producers' Perception of Procedural Challenges of GI

Table 7.22 depicts the combined multivariate effect of all the variables identifying the construct of procedural challenges of GI.

$H_{7,11}$: *There is significant difference in the producers' perception on the combined effect of multiple dependent variables measuring the procedural challenges of geographical indications between different domiciles.*

Table 7.22

Multivariate (MANOVA) Test Results- Difference in Producers' Perception on Procedural Challenges of GI between different Domiciles

	Value	F	Hypothesis df	Error df	Sig.
Wilks' lambda	0.637	2.170	12.000	784.000	0.012

F tests the multivariate effect of domicile

Figure in bold indicates significant at 5% level

Source: Primary Data

The differences in the producers' opinion of different domiciles on the combined dependent variables measuring the procedural challenges of GI were statistically significant as the p value of F statistic is lower than 0.05, $F [12, 784] = 2.170$, $p < 0.05$; Wilks' $\Lambda = 0.637$ as shown in Table 7.22. This means that the producers of different domiciles were having different opinion relating to the multiple variables measuring the 'procedural challenges' of GI.

The follow-up univariate ANOVA was made for each of the dependent variables to identify whether statistically significant differences exist between the various domiciles. The results of univariate test are depicted in Table 7.23.

c. Univariate Analysis of Variance and Pair wise Comparison - Domiciles wise Analysis on the Producers' Perception of Procedural Challenges of GI

Univariate ANOVA was conducted for each of the six dependent variables to identify whether statistically significant differences exist between the various producers of different domiciles.

$H_{7.12}$: *There is significant difference in the producers' perception on the individual measures of procedural challenges of geographical indications between different domiciles.*

Table 7.23

Estimated Margin of Means, SE, and ANOVA Results- Difference in Producers' Perception on Procedural Challenges of GI between different Domiciles

Variables	Domicile	Mean	SE	F	Sig.
Process of GI registration is easy	Urban	2.115	0.295	3.466	0.032
	Rural	1.459	0.027		
	Semi-Urban	1.645	0.092		
GI registration is possible without external support	Urban	1.119	0.285	1.338	0.264
	Rural	1.421	0.026		
	Semi-Urban	1.484	0.089		
Steps to ensure legal protection to GI is strong	Urban	1.333	0.284	0.461	0.631
	Rural	1.601	0.026		
	Semi-Urban	1.581	0.088		
Easy to file legal suite when there is a breach of GI rights	Urban	2.117	0.280	0.904	0.406
	Rural	1.626	0.025		
	Semi-Urban	1.613	0.087		
There is coordination among the	Urban	1.667	0.275	0.842	0.431

Variables	Domicile	Mean	SE	F	Sig.
producers when it comes to taking legal initiative	Rural	1.664	0.025	0.774	0.462
	Semi-Urban	1.548	0.086		
State / Institutional support makes it easier to protect GI rights	Urban	1.385	0.282		
	Rural	1.639	0.026		
	Semi-Urban	1.581	0.088		

Figures in bold indicate significant at 5% level

The following null hypothesis was tested.

Source: Primary Data

The univariate ANOVA test result indicate that statistically significant difference exists in the opinion of the producers of different domiciles only in the case of the statement ‘process of GI registration is easy’.

The results of Bonferroni adjusted multiple comparisons in respect of all the variables where significant differences were observed are shown in Table 7.24.

Table 7.24

Bonferroni Pairwise Comparison- Difference in Producers’ Perception on Procedural Challenges of GI between different Domiciles

Variable	(I) Domicile	(J) Domicile	Mean Difference (I-J)	Std. Error	Sig.#
Process of GI registration is easy	Urban	Rural	0.541	0.297	0.207
		Semi-Urban	0.355	0.309	0.757
	Rural	Urban	-0.541	0.297	0.207
		Semi-Urban	-0.186	0.096	0.158

Adjustments for multiple comparisons: Bonferroni

Source: Primary Data

The pairwise comparisons results reveal that in the case of the statement ‘process of GI registration is easy’ no statistically significant differences exist across any of the categories of domicile, though ANOVA results indicated the existence of such differences.

7.4 CONCLUSION

The analysis of the challenges can disclose critical barriers that hinder the optimal realisation of the benefits expected from GI tag. The present chapter explored the challenges under three different dimensions, registration and Govt. support challenges, organisational support challenges and procedural challenges. The producers did not find much issues with the registration initiatives and felt that the GI

registrations were inclusive. The main challenges discovered were that, the producers perceived that the Govt. has failed to take initiatives for the promotion of the GIs. The GI producers perceived lack of coordination among themselves and that all the GI producers are not working equally towards the protection of GI. When it comes to the inspection body formed at the time of GI registration, the producers felt that the inspection body was not of much help and that it failed in performing its responsibilities. The GI producers felt that the legal procedures of the GI Act were hard to follow and the lack of institutional support is making it difficult to avail the full benefit of GI registration. The domicile wise analysis depicts that all the domiciles faced the same level of procedural challenges. When it comes to registration and Govt support challenges and organisational support challenges the producers of rural domicile experienced lower level of problems when compared to other domiciles. Understanding the challenges in the successful use of GI is of prime importance as it can facilitate necessary policy recommendations and strengthen the support mechanism. The identification of the barriers can help in addressing the challenges which can assist in enhancing the socio-economic and marketing benefits of GI.

Chapter 8

***Composite Model Assessment of
Socio Economic Impact and Marketing
Benefits of GI***

8.1 INTRODUCTION

Geographical indication is an IPR often considered as a progressive tool which can bring sustainable food development. Every GI registration is seen as the effort of the producers to promote and protect their unique products and the production produces associated with it (Vandecandelaere et al., 2018). GIs are impersonal IPRs which can benefit all the producers of a particular product, belonging to a particular place of origin, provided the producers stick to the CoP. The benefits of GI tag can be used to its full potential only if all the producers of the product stand together in unity. This unity among the producers can be brought forth by the producers' association. Producers' association can play a pivotal role in anchoring the producers and promote GI. Like all other IPRs, GIs are of no use if the beneficiaries are not aware about the potential benefits and usage of it. The more the producers are aware of the technical use of GI, the more legal protection and marketing benefits they can derive out of it. The producers' association can enhance the awareness level of the producers by spreading awareness, organising promotional events and managing GI through proper intervention. The value of GIs extends beyond its economic gains to include significant social outcomes. The social benefits resulting from GI in addition to the economic advantages provide GIs the status of sustainable development tool. The GIs are ultimately marketing tool which facilitates product differentiation and build relationship along the supply chain. The proper utilisation of GI can unveil its branding potential. Despite all the merits that the GI possess the producers are yet to harness fully the potential of GI as several challenges come in the way of its utilisation. The use of GI is contingent upon overcoming the prevailing challenges.

The present study analyses the relationship between the contribution of producers' association towards the promotion of GIs, to what extend the producers are aware of the concept of GI, the socio-economic impact of GIs, marketing benefits of GI and the challenges in the successful use of GI tags from the perspective of the producers. Capturing the interrelationship between these multiple dimensions can help in improving the implementation of GI policy thereby delivering better benefits to GI producers. The ultimate practical relevance of GI tag is the marketing benefits derived from it. This model assesses how the economic, social benefits translate into

marketing benefits and how the challenges in the GI adoption hinders the marketing outcomes expected.

The data for the present study were collected from 400 producers producing GI-tagged agricultural produce using a multi-stage sampling method. For analysing the relationship between the variables identified for the study both exploratory as well as confirmatory factor analysis were performed. A research model was proposed in the third chapter, the model fit of which was ensured after exploratory and confirmatory factor analysis. The overall effect of the GI tag was measured by analysing the variables identified with the help of relevant hypothesis testing.

8.2 STEPS FOLLOWED IN EXPLORATORY FACTOR ANALYSIS (EFA)

A. Data Splitting

Principal Component Analysis (PCA) was performed on the items in the interview schedule that assessed the producers' association contribution towards the promotion of GI, the awareness of producers about GI, the socio-economic impact of GI, the marketing benefits of GI and the challenges in the successful use of GI. The 400-observations in the sample set were randomly divided into two parts, known as split sample 1 and split sample 2, each of which had 200 observations. The former was utilized for exploratory factor analysis, and the other 200 samples were used for confirmatory factor analysis. The responses of the study were collected using 5-point Likert scale ranging from Strongly agree to Strongly disagree.

B. Various Assumptions were tested to check the applicability of Exploratory Factor Analysis

- i. **Multivariate Normality:** Two hundred observation dataset were analysed to ascertain if the multi-dimensional sample was appropriately extracted from a normal distribution with multiple variables. The multivariate normality assumptions were measured by computing the squared Mahalanobis distances for the data and are plotted in relation to the quantiles of the Chi-square distribution ((DeCarlo, 1997); Field, 2018). Normality of the data is established if the points in the scatterplot diagram forms a relatively straight line.
- ii. **Factorability:** Pearson Correlations were computed to find the intercorrelations of all variables. All the variables examined should have at least one correlation greater than 0.30 for being suitable for factor analysis (Tabachnick & Fidell, 2019).

iii. **Multicollinearity:** Even though there should be some correlation between variables, too much correlation across variables could contribute to problems with EFA. The determinant of correlation matrix was computed to appraise multicollinearity. A determinant that is ≤ 0.00001 is an indication that the data has multicollinearity (Field, 2018).

C. Interpretation of Results in Exploratory Factor Analysis

- i. **Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) and Bartlett's Test of Sphericity:** The KMO test was performed in order to measure the sampling adequacy and to confirm whether the data is suitable for factor analysis, a value of ≥ 0.70 is considered acceptable for performing factor analysis (Kaiser, 1974) (*Kaiser_citation_classic_factor_simplicity*, n.d.). The Bartlett's Test of Sphericity was performed to check whether the correlation matrix is an identity matrix. The hypothesis that the correlation matrix is an identity matrix is tested. A p value < 0.05 rejects the hypothesis and establishes the absence of identity matrix (Bartlett, 1954).
- ii. **Communality:** It refers to the proportion of a variable's variance that can be explained by extracted factors in an EFA. It indicates how well each variable is represented by the factor solution. Communalities above 0.45 are often acceptable. (Hair et al. 1998, Comrey and Lee 1992)
- iii. **Scree Plot:** It is a graphical tool which is used in EFA to derive the optimum number of factors that are to be retained. It helps to visualise the eigen values and identify the point where additional factor contribution is minimal. In the present study factors with eigen value more than 1 are retained.
- iv. **Total Variance Explained:** This summarises the proportion of variance which is described by each extracted factor. The extracted factors have an eigen value greater than one.
- v. **Factor Loadings Matrix:** The factor loading matrix (after varimax rotation) shows the strength and direction of the association amongst each variable and the extracted factors. Factor loading value above 0.40 are deemed significant (Hair et al., 2010). The significant factor loadings are identified and variables are assigned to factors to which they strongly load. The factors are then labelled suitably.

8.3 EXPLORATORY FACTOR ANALYSIS

8.3.1 Producers' Perception on Contribution of the Producers' Association in Promoting Geographical Indications

Prior to analysis, the appropriateness of PCA was evaluated on the twelve items measuring 'contribution of producers' association in promoting GI'. The descriptive statistics of the twelve variables measuring the 'contribution of producers' association in promoting GI' is depicted in Table 8.1.

Table 8.1

Descriptive Statistics - Contribution of the Producers' Association in Promoting GI

Variables	Mean	SD	N
Producers' association was actively involved in GI registration	4.627	.485	200
Producers' association takes awareness initiatives on GI among public	3.771	.669	200
Producers' association organises event to promote GI	3.239	1.016	200
Producers' association assisted the producers in getting AU registration	2.517	.949	200
Producers' association ensures practice of CoP by members	1.801	.458	200
Producers' association assists the producers stick to CoP	2.736	1.173	200
Producers' association ensures GI management by inspection body	2.577	.957	200
Producers' association has dispute redressal system to resolve GI issues	2.065	.317	200
Producers' association raises GI related issues with the Government	2.612	.979	200
Producers' association membership has increased the confidence of the producers	3.294	.989	200
Producers' association holds regular meetings	2.493	.884	200
Producers' association have boosted interpersonal links among producers	3.244	.993	200

Source: Primary data and Computed

The most prominent contribution of the producers' association in promoting Geographical Indications was found to be 'producers' association was actively involved in GI registration' ($\bar{X}$ = 4.625 $\pm$ 0.485) while 'producers' association ensures practice of CoP by members' ($\bar{X}$ = 1.801 $\pm$ 0.458) was the least significant measure of contribution from the part of producers' association in promoting GI.

I. Assumptions of EFA – Producers’ Perception on Contribution of the Producers’ Association in Promoting GI

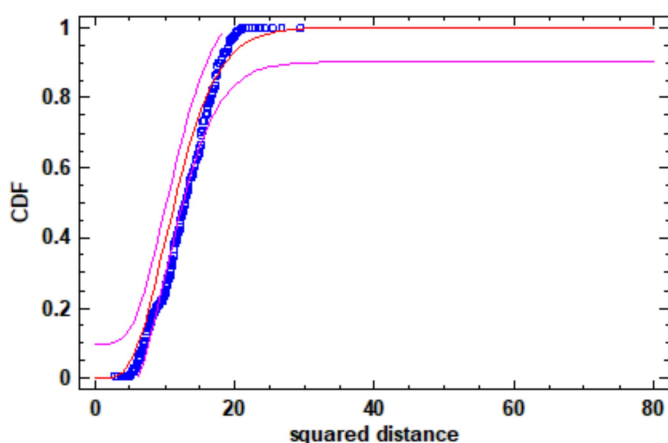
The following assumptions were verified for the applicability of exploratory factor analysis.

a. Multivariate normality

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by a solid line. Figure 8.1 displays the normality scatterplot established and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.1

Mahalanobis distance scatterplot testing multivariate normality - Contribution of the Producers’ Association in Promoting GI



b. Factorability

Each variable's intercorrelations were appraised using Pearson's correlations to evaluate the factorability of data. Table 8.2 depicts the Pearson's coefficient of correlation between the variables in the analysis.

Table 8.2*Correlation Matrix - Contribution of the Producers' Association in Promoting Geographical Indications*

	1	2	3	4	5	6	7	8	9	10	11	12
1	1.000											
2	.305	1.000										
3	.312	.199	1.000									
4	.024	.322	.212	1.000								
5	.021	.019	.388	.164	1.000							
6	.222	.267	.682	.407	.190	1.000						
7	.057	.184	.392	.314	.115	.680	1.000					
8	.070	.070	.138	.137	.358	.167	.123	1.000				
9	.043	.016	.209	.278	.184	.285	.486	.049	1.000			
10	.136	.155	.442	.098	.003	.558	.407	.226	.051	1.000		
11	.034	.045	.171	.529	.004	.101	.007	.171	.159	.377	1.000	
12	.128	.107	.378	.152	.014	.472	.414	.251	.082	.910	.421	1.000

a. Determinant = .005

Legends

- 1 Producers' association was actively involved in GI registration
- 2 Producers' association takes awareness initiatives on GI among public
- 3 Producers' association organises event to promote GI
- 4 Producers' association assisted the producers in getting AU registration
- 5 Producers' association ensures practice of CoP by members

- 6 Producers' association assists the producers stick to CoP
- 7 Producers' association ensures GI management by inspection body
- 8 Producers' association has dispute redressal system to resolve GI challenges
- 9 Producers' association raises GI related issues with Government
- 10 Producers' association membership has increased the confidence of the producers
- 11 Producers' association holds regular meetings
- 12 Producers' association have boosted interpersonal links among producers

All variables in the dimension relating to producers' associations' contribution in promoting GI was appropriate for factor analysis, with at least one correlation value higher than 0.30.

c. Multicollinearity

There is no multicollinearity in the data, and the model outcomes are reliable, pursuant to the correlation matrix's determinant value of .005 (≥ 0.00001).

II. EFA Results – Producers' Perception on Contribution of the Producers' Association in Promoting GI

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett's test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.3 displays the KMO and Bartlett's test results.

Table 8.3

KMO and Bartlett's Test - Contribution of the Producers' Association in Promoting Geographical Indications

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.714
Bartlett's Test of Sphericity	Approx. Chi-Square	1036.793
	df	66
	Sig.	.000

Source: Primary Data and Computed

The KMO test result value is 0.714 which confirms sampling adequacy for factor analysis. The Bartlett's test of Sphericity was significant, as the p value is less than 0.05, confirming the absence of an identity matrix.

b. Communalities Results

In order to find whether the proportion of each variable's variance was explained by the extracted factors communalities were examined. The initial communalities and communalities after extraction are shown in Table 8.4.

Table 8.4

Communalities - Contribution of the Producers' Association in promoting Geographical Indications

Variables	Initial	Extraction
Producers' association was actively involved in GI registration	1.000	.586
Producers' association takes awareness initiatives on GI among public	1.000	.488
Producers' association organises event to promote GI	1.000	.619
Producers' association assisted the producers in getting AU registration	1.000	.696
Producers' association ensures practice of CoP by members	1.000	.771
Producers' association assists the producers stick to CoP	1.000	.831
Producers' association ensures GI management by inspection body	1.000	.729
Producers' association has dispute redressal system to resolve GI issues	1.000	.487
Producers' association raises GI related issues with Government	1.000	.614
Producers' association membership has increased the confidence of the producers	1.000	.868
Producers' association holds regular meetings	1.000	.679
Producers' association have boosted interpersonal links among producers	1.000	.866

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

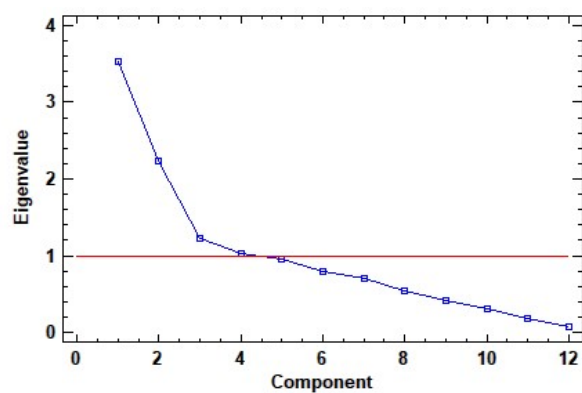
The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The scree plot (figure 8.2) shows the eigenvalues for each of the twelve variables.

Figure 8.2

Scree Plot - Contribution of the Producers' association in promoting Geographical Indications



The scree plot revealed a distinct elbow point at factor four, indicating that four factors should be retained.

d. Total Variances Explained

The eigen values and total variances explained before and after varimax rotation are shown in Table 8.5.

Table 8.5*Total Variances Explained - Contribution of the Producers' association in promoting Geographical Indications*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.534	29.447	29.447	3.534	29.447	29.447	2.549	21.239	21.239
2	2.242	18.685	48.132	2.242	18.685	48.132	2.486	20.714	41.953
3	1.234	10.279	58.411	1.234	10.279	58.411	1.800	14.996	56.949
4	1.023	8.523	66.935	1.023	8.523	66.935	1.198	9.986	66.935
5	.963	8.023	74.958						
6	.786	6.553	81.510						
7	.708	5.904	87.414						
8	.537	4.474	91.888						
9	.418	3.484	95.372						
10	.301	2.507	97.880						
11	.178	1.482	99.362						
12	.077	.638	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

Table 8.5 shows that the first four factors had eigenvalue more than 1 and were retained. These four factors explained 66.93% of the total variance, suggesting that these factors account for a substantial portion of the variability.

e. Factor Loading Matrix After Varimax Rotation

Varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

Table 8.6

Factor Loading Matrix After Varimax Rotation - Contribution of the Producers' Association in promoting Geographical Indications

Variables	Component			
	1	2	3	4
Producers' association ensures GI management by inspection body	0.811			
Producers' association raises GI related issues with Government	0.733			
Producers' association assists the producers stick to CoP	0.679			
Producers' association have boosted interpersonal links among producers		0.836		
Producers' association membership has increased the confidence of the producers		0.800		
Producers' association holds regular meetings		0.754		
Producers' association assisted the producers in getting AU registration		0.557		
Producers' association was actively involved in GI registration			0.731	
Producers' association organises event to promote GI			0.582	
Producers' association takes awareness initiatives on GI among public			0.506	
Producers' association ensures practice of CoP by members				0.853
Producers' association has dispute redressal system to resolve GI issues				0.595
Extraction Method: Principal Component Analysis				
Rotation Method: Varimax with Kaiser Normalization. ^a				
Rotation converged in 12 iterations				
Source: Primary Data and Computed				

The rotated factor loading reveals four distinct factors which are named as:

i. Assistance in GI management

‘Producers’ association ensures GI management by inspection body’, ‘producers’ association raises GI related issues with Government’, and ‘producers association assists the producers stick to CoP’ comprised this component, which accounted for 21.239 % of the total variations.

ii. Assistance for AU registration and boosting inter - personal relations

‘Producers’ association has boosted interpersonal links among producers’, ‘producers’ association membership has increased the confidence of the producers’, ‘producers’ association holds regular meetings’, and ‘producers’ association assisted the producers in getting AU registration’ comprised the second factor, which addressed 20.714 % of the total variances.

iii. Involvement in registration and promotion

The third component consists of ‘producers’ association was actively involved in GI registration’, ‘producers’ association organizes event to promote GI’, and ‘producers’ association takes awareness initiatives on GI among public’, which accounted for 14.996 % of the total variations.

iv. Governance mechanism

‘Producers’ association ensures practice of CoP by members’ and ‘producers’ association has dispute redressal system to resolve GI issues’ made up the fourth component, which explained 9.986 % of the total variations.

8.3.2 Producers’ Level of Awareness about GI

The awareness level of producers about the general aspects of GI are measured under the heads, awareness about general aspects of GI, awareness about GI registrations and awareness about legal procedures relating to GI.

8.3.2.1 Producers’ Awareness about the General Aspects of GI– EFA

Prior to analysis, the applicability of PCA on the six-items measuring ‘Awareness about general aspects of GI among producers’ was evaluated.

The most prominent ‘awareness about GI among the producers’ was found to be ‘awareness that GI logo can be attached to product for brand identity’ ($\bar{X}$ = 4.18 $\pm$ 0.733) while ‘awareness that national level logo and tagline can be attached to GI products’ ($\bar{X}$ = 1.15 $\pm$ 0.485) was the least important measure.

Table 8.7

Descriptive Statistics - Awareness about the General Aspects of GI among the Producers

Variables	Mean	SD	N
Awareness about Geographical Indications	4.13	.649	200
Awareness about GI logo	4.14	.670	200
Awareness about own product having GI logo	4.17	.758	200
Awareness that GI logo can be attached to product for brand identity	4.18	.735	200
Awareness that there is national level logo and tag line for GI	1.16	.492	200
Awareness that national level logo and tagline can be attached to GI products	1.15	.485	200

Source: Primary Data and Computed

I. Assumptions of EFA – Producers’ Awareness about the General Aspects of GI

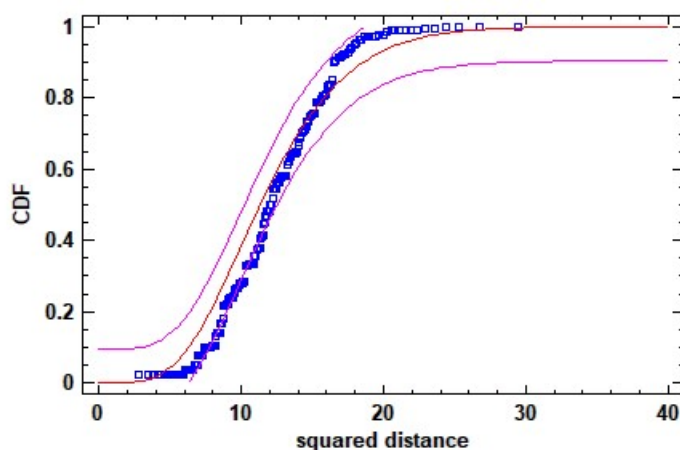
The following assumptions were verified for the applicability of exploratory factor analysis.

a. Multivariate normality.

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by a solid line. Figure 8.3 displays the normality scatterplot established and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.3

Mahalanobis distance scatterplot testing multivariate normality - Awareness about the General Aspects of GI



b. Factorability

Each variable's intercorrelations were appraised using Pearson's correlations to evaluate the factorability of data. Table 8.8 depicts the Pearson's coefficient of correlation between the variables in the analysis.

Table 8.8

Correlation Matrix - Awareness about the General Aspects of GI

	1	2	3	4	5	6
1	1.000					
2	.723	1.000				
3	.519	.687	1.000			
4	.479	.644	.874	1.000		
5	.078	.141	.102	.328	1.000	
6	.058	.122	.124	.138	.969	1.000

Determinant = .013

Legends

- 1 Awareness about Geographical Indications
- 2 Awareness about GI logo
- 3 Awareness about own product having GI logo
- 4 Awareness that GI logo can be attached to product for brand identity
- 5 Awareness that there is national level logo and tag line for GI
- 6 Awareness that national level logo and tagline can be attached to GI products

Every variable in the dimension relating to 'awareness level of producers about general aspects of GI' was appropriate for factor analysis, with at least one correlation value higher than 0.30.

c. Multicollinearity

There is no multicollinearity in the data, and the model findings are reliable, owing to the correlation matrix's determinant value of .013 (≥ 0.00001).

II. EFA Results – Producers' Awareness about the General Aspects of GI

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett's test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.9 displays the KMO and Bartlett's test results.

Table 8.9*KMO and Bartlett's Test - Awareness about the General Aspects of GI*

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.754
Bartlett's Test of Sphericity	Approx. Chi-Square	1140.24
	Df	15
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.754, which confirms the sampling adequacy for factor analysis. The Bartlett's test of Sphericity was significant, as the p value is less than 0.05, confirming that the correlation matrix is not an identity matrix.

b. Communalities Results

In order to find whether the proportion of each variable's variance was explained by the extracted factors communalities were examined. The initial communalities and communalities after extraction are shown in Table 8.10.

Table 8.10*Communalities - Awareness about the General Aspects of GI*

Variables	Initial	Extraction
Awareness about Geographical Indications	1.000	.621
Awareness about GI logo	1.000	.818
Awareness about own product having GI logo	1.000	.831
Awareness that GI logo can be attached to product for brand identity	1.000	.797
Awareness that there is national level logo and tag line for GI	1.000	.978
Awareness that national level logo and tagline can be attached to GI products	1.000	.976

Extraction Method: Principal Component Analysis.

Source: Primary Data and Computed

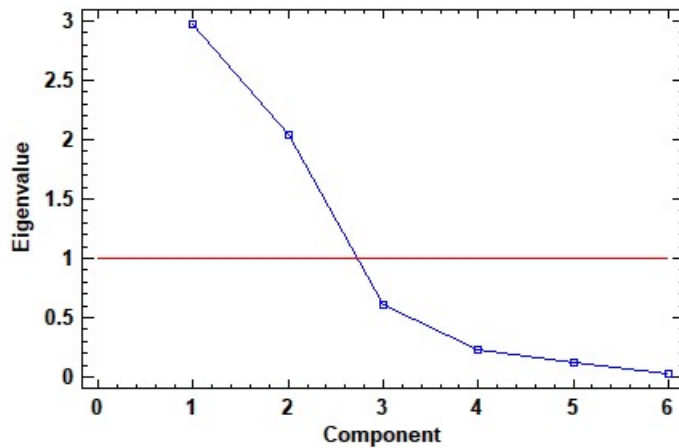
The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The scree plot (figure 8.4) shows the eigenvalues for each of the twelve variables. The scree plot revealed a distinct elbow point at factor two, indicating that two factors should be retained.

Figure 8.4

Scree Plot - Awareness about the General Aspects of GI



d. Total Variances Explained

The eigen values and total variances explained before and after varimax rotation are shown in Table 8.11.

Table 8.11 depicts that the first two factors had eigenvalue more than 1 and were retained. These two factors explained 83.70 % of the total variance, suggesting that these factors account for a substantial portion of the variability.

Table 8.11*Total Variances Explained - Awareness about the General Aspects of GI*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
		%	of		%	of		%	of
	Total	Variance	Cumulative %	Total	Variance	Cumulative %	Total	Variance	Cumulative %
1	2.974	49.560	49.560	2.974	49.560	49.560	2.971	49.517	49.517
2	2.048	34.141	83.701	2.048	34.141	83.701	2.051	34.184	83.701
3	0.610	10.162	93.863						
4	0.224	3.740	97.603						
5	.124	2.060	99.664						
6	.020	0.336	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

e. Factor Loading Matrix After Varimax Rotation

Varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

Table 8.12

Factor Loading Matrix After Varimax Rotation - Awareness about the General Aspects of GI

Variables	Component	
	1	2
Awareness about own product having GI logo	.900	
Awareness about GI logo	.889	
Awareness that GI logo can be attached to product for brand identity	.875	
Awareness about Geographical Indications	.778	
Awareness that there is national level logo and tag line for GI		.989
Awareness that national level logo and tagline can be attached to GI products		.988

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization

Rotation converged in 6 iterations

Source: Primary Data and Computed

The rotated factor loading reveals two distinct factors which are:

i. Awareness about GI, GI logo and associated benefits

The first component, which was responsible for 49.517 % of total variances consisted 'awareness about own product having GI logo', 'awareness about GI logo', 'awareness that GI logo can be attached to product for brand identity' and 'general awareness about GI.'

ii. Awareness of national level logo

The second factor that explained 34.184 % of total variances consisted of 'awareness that there is national level logo and tag line for GI' and 'awareness that national level logo and tagline can be attached to GI products.'

8.3.2.2 Producers' Awareness About GI Registrations - EFA

Prior to analysis, the applicability of PCA on an eight-items evaluating 'Awareness about GI Registrations' was examined.

Table 8.13

Descriptive Statistics - Awareness About GI Registrations

Variables	Mean	SD	N
Awareness about procedures for getting GI registration	1.58	.732	200
Awareness that producers can get individual AU registration	1.80	1.257	200
Awareness about the validity of GI registration being 10 years	2.30	.827	200
Awareness that GI registration has to be renewed after 10 years	1.87	.768	200
Awareness that single GI registration can provide pan India protection	3.00	.865	200
Awareness that GI protected in home country can seek protection abroad	1.51	.567	200
Awareness that the GI registration fee is Rs.5000	2.76	.936	200
Awareness that the GI registration renewal fee is Rs. 3000	1.44	.554	200

Source: Primary Data and Computed

The most notable 'Awareness about GI registrations' was found to be 'Awareness that single GI registration will provide pan India protection' ($\bar{X}$ = 3.00 $\pm$ 0.865) while 'Awareness that the GI registration renewal fee is Rs. 3000' ($\bar{X}$ = 1.44 $\pm$ 0.554) was the least significant measure of awareness about GI registrations.

I. Assumptions of EFA - Producers' Awareness About GI Registrations

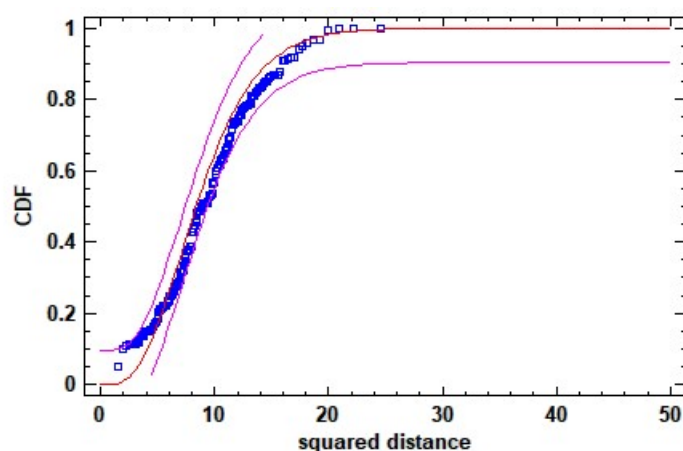
Before performing the factor analysis, the following assumptions are examined for application.

a. Multivariate Normality

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by a solid line. Figure 8.5 displays the normality scatterplot established and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.5

Mahalanobis distance scatterplot testing multivariate normality - Awareness About GI Registrations



b. Factorability.

Each variable's intercorrelations were appraised using Pearson's correlations to evaluate the factorability of data. Table 8.14 depicts the Pearson's coefficient of correlation between the variables in the analysis.

Table 8.14

Correlation Matrix - Awareness About GI Registrations

	1	2	3	4	5	6	7	8	9
1	1.000								
2	.343	1.000							
3	.292	.453	1.000						
4	.092	.388	.375	1.000					
5	.003	.084	.303	.305	.230	1.000			
6	.041	.615	.157	.310	.331	.271	1.000		
7	.067	.512	.113	.591	.122	.290	.362	1.000	
8	.044	.102	.065	.493	.113	.115	.193	.386	1.000

a. Determinant = .125

Legends

- 1 Awareness about procedures for Getting GI registration
- 2 Awareness that producers can get individual AU registration
- 3 Awareness about the validity of GI registration being 10 years
- 4 Awareness that GI registration has to be renewed after 10 years
- 5 Awareness that single GI registration can provide pan India protection
- 6 Awareness that GI protected in home country can seek protection abroad

- 7 Awareness that the GI registration fee is Rs.5000
- 8 Awareness that the GI registration renewal fee is Rs. 3000

Every variable in the dimension relating to ‘awareness level of producers about GI registrations’ was appropriate for factor analysis, with at least one correlation value higher than 0.30.

c. Multicollinearity

There is no multicollinearity in the data, and the model findings are dependable, according to the correlation matrix's determinant value of 0.125 (≥ 0.00001).

II. EFA Results – Producers’ Awareness About GI Registrations

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett’s test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.15 displays the KMO and Bartlett’s test results.

Table 8.15

KMO and Bartlett's Test - Awareness About GI Registrations

Kaiser-Meyer-Olkin Adequacy.	Measure of Sampling	.719
Bartlett's Test of Sphericity	Approx. Chi-Square	405.759
	Df	36
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.719 which confirms sampling adequacy for factor analysis. The Bartlett’s test of Sphericity was significant, as the p value is less than 0.05, confirming that the correlation matrix is not an identity matrix.

b. Communalities Results

In order to find whether the proportion of each variable’s variance was explained by the extracted factors communalities were examined.

Table 8.16 displays the initial communalities as well as the communalities following extraction.

Table 8.16*Communalities - Awareness About GI Registrations*

Variables	Initial	Extraction
Awareness about procedures for getting GI registration	1.000	.602
Awareness that producers can get individual AU registration	1.000	.635
Awareness about the validity of GI registration being 10 years	1.000	.694
Awareness that GI registration has to be renewed after 10 years	1.000	.779
Awareness that the GI registration of my product has been renewed after 10 years	1.000	.545
Awareness that single GI registration can provide pan India protection	1.000	.478
Awareness that GI protected in home country can seek protection abroad	1.000	.507
Awareness that the GI registration fee is Rs.5000	1.000	.781
Awareness that the GI registration renewal fee is Rs. 3000	1.000	.457

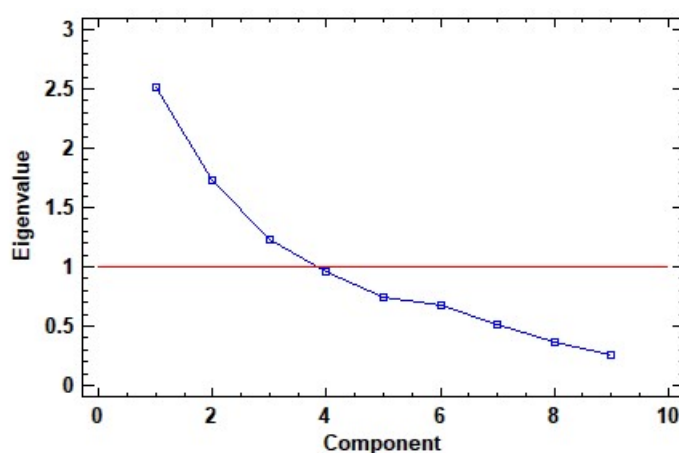
Extraction Method: Principal Component Analysis.

Source: Primary Data and Computed

The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The eigenvalues for each of the eight factors are displayed in the scree plot (Figure 8.6).

Figure 8.6*Scree Plot Awareness About GI Registrations*

The study has identified three elements with eigenvalues greater than 1.

d. Total Variance Explained

Table 8.17 displays the eigenvalues and total variances explained prior to and following varimax rotation.

Table 8.17

Total Variances Explained - Awareness About GI Registrations

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.506	27.840	27.840	2.506	27.840	27.840	2.240	24.892	24.892
2	1.737	19.303	47.144	1.737	19.303	47.144	1.653	18.362	43.254
3	1.235	13.720	60.863	1.235	13.720	60.863	1.585	17.609	60.863
4	0.964	10.713	71.577						
5	.744	8.268	79.845						
6	.684	7.598	87.442						
7	.517	5.741	93.184						
8	.355	3.943	97.126						
9	.259	2.874	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

Table 8.17 shows that the first three factors had eigenvalue more than 1 and were retained. These three factors explained 60.863 % of the total variance, suggesting that these factors account for a substantial portion of the variability.

e. Factor Loading Matrix After Varimax Rotation

Varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

Table 8.18*Factor Loading Matrix After Varimax Rotation - Awareness About GI Registrations*

Variables	Component		
	1	2	3
Awareness that GI registration has to be renewed after 10 years	.878		
Awareness that the GI registration fee is Rs.5000	.779		
Awareness that the GI registration renewal fee is Rs. 3000	.672		
Awareness that GI protected in home country can seek protection abroad		.681	
Awareness that single GI registration can provide pan India protection		.680	
Awareness about the validity of GI registration being 10 years			.782
Awareness about procedures for getting GI registration			.723
Awareness that producers can get individual AU registration			.631

Extraction Method: Principal Component Analysis

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 8 iterations.

Source: Primary Data and Computed

The rotated factor loading reveals three distinct factors which are:

i. Awareness of GI registration renewal and fee

This first component, which was responsible for 24.892 % of total variances consisted of ‘awareness that GI registration has to be renewed after 10 years’, ‘awareness that the GI registration fee is Rs.5000’ and ‘awareness that the GI registration renewal fee is Rs. 3000.’

ii. Awareness of GI’s territorial coverage

The second element that described 18.362 % of total variances consisted of ‘awareness that GI protected in home country can seek protection abroad’ and ‘awareness that single GI registration can provide pan India protection.’

iii. Awareness about validity and procedure of GI registration

The final element, which explained 17.609 % of total variances consisted of ‘awareness about the validity of GI registration being 10 years’, ‘awareness about procedures for getting GI registration’ and ‘awareness that producers can get individual AU registration.’

8.3.2.3 Producers’ Awareness About Legal Aspects of GI - EFA

Prior to analysis, the applicability of PCA on the six-items measuring the ‘awareness about legal aspects of GI’ was evaluated.

Table 8.19

Descriptive Statistics - Awareness About Legal Aspects of GI

Variables	Mean	SD	N
Awareness that GI gives the product legal protection	3.66	.712	200
Awareness that the right to use registered GI can be transferred to legal heir	1.35	.517	200
Awareness about the legal procedures in case of GI Act violation	1.24	.428	200
Awareness that GI is a collective mark	3.53	.756	200
Awareness that GI can provide products with collective monopoly	2.47	.976	200
Awareness that GI rights cannot be transferred to external parties	1.48	.617	200

Source: Primary Data and Computed

The most notable ‘awareness about legal aspects of GI’ was found to be ‘awareness that GI gives the product legal protection’ ($\bar{X}= 3.66 \pm 0.712$) while ‘awareness about the legal procedures in case of GI Act violation’ ($\bar{X}= 1.24 \pm 0.428$) was the least important measure of awareness about GI Registrations.

I. Assumptions of EFA – Producers’ Awareness About Legal Aspects of GI

The following assumptions were verified for the applicability of exploratory factor analysis.

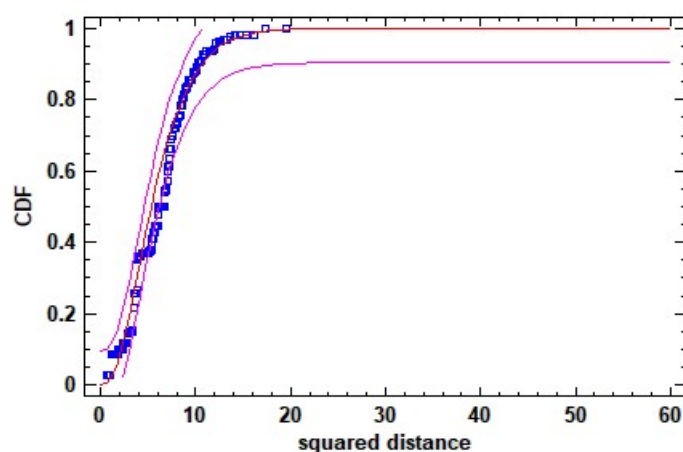
a. Multivariate normality

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by the solid line. Figure 8.7 displays the normality scatterplot established

and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.7

Mahalanobis distance scatterplot testing multivariate normality - Awareness About Legal Aspects of GI



b. Factorability

Each variable's intercorrelations were appraised using Pearson's correlations to evaluate the factorability of data. Table 8.20 depicts the Pearson's coefficient of correlation between the variables in the analysis.

Table 8.20

Correlation Matrix - Awareness About Legal Aspects of GI

	1	2	3	4	5	6
1	1.000					
2	.334	1.000				
3	.318	.600	1.000			
4	.370	.164	.368	1.000		
5	.337	.139	.128	.355	1.000	
6	.243	.491	.389	.249	.265	1.000

Determinant = .278

Legends

- 1 Awareness that GI gives the product legal protection
- 2 Awareness that the right to use registered GI can be transferred to legal heir
- 3 Awareness about the legal procedures in case of GI Act violation
- 4 Awareness that GI is a collective mark

- 5 Awareness that GI can provide products with collective monopoly
- 6 Awareness that GI rights cannot be transferred to external parties

Every variable in the dimension ‘awareness about legal aspects of GI’ was suitable for factor analysis, with at least a single correlation value larger than 0.30.

c. Multicollinearity

There is no multicollinearity in the data, and the model findings are reliable, according to the correlation matrix's determinant value of 0.278 (≥ 0.00001).

II. EFA Results – Producers’ Awareness About Legal Aspects of GI

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett’s test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.21 displays the KMO and Bartlett’s test results.

Table 8.21

KMO and Bartlett's Test- Awareness About Legal Aspects of GI

Kaiser-Meyer-Olkin Adequacy	Measure of Sampling	.703
Bartlett's Test of Sphericity	Approx. Chi-Square	251.352
	df	15
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.703 which confirms sampling adequacy for factor analysis. The Bartlett’s test of Sphericity was significant, as the p value is less than 0.05, confirming the absence of an identity matrix.

b. Communalities Results

The initial communality estimates assumed that all the data variability were brought about by common causes because the main components approach was used. Table 8.22 displays the initial communalities in addition to the communalities following extraction.

Table 8.22*Communalities- Awareness About Legal Aspects of GI*

Variables	Initial	Extraction
Awareness that GI gives the product legal protection	1.000	.517
Awareness that the right to use registered GI can be transferred to legal heir	1.000	.805
Awareness about the legal procedures in case of GI Act violation	1.000	.679
Awareness that GI is a collective mark	1.000	.610
Awareness that GI can provide products with collective monopoly	1.000	.619
Awareness that GI rights cannot be transferred to external parties	1.000	.467

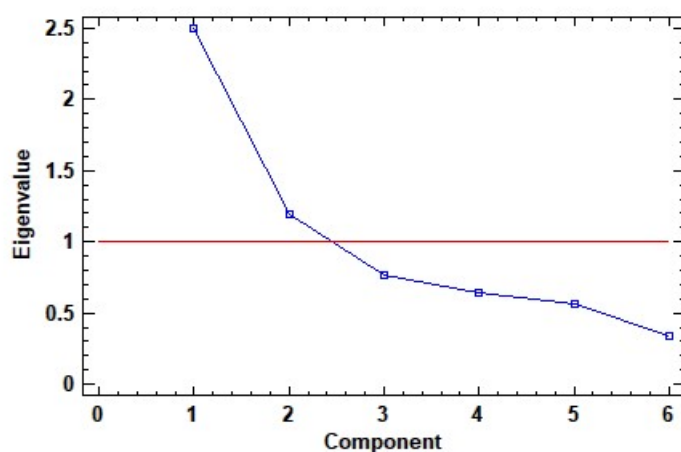
Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The eigenvalues for each of the six factors are displayed in the scree plot (Figure 8.8)

Figure 8.8*Scree Plot - Awareness About Legal Aspects of GI*

The scree plot revealed a distinct elbow point at factor two, indicating that two factors should be retained.

d. Total Variances Explained

Table 8.23 displays the eigenvalues and total variances explained prior to and following varimax rotation.

Table 8.23

Total Variances Explained - Awareness About Legal Aspects of GI

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.504	41.727	41.727	2.504	41.727	41.727	1.986	33.105	33.105
2	1.194	19.897	61.624	1.194	19.897	61.624	1.711	28.519	61.624
3	.766	12.763	74.387						
4	.636	10.608	84.996						
5	.560	9.330	94.325						
6	.340	5.675	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

Table 8.23 shows that the first two factors had eigenvalue more than 1 and were retained. These two factors explained 61.62 % of the total variance, suggesting that these factors account for a substantial portion of the variability.

e. Factor Loading Matrix After Varimax Rotation

Varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

The rotated factor loading depicted in Table 8.24 reveals two distinct factors which are:

i. Awareness of GI ownership and enforcement

This first element, which was responsible for 33.105 % of all variations included 'awareness that the right to use registered GI can be transferred to legal heir', 'awareness about the legal procedures in case of GI Act violation' and 'awareness that GI rights cannot be transferred to external parties.'

ii. Awareness of GI's legal and collective function

The second element that explained 28.519 % of all variations were made up of 'awareness that GI can provide products with collective monopoly', 'awareness that GI is a collective mark' and 'awareness that GI gives the product legal protection.'

Table 8.24

Factor Loading Matrix After Varimax Rotation- Awareness About Legal Aspects of GI

Variables	Component	
	1	2
Awareness that the right to use registered GI can be transferred to legal heir	.893	
Awareness about the legal procedures in case of GI Act violation	.822	
Awareness that GI rights cannot be transferred to external parties	.608	
Awareness that GI can provide products with collective monopoly		.786
Awareness that GI is a collective mark		.776
Awareness that GI gives the product legal protection		.621

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 3 iterations.

Source: Primary Data and Computed

8.3.3 Economic Impact of Geographical Indications

The subjective assessment of Economic impact was under two different sections, one measuring the price effect of GI and another measuring the market and finance effect of GI.

8.3.3.1 Producers' Perception on Price Effect of GI - EFA

Prior to analysis, the applicability of PCA on the four-items determining the 'price effect of GI' was evaluated.

Table 8.25*Descriptive Statistics – Price Effect of GI*

Variables	Mean	SD	N
Power to fix price for the produce	2.85	1.031	200
Experiencing price stability for the product in the market	4.32	.563	200
Need to follow uniform CoP increased the production cost	1.69	.526	200
Getting price premium for produce	4.31	.493	200

Source: Primary Data and Computed

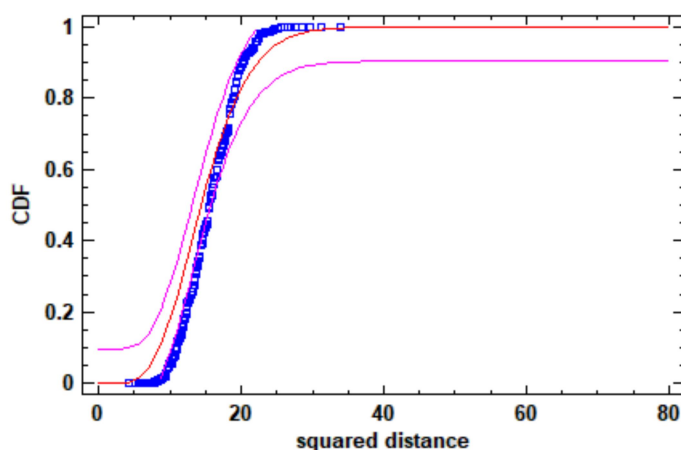
The most notable ‘price effect of GI’ was found to be ‘experiencing price stability for the product in the market’ ($\bar{x} = 4.32 \pm 0.563$) while ‘need to follow uniform cop increased the production cost’ ($\bar{x} = 1.69 \pm 0.526$) was the price effect's least significant metric.

I. Assumptions of EFA – Producers’ Perception on Price Effect of GI

Before performing the factor analysis, the following assumptions are considered for application.

a. Multivariate normality

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by the solid line. Figure 8.9 displays the normality scatterplot established and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.9*Mahalanobis distance scatterplot testing multivariate normality – Price Effect of GI*

b. Factorability

Each variable's intercorrelations were appraised using Pearson's correlations to evaluate the factorability of data. Table 8.26 depicts the Pearson's coefficient of correlation between the variables in the analysis.

Table 8.26

Correlation Matrix– Price Effect of GI

	1	2	3	4
1	1.000			
2	.341	1.000		
3	.373	.121	1.000	
4	.170	.720	.331	1.000

Determinant = .385

Legends

- 1 Power to fix price for the produce
- 2 Experiencing price stability for the product in the market
- 3 Need to follow uniform CoP increased the production cost
- 4 Getting price premium for produce

Every variable in the dimension 'price effect of GI' was appropriate for factor analysis, with at least one correlation value higher than 0.30.

c. Multicollinearity

There is no multicollinearity in the data, and the model findings are trustworthy according to 0.385 (≥ 0.00001) is the correlation matrix's determinant value.

II. EFA Results – Producers' Perception on Price Effect of GI

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett's test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.27 displays the KMO and Bartlett's test results.

Table 8.27*KMO and Bartlett's Test– Price Effect of GI*

Kaiser-Meyer-Olkin Adequacy	Measure of Sampling	.720
Bartlett's Test of Sphericity	Approx. Chi-Square	187.923
	df	6
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.720 which confirms sampling adequacy for factor analysis. The Bartlett's test of Sphericity was significant, as the p value is less than 0.05, confirming the absence of an identity matrix.

b. Communalities Results

The original communality estimates assumed that all the data variability could be explained by common causes because the main components approach was used. Table 8.28 displays both the initial communalities and the communalities following extraction.

Table 8.28*Communalities– Price Effect of GI*

Variables	Initial	Extraction
Power to fix price for the produce	1.000	.597
Experiencing price stability for the product in the market	1.000	.868
Need to follow uniform CoP increased the production cost	1.000	.714
Getting price premium for produce	1.000	.841

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

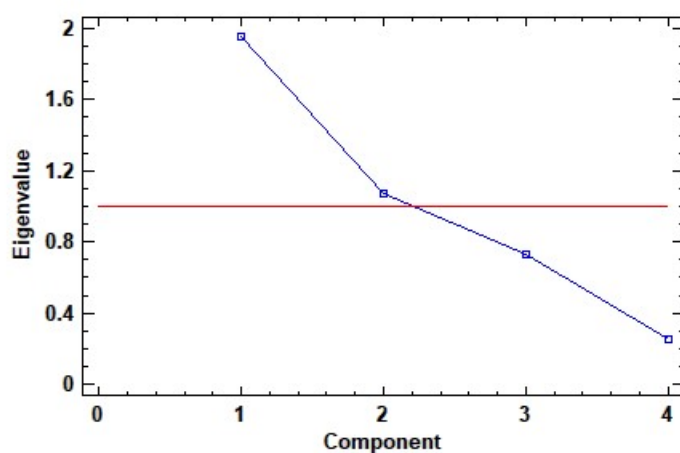
The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The eigenvalues for each of the four factors are presented in the scree plot (Figure 8.10)

Figure 8.10

Scree Plot– Price Effect of GI



The scree plot revealed a distinct elbow point at factor two, indicating that two factors should be retained.

d. Total Variances Explained

Table 8.29 displays the eigenvalues and total variances explained prior to and following varimax rotation.

Table 8.29

Total Variances Explained– Price Effect of GI

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.950	48.754	48.754	1.950	48.754	48.754	1.739	43.480	43.480
2	1.069	26.732	75.487	1.069	26.732	75.487	1.280	32.007	75.487
3	.726	18.161	93.648						
4	.254	6.352	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

Table 8.29 shows that the first two factors had eigenvalue more than 1 and were retained. These two factors explained 75.48 % of the total variance, suggesting that these factors account for a substantial portion of the variability.

e. **Factor Loading Matrix After Varimax Rotation**

Varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

Table 8.30

Factor Loading Matrix After Varimax Rotation– Price Effect

Variables	Component	
	1	2
Getting price premium for produce	.915	
Experiencing price stability for the product in the market	.915	
Need to follow uniform CoP increased the production cost		.845
Power to fix price for the produce		.730

Extraction Method: Principal Component Analysis.

Rotation Method: Varimax with Kaiser Normalization.

Rotation converged in 3 iterations.

Source: Primary Data and Computed

The rotated factor loading reveals two distinct factors which are:

i. **Price advantage**

This first element, which was responsible for 43.480 % of total variances consisted ‘getting price premium for produce’ and ‘experiencing price stability for the product in the market.’

ii. **Price influence**

The second factor is which accounted for 32 % consisted of ‘need to follow uniform CoP increased the production cost’ and ‘power to fix price for the produce.’

8.3.3.2 Producers’ Perception on Market and Finance Effect of GI

Prior to analysis, the applicability of PCA on the eight-items measuring the ‘market and finance effect of GI’ was evaluated.

Table 8.31*Descriptive Statistics – Market and Finance Effect of GI*

Variables	Mean	SD	N
Increase in the reputation of the product	4.23	.683	200
Increase in the demand for the product in domestic market	4.02	.614	200
Increase in access to new markets	1.60	.511	200
Increase in export for the product	1.63	.571	200
Increase in tourism prospects of the region	2.43	1.015	200
Greater interest on the part of the financial institution in providing credit to the producers after the receipt of GI tag	1.82	.538	200
Increase in Government subsidies / grants	2.18	1.011	200
Increase in Govt schemes to facilitate GI product promotion	3.72	.688	200

Source: Primary Data and Computed

The most significant ‘market and finance effect of GI’ was determined to be ‘increase in the product's reputation’ ($X . = 4.23 \pm 0.683$), while the least significant measure was ‘increase in access to new markets’ ($X . = 1.60 \pm 0.511$).

I. Assumptions of EFA - Producers’ Perception on Market and Finance Effect of GI

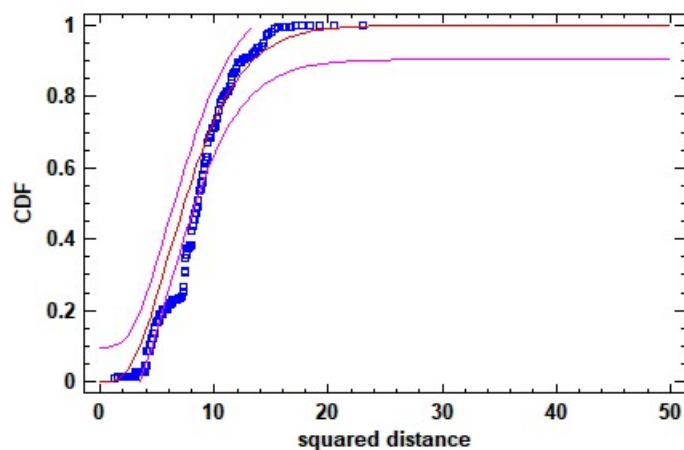
Before performing the factor analysis, the following assumptions are examined for application.

a. Multivariate normality

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by the solid line. Figure 8.11 displays the normality scatterplot established and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.11

Mahalanobis distance scatterplot testing multivariate normality – Market and Finance Effect of GI



b. Factorability

Each variable's intercorrelations were appraised using Pearson's correlations to evaluate the factorability of data. Table 8.32 depicts the Pearson's coefficient of correlation between the variables in the analysis.

Table 8.32

Correlation Matrix– Market and Finance Effect of GI

	1	2	3	4	5	6	7	8
1	1.000							
2	.356	1.000						
3	.301	.309	1.000					
4	.014	.070	.826	1.000				
5	.166	.070	.329	.424	1.000			
6	.015	.023	.312	.205	.324	1.000		
7	.066	.182	.393	.370	.307	.235	1.000	
8	.081	.026	.094	.153	.078	.108	.383	1.000

Determinant = .132

Legends

- 1 Increase in the reputation of the product
- 2 Increase in the demand for the product in domestic market
- 3 Increase in access to new markets
- 4 Increase in export for the product
- 5 Increase in tourism prospects of the region

- 6 Greater interest on the part of the financial institution in providing credit to the producers after the receipt of GI tag
- 7 Increase in Government subsidies / grants
- 8 Increase in Govt schemes to facilitate GI product promotion

Every variable in the dimension ‘market and finance effect of GI’ was right for factor analysis, with at least one correlation value greater than 0.30.

c. Multicollinearity

The correlation matrix’s determinant’s value was 0.132 (≥ 0.00001), demonstrating the reliability of the model’s results and the absence of multicollinearity in the data.

II. EFA - Producers’ Perception on Market and Finance Effect of GI

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett’s test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.33 displays the KMO and Bartlett’s test results.

Table 8.33

KMO and Bartlett's Test– Market and Finance Effect of GI

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.729
Bartlett's Test of Sphericity	Approx. Chi-Square	396.034
	df	28
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.729 which confirms sampling adequacy for factor analysis. The Bartlett’s test of Sphericity was significant, as the p value is less than 0.05, confirming the absence of identity matrix.

b. Communalities Results

The original communality estimates assumed that all the data variability was caused by common causes because the main components approach had been employed. Table 8.34 exhibits the initial communalities and the final communalities following extraction.

Table 8.34*Communalities– Market and Finance Effect of GI*

Variables	Initial	Extraction
Increase in the reputation of the product	1.000	.620
Increase in the demand for the product in domestic market	1.000	.582
Increase in access to new markets	1.000	.823
Increase in export for the product	1.000	.824
Increase in tourism prospects of the region	1.000	.536
Greater interest on the part of the financial institution in providing credit to the producers after the receipt of GI tag	1.000	.458
Increase in Government subsidies / grants	1.000	.677
Increase in Govt schemes to facilitate GI product promotion	1.000	.780

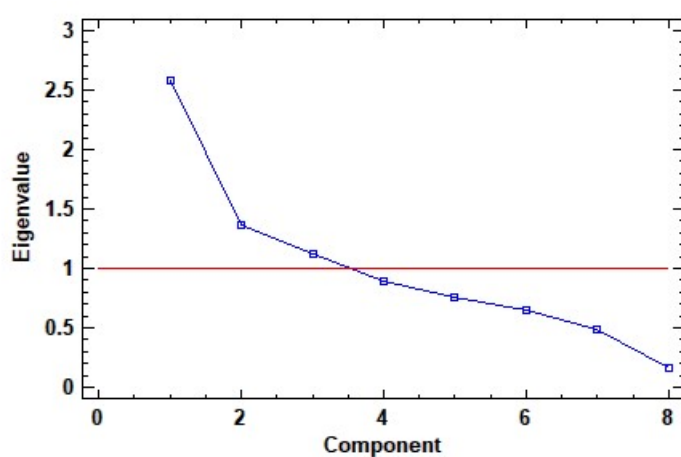
Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The eigenvalues for each of the eight factors are displayed in the scree plot (Figure 8.12).

Figure 8.12*Scree Plot – Market and Finance Effect of GI*

The scree plot revealed a distinct elbow point at factor three, indicating that three factors should be retained.

d. Total Variances Explained

Table 8.35 displays the eigenvalues and total variances explained prior to and following varimax rotation.

Table 8.35

Total Variances Explained– Market and Finance Effect of GI

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.586	32.326	32.326	2.586	32.326	32.326	2.292	28.655	28.655
2	1.363	17.039	49.365	1.363	17.039	49.365	1.402	17.530	46.186
3	1.120	14.005	63.370	1.120	14.005	63.370	1.375	17.185	63.370
4	0.887	11.085	74.455						
5	.752	9.403	83.859						
6	.647	8.093	91.952						
7	.484	6.052	98.004						
8	.160	1.996	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

Table 8.35 shows that the first three factors had eigenvalue more than 1 and were retained. These three factors explained 63.370 % of the total variance, suggesting that these factors account for a substantial portion of the variability.

e. Factor Loading Matrix after Varimax Rotation

Varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

Table 8.36*Factor Loading Matrix After Varimax Rotation– Market and Finance Effect of GI*

Variables	Component		
	1	2	3
Increase in export for the product	.899		
Increase in access to new markets	.882		
Increase in tourism prospects of the region	.640		
Greater interest on the part of the financial institution in providing credit to the producers after the receipt of GI tag	.351		
Increase in Govt schemes to facilitate GI product promotion		.882	
Increase in Government subsidies / grants		.682	
Increase in the reputation of the product			.776
Increase in the demand for the product in domestic market			.745
Extraction Method: Principal Component Analysis			
Rotation Method: Varimax with Kaiser Normalization			
Rotation converged in 4 iterations			
Source: Primary Data and Computed			

The rotated factor loading reveals three distinct factors which are:

i. Market expansion and economic opportunities

The first factor comprised of ‘increased exports for the product’, ‘increased access to new markets’, ‘increased tourism prospects of the region’, and ‘greater interest on the part of the financial institution in providing credit to the producers after the receipt of GI tag’ which accounted for 28.655 % of the total variances.

ii. Increased Govt assistance

‘Increase in Government schemes to facilitate GI product promotion’ and ‘increase in Government subsidies / grants’ made up the second component, which explained 17.530% of the total variations.

iii. Enlarged domestic demand and reputation

The third factor, which accounted for 17.185 % of total variances consisted of ‘increase in the reputation of the product’ and ‘increase in the demand for the product in domestic market.’

8.3.4 Social Impact of Geographical Indications

The subjective assessment of social impact of GI were performed under three dimensions which are confirming ‘organisational and employment effect of GI’, ‘development mechanism effect of GI’ and ‘protection and valorisation effect of GI’. The PCA performed for the three dimensions are given below.

8.3.4.1 Producers’ Perception on Organisational and Employment Effect of GI - EFA

Prior to analysis, the six-items measuring the ‘organisational and employment effect of GI’ was evaluated for PCA applicability.

Table 8.37

Descriptive Statistics – Organisational and Employment Effect of GI

Variables	Mean	SD	N
Increase coordination among the producers	2.47	.826	200
Producers’ association has become more active	2.00	.558	200
Relationship among producers in the association improved	2.06	.670	200
Producer association was helpful in spreading awareness about GI registration among members	4.26	.470	200
Increase in employment opportunity in the area	1.97	.553	200
More youth joining the production and farming activities	2.10	.836	200

Source: Primary Data and Computed

The most prominent ‘organisational and employment effect of GI’ was found to be ‘producer association was helpful in spreading awareness about GI registration among members’ ($\bar{X}= 4.26 \pm 0.470$) while ‘increase in employment opportunity in the area’ ($\bar{X}= 1.97 \pm 0.553$) was the least important measure.

I. Assumptions of EFA – Producers’ Perception on Organisational and Employment Effect of GI

Before performing the factor analysis, the following assumptions are examined for application.

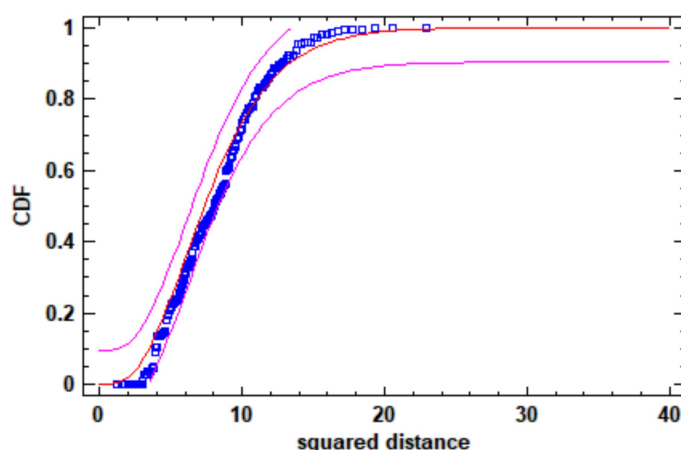
a. Multivariate normality

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by the solid line. Figure 8.13 displays the normality scatterplot established

and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.13

Mahalanobis distance scatterplot testing multivariate normality – Organisational and Employment Effect of GI



b. Factorability

Each variable's intercorrelations were appraised using Pearson's correlations to evaluate the data's factorability. Table 8.38 depicts the Pearson's coefficient of correlation between the variables in the analysis.

Table 8.38

Correlation Matrix– Organisational and Employment Effect of GI

	1	2	3	4	5	6
1	1.000					
2	.318	1.000				
3	.294	.618	1.000			
4	.094	.215	.327	1.000		
5	.102	.391	.454	.073	1.000	
6	.147	.366	.483	.079	.431	1.000

Determinant = .301

Legends

- 1 Increase coordination among the producers
- 2 Producers' association has become more active
- 3 Relationship among producers in the association improved
- 4 Producers' association was helpful in spreading awareness about GI registration among members

- 5 Increase in employment opportunity in the area
- 6 More youth joining the production and farming activities

Every variable in the dimension ‘organisational and employment effect of GI’ was appropriate for factor analysis, with at least one correlation value higher than 0.30.

c. Multicollinearity

There is no multicollinearity in the data, and the model outcomes are reliable, pursuant to the correlation matrix's determinant value of 0.301 (≥ 0.00001).

II. EFA Results - Producers’ Perception on Organisational and Employment Effect of GI

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett’s test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.39 displays the KMO and Bartlett’s test results.

Table 8.39

KMO and Bartlett's Test– Organisational and Employment Effect of GI

Kaiser-Meyer-Olkin Adequacy	Measure of Sampling	.758
Bartlett's Test of Sphericity	Approx. Chi-Square	235.539
	df	15
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.758 which confirms sampling adequacy for factor analysis. The Bartlett’s test of Sphericity was significant, as the p value is less than 0.05, confirming the absence of an identity matrix.

b. Communalities Results

The initial communality estimates assumed that all the data variability was driven by common causes because the main components approach was used.

Table 8.40 displays the initial communalities as well as the communalities following extraction.

Table 8.40*Communalities– Organisational and Employment Effect of GI*

Variables	Initial	Extraction
Increase coordination among the producers	1.000	.463
Producers' association has become more active	1.000	.598
Relationship among producers in the association improved	1.000	.719
Producers' association was helpful in spreading awareness about GI registration among members	1.000	.669
Increase in employment opportunity in the area	1.000	.562
More youth joining the production and farming activities	1.000	.549

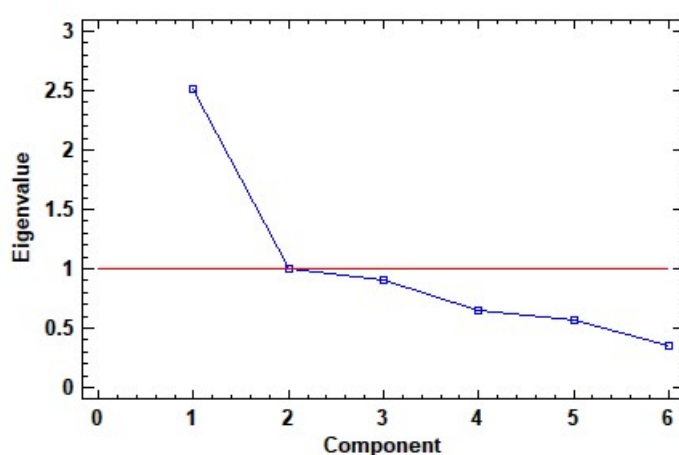
Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The eigenvalues for each of the six factors are presented in the scree plot (Figure 8.14).

Figure 8.14*Scree Plot– Organisational and Employment Effect of GI*

The test has retrieved two factors with eigenvalues greater than 1. Table 8.41 displays the eigenvalues and total variances explained prior to and following varimax rotation.

d. Total Variance Explained

Table 8.41 displays the eigenvalues and total variances reported prior to and following varimax rotation.

Table 8.41

Total Variances Explained– Organisational and Employment Effect of GI

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.512	41.873	41.873	2.512	41.873	41.873	2.353	39.212	39.212
2	1.007	16.777	58.650	1.007	16.777	58.650	1.166	19.438	58.650
3	0.907	15.109	73.759						
4	0.654	10.898	84.657						
5	.566	9.427	94.084						
6	.355	5.916	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

Table 8.41 shows that the first two factors had eigenvalue more than 1 and were retained. These two factors explained 58.65 % of the total variance, suggesting that these factors account for a substantial portion of the variability.

e. Factor Loading for Varimax rotation

By maximizing the variance of the squared loadings, varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

The rotated factor loading as depicted in Table 8.42 reveals two distinct factors which are:

i. Active producers' association and enhanced opportunities

The first component consists of 'producers' association has become more active', 'relationship among producers in the association improved', 'increased employment opportunity in the area', and 'more youth joining the production and farming activities' which explained 39.212 % of the total variations.

ii. Increased producer awareness and coordination

‘Increase coordination among the producers’ and ‘producers’ association was helpful in spreading awareness about GI registration among members’ made up the second factor, which explained 19.438 % of the total variations.

Table 8.42

Factor Loading Matrix After Varimax Rotation– Organisational and Employment Effect of GI

Variables	Component	
	1	2
Relationship among producers in the association improved	.807	
Increase in employment opportunity in the area	.748	
More youth joining the production and farming activities	.740	
Producers’ association has become more active	.738	
Producers’ association was helpful in spreading awareness about GI registration among members		.817
Increase coordination among the producers		.613

Extraction Method: Principal Component Analysis

Rotation converged in 3 iterations.

Source: Primary Data and Computed

8.3.4.2 Producers’ Perception on Development Mechanism Effect of GI

The suitability of PCA of seven-items that measured ‘development mechanism effect of GI’ was assessed prior to analysis.

Table 8.43

Descriptive Statistics – Development Mechanism Effect of GI

Variables	Mean	SD	N
Strengthened the social identity of the Product	4.31	.462	200
Positive complementary effect on other products of the region	1.72	.495	200
Encouraged the settlement of younger generation in their hometown	1.93	.733	200
Reduced the migration to urban area	1.80	.644	200
Increased the migration from outside to the region	1.73	.498	200
Increase in allied job in the region	2.17	.966	200
Increase in land value in the region	1.66	.497	200

Source: Primary Data and Computed

The most prominent ‘development mechanism effect of GI’ was found to be ‘strengthened the social identity of the product’ ($\bar{x} = 4.31 \pm 0.462$) while ‘increase in land value in the region’ ($\bar{x} = 1.66 \pm 0.497$) was the least important measure.

I. Assumptions of EFA – Producers’ Perception in Development Mechanism Effect of GI

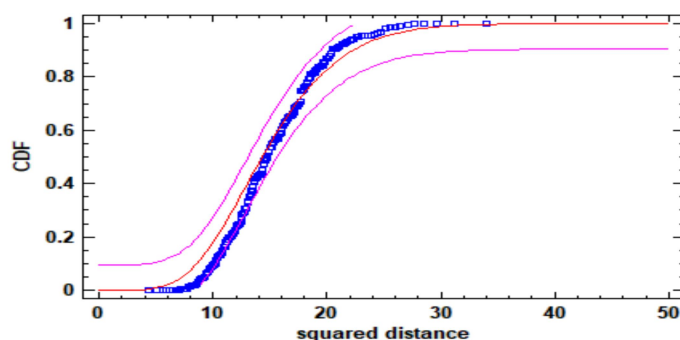
The applicability of the following assumptions is checked before proceeding the factor analysis.

a. Multivariate normality

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by the solid line. Figure 8.15 displays the normality scatterplot established and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.15

Mahalanobis distance scatterplot testing multivariate normality -- Development Mechanism Effect of GI



b. Factorability

Each variable's intercorrelations were appraised using Pearson's correlations to evaluate the factorability of data. Table 8.44 depicts the Pearson's coefficient of correlation between the variables in the analysis.

Table 8.44*Correlation Matrix– Development Mechanism of GI*

	1	2	3	4	5	6	7
1	1.000						
2	.318	1.000					
3	.316	.208	1.000				
4	.279	.178	.352	1.000			
5	.054	.237	.341	.187	1.000		
6	.157	.446	.187	.324	.229	1.000	
7	.320	.191	.323	.192	.109	.328	1.000

Determinant = .424

Legends

- 1 Strengthened the social identity of the product
- 2 Positive complementary effect on other products of the region
- 3 Encouraged the settlement of younger generation in their hometown
- 4 Reduced the migration to urban area
- 5 Increased the migration from outside to the region
- 6 Increase in allied job in the region
- 7 Increase in land value in the region

Every variable in the dimension relating to ‘geographical indications as a development mechanism’ was appropriate for factor analysis, with at least one correlation value higher than 0.30.

c. Multicollinearity

The correlation matrix’s determinant’s value was 0.424 (≥ 0.00001), demonstrating the reliability of the model’s results and the absence of multicollinearity in the data.

II. EFA Results – Producers’ Perception on Development Mechanism Effect of GI**a. KMO and Bartlett’s Test**

The KMO test was performed to test the sampling adequacy and the Bartlett’s test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.45 displays the KMO and Bartlett’s test results.

Table 8.45*KMO and Bartlett's Test– Development Mechanism Effect of GI*

Kaiser-Meyer-Olkin Adequacy	Measure of Sampling	.707
Bartlett's Test of Sphericity	Approx. Chi-Square	167.886
	Df	21
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.707 which confirms sampling adequacy for factor analysis. The Bartlett's test of Sphericity was significant, as the p value is less than 0.05, confirming the absence of an identity matrix.

b. Communalities Results

In order to find whether the proportion of each variable's variance was explained by the extracted factors communalities were examined. The initial communalities and communalities after extraction are shown in Table 8.46.

Table 8.46*Communalities– Development Mechanism Effect of GI*

Variables	Initial	Extraction
Strengthened the social identity of the product	1.000	.575
Positive complementary effect on other products of the region	1.000	.585
Encouraged the settlement of younger generation in their hometown	1.000	.565
Reduced the migration to urban area	1.000	.476
Increased the migration from outside to the region	1.000	.328
Increase in allied job in the region	1.000	.631
Increase in land value in the region	1.000	.290

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

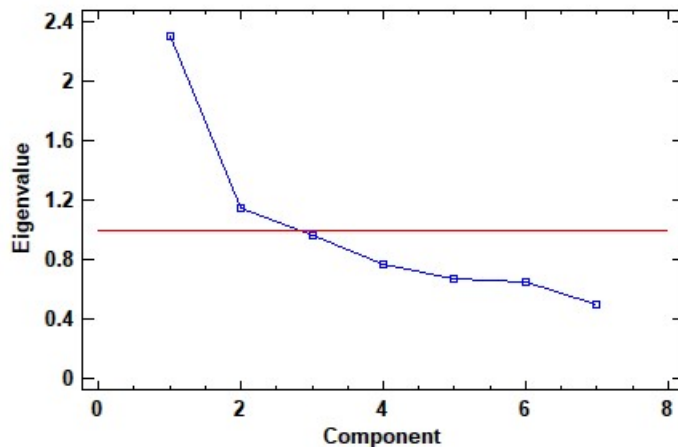
The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The scree plot (Figure 8.16) illustrates each of the eigenvalues for the seven factors.

Figure 8.16

Scree Plot– Development Mechanism Effect of GI



The scree plot revealed a distinct elbow point at factor two, indicating that two factors should be retained. Two factors with eigenvalues greater than 1 have been extracted.

d. Total Variances Explained

Table 8.47 displays the eigenvalues and total variances reported prior to and following varimax rotation.

Table 8.47

Total Variances Explained– Development Mechanism Effect of GI

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.302	32.885	32.885	2.302	32.885	32.885	1.774	25.349	25.349
2	1.148	17.399	51.285	1.148	17.399	51.285	1.675	25.935	51.285
3	0.962	13.742	63.026						
4	0.773	11.041	74.067						
5	.673	9.614	83.681						
6	0.644	9.198	92.879						
7	.498	7.121	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

Table 8.47 shows that the first two factors had eigenvalue more than 1 and were retained. These two factors explained 51.29 % of the total variance, suggesting that these factors account for a substantial portion of the variability.

e. Factor Loading Matrix After Varimax Rotation

Varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

Table 8.48

Factor Loading Matrix After Varimax Rotation– Development Mechanism Effect of GI

Variables	Component	
	1	2
Increase in allied job in the region	.781	
Positive complementary effect on other products of the region	.761	
Increased the migration from outside to the region	.572	
Increase in land value in the region	.449	
Strengthened the social identity of the product		.758
Encouraged the settlement of younger generation in their hometown		.734
Reduced the migration to urban area		.667
Extraction Method: Principal Component Analysis		
Rotation converged in 3 iterations		
Source: Primary Data and Computed		

The rotated factor loading reveals two distinct factors which are:

i. Increase in community development

This first factor, which accounted for 25.349 % of total variances consisted ‘increase in allied job in the region’, ‘positive complementary effect on other products of the region’, ‘increased the migration from outside to the region’ and ‘increase in land value in the region.’

ii. Development of rural areas

The second factor, which accounted for 23.935 % of total variances consisted of ‘strengthened the social identity of the product’, ‘encouraged the settlement of younger generation in their hometown’ and ‘reduced the migration to urban area.’

8.3.4.3 Producers’ Perception on Protection and Valorisation Effect of GI - EFA

The suitability of PCA of the ten-items that measured ‘protection and valorisation effect of GI’ was assessed prior to analysis.

The most prominent ‘protection and valorisation effect of GI’ was found to be ‘ensures environmental protection’ ($\bar{X}= 4.58 \pm 0.552$) while ‘attitude of the youth towards farming profession has changed for good after the receipt of GI registration’ ($\bar{X}= 2.19 \pm 1.105$) was the least important measure.

Table 8.49

Descriptive Statistics - Protection and Valorisation Effect of GI

Variables	Mean	SD	N
GI protection prevents the name from becoming generic	4.03	.753	200
Ensured protection of traditional knowledge	4.25	.538	200
Ensures environmental protection	4.58	.552	200
Protection of indigenous species of plant varieties	3.35	1.180	200
GI registration has helped in attracting the attention of LSG to the area	2.64	1.323	200
GI registration has helped in attracting the attention of media	4.37	.542	200
GI registration has helped in increasing the popularity of the region	3.91	.952	200
Increase in the status of the farming profession	2.54	1.337	200
Attitude of the youth towards farming profession has changed for good after the receipt of GI registration	2.19	1.105	200
More recognition is bestowed on producers after the receipt of GI registration	2.50	.885	200

Source: Primary Data and Computed

I. Assumptions of EFA – Producers’ Perception on Protection and Valorisation Effect of GI

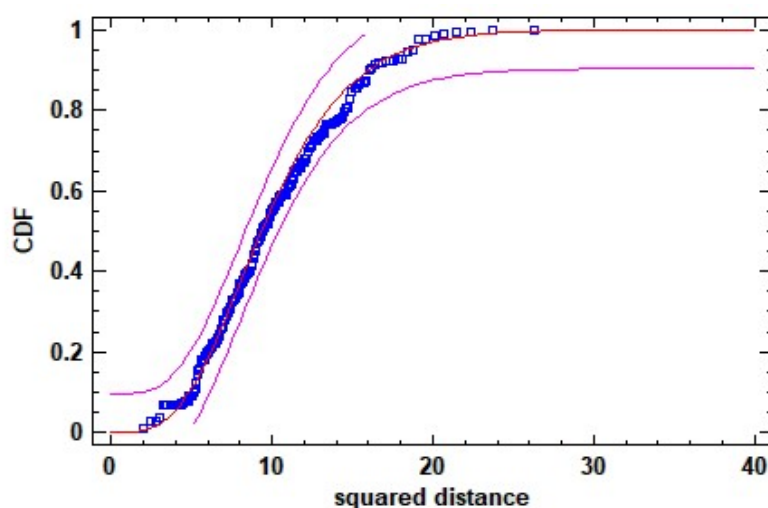
The following assumptions were verified for the applicability of exploratory factor analysis.

a. Multivariate normality

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by the solid line. Figure 8.17 displays the normality scatterplot established and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.17

Mahalanobis distance scatterplot testing multivariate normality- Protection and Valorisation Effect of GI



b. Factorability.

Each variable's intercorrelations were evaluated using Pearson correlations to appraise the factorability of data. Table 8.50 shows the correlation between the variables in the analysis as determined by Pearson's coefficient.

Table 8.50*Correlation Matrix- Protection and Valorisation Effect of GI*

	1	2	3	4	5	6	7	8	9	10
1	1.000									
2	.396	1.000								
3	.255	.371	1.000							
4	.002	.244	.347	1.000						
5	.160	.021	.277	.509	1.000					
6	.398	.134	.262	.030	.165	1.000				
7	.101	.125	.230	.294	.433	.162	1.000			
8	.341	.189	.038	.310	.665	.205	.481	1.000		
9	.339	.114	.008	.394	.639	.253	.504	.801	1.000	
10	.004	.106	.305	.208	.206	.115	.379	.249	.170	1.000

Determinant = .039

Legends

- 1 GI protection prevents the name from becoming generic
- 2 Ensured protection of traditional knowledge
- 3 Ensures environmental protection
- 4 Protection of Indigenous species of plant varieties
- 5 GI registration has helped in attracting the attention of LSG to the area
- 6 GI registration has helped in attracting the attention of Media
- 7 GI registration has helped in increasing the popularity of the region
- 8 Increase in the status of the farming profession
- 9 Attitude of the youth towards farming profession has changed for good after the receipt of GI registration
- 10 More recognition is bestowed on producers after the receipt of GI registration

Every variable in the dimension relating to ‘protection and valorisation effect of GI’ was appropriate for factor analysis, with at least one correlation value higher than 0.30.

c. Multicollinearity

The correlation matrix’s determinant’s value was 0.039 (≥ 0.00001), demonstrating the reliability of the model’s results and the absence of multicollinearity in the data.

II. EFA Results – Producers’ Perception on Protection and Valorisation Effect of GI

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett’s test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.51 displays the KMO and Bartlett’s test results.

Table 8.51

KMO and Bartlett's Test- Protection and Valorisation Effect of GI

Kaiser-Meyer-Olkin Adequacy	Measure of Sampling	.786
Bartlett's Test of Sphericity	Approx. Chi-Square	631.585
	Df	45
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.786 which confirms sampling adequacy for factor analysis. The Bartlett’s test of Sphericity was significant, as the p value is less than 0.05, confirming that the correlation matrix is not an identity matrix.

b. Communalities

In order to find whether the proportion of each variable’s variance was explained by the extracted factors communalities were examined. The initial communalities and communalities after extraction are shown in Table 8.52.

Table 8.52

Communalities- Protection and Valorisation Effect of GI

Variables	Initial	Extraction
GI protection prevents the name from becoming generic	1.000	.470
Ensured protection of traditional knowledge	1.000	.483
Ensures environmental protection	1.000	.575
Protection of indigenous species of plant varieties	1.000	.554
GI registration has helped in attracting the attention of LSG to the area	1.000	.722

Variables	Initial	Extraction
GI registration has helped in attracting the attention of media	1.000	.511
GI registration has helped in increasing the popularity of the region	1.000	.450
Increase in the status of the farming profession	1.000	.783
Attitude of the youth towards farming profession has changed for good after the receipt of GI registration	1.000	.803
More recognition is bestowed on producers after the receipt of GI registration	1.000	.503

Extraction Method: Principal Component Analysis.

Source: Primary Data and Computed

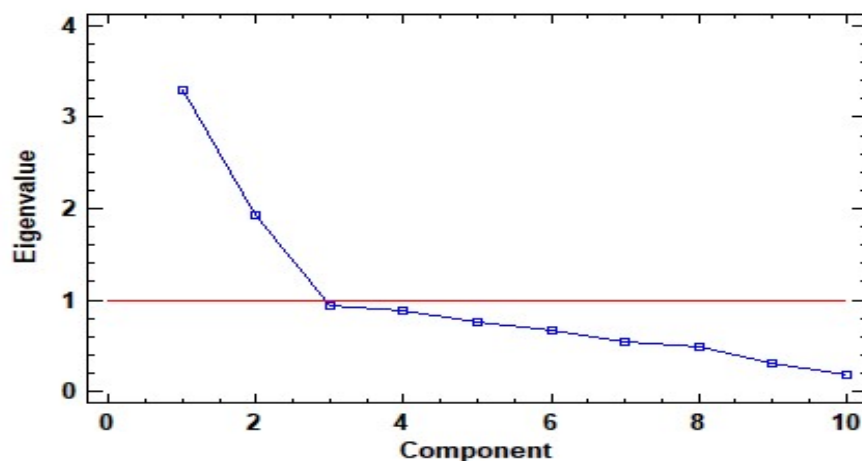
The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The scree plot (Figure 8.18) illustrates each of the eigenvalues for the ten factors.

Figure 8.18

Scree Plot- Protection and Valorisation Effect of GI



The scree plot revealed a distinct elbow point at factor two, indicating that two factors should be retained.

d. Total Variance Explained

Two factors with eigenvalues greater than 1 have been extracted. The eigenvalues and total variances explained before and after varimax rotation are shown in Table 8.53.

Table 8.53 shows that the first two factors had eigenvalue more than 1 and were retained. These two factors explained 52.3 % of the total variance, suggesting that these factors account for a substantial portion of the variability.

Table 8.53*Total Variances Explained- Protection and Valorisation Effect of GI*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% Variance	of Cumulative %	Total	% Variance	of Cumulative %	Total	% Variance	of Cumulative %
1	3.305	33.046	33.046	3.305	33.046	33.046	3.253	32.532	32.532
2	1.925	19.250	52.296	1.925	19.250	52.296	1.976	19.764	52.296
3	0.943	9.429	61.725						
4	0.888	8.880	70.605						
5	.758	7.585	78.190						
6	0.662	6.616	84.806						
7	0.544	5.436	90.242						
8	0.490	4.904	95.146						
9	.306	3.062	98.208						
10	0.179	1.792	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

e. Factor Loading Matrix after Varimax Rotation

Table 8.54

Factor Loading Matrix After Varimax Rotation- Protection and Valorisation Effect of GI

Variables	Component	
	1	2
GI registration has helped in attracting the attention of LSG to the area	.849	
Attitude of the youth towards farming profession has changed for good after the receipt of GI registration	.831	
Increase in the status of the farming profession	.813	
GI registration has helped in increasing the popularity of the region	.667	
Protection of indigenous species of plant varieties	.649	
More recognition is bestowed on producers after the receipt of GI registration	.337	
Ensures environmental protection		.683
GI protection prevents the name from becoming generic		.640
Ensured protection of traditional knowledge		.630
GI registration has helped in attracting the attention of Media		.529
Extraction Method: Principal Component Analysis		
Rotation converged in 3 iterations		
Source: Primary Data and Computed		

The rotated factor loading reveals two distinct factors which are:

i. Increase in status of farming

The first factor, which accounted for 32.523 % of total variances consisted ‘GI registration has helped in attracting the attention of LSG to the area’, ‘attitude of the youth towards farming profession has changed for good after the receipt of GI registration’, ‘increase in the status of the farming profession’, ‘GI registration has helped in increasing the popularity of the region’, ‘protection of indigenous species of plant varieties and ‘more recognition is bestowed on producers after the receipt of GI registration.’

ii. Protection of traditional knowledge and environment

The second factor, which accounted for 19.764 % of total variances consisted of ‘ensures environmental protection’, ‘GI protection prevents the name from becoming

generic’, ‘ensured protection of traditional knowledge’ and ‘GI registration has helped in attracting the attention of media.’

8.3.5 Marketing Benefits of Geographical Indications

Separate principal component analysis (PCA) was run on the six - items measuring ‘product differentiation benefits of GI’ and the five items measuring ‘supply chain and value benefits of GI’.

8.3.5.1 Product Differentiation Benefits of GI - EFA

The suitability of PCA of six-items that measured ‘product differentiation benefits of GI’ was assessed prior to analysis.

Table 8.55

Descriptive Statistics – Product Differentiation Benefits of GI

Variables	Mean	SD	N
GI differentiates the products from that of competitors	2.51	1.330	200
GI helps in ensuring the originality of product	4.01	.985	200
GI helps in communicating the quality of the produce	3.98	.972	200
GI reduces the information search cost of the customers	4.03	1.027	200
GI registration has reduced the unauthorised external intrusions to the area	1.68	0.501	200
Entry of counterfeit products into the market has reduced	1.79	.497	200

Source: Primary Data and Computed

The most prominent ‘product differentiation benefits of GI’ was found to be ‘GI reduces the information search cost of the customers’ ($\bar{X}$ = 4.03± 1.027) while ‘GI registration has reduced the unauthorised external intrusions to the area’ ($\bar{X}$ = 1.68 ± 0.501) was the least important measure.

I. Assumptions of EFA – Product Differentiation Benefits of GI

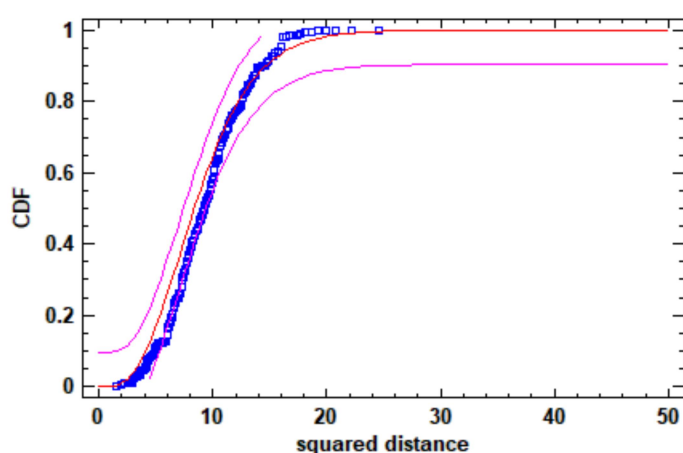
The following assumptions were verified for the applicability of exploratory factor analysis.

a. Multivariate normality.

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by the solid line. Figure 8.19 displays the normality scatterplot established and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.19

Mahalanobis distance scatterplot testing multivariate normality– Product Differentiation Benefits of GI



b. Factorability

Each variable's intercorrelations were evaluated using Pearson correlations to appraise the data's factorability. Table 8.56 shows the correlation between the variables in the analysis as determined by Pearson's coefficient.

Table 8.56

Correlation Matrix– Product Differentiation Benefits of GI

	1	2	3	4	5	6
1	1.000					
2	.363	1.000				
3	.229	.835	1.000			
4	.107	.720	.771	1.000		
5	.338	.168	.096	.179	1.000	
6	.093	.297	.399	.180	.108	1.000

Determinant = .085

Legends

1 GI differentiates the products from that of competitors

- 2 GI helps in ensuring the originality of product
- 3 GI helps in communicating the quality of the produce
- 4 GI reduces the information search cost of the customers
- 5 GI registration has reduced the unauthorised external intrusions to the area
- 6 Entry of counterfeit products into the market has reduced

Every variable in the dimension relating to ‘product differentiation benefit of GI’ was appropriate for factor analysis, with at least one correlation value higher than 0.30.

c. Multicollinearity

The correlation matrix’s determinant’s value was 0.085 (≥ 0.00001), demonstrating the reliability of the model’s results and the absence of multicollinearity in the data.

II. EFA Results – Product Differentiation Benefits of GI

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett’s test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.57 displays the KMO and Bartlett’s test results.

Table 8.57

KMO and Bartlett's Test– Product Differentiation Benefits of GI

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.722
Bartlett's Test of Sphericity	Approx. Chi-Square	483.241
	df	15
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.722 which confirms sampling adequacy for factor analysis. The Bartlett’s test of Sphericity was significant, as the p value is less than 0.05, confirming the absence of an identity matrix.

b. Communalities Results

In order to find whether the proportion of each variable’s variance was explained by the extracted factors communalities were examined. The initial communalities and communalities after extraction are shown in Table 8.58.

Table 8.58*Communalities– Product Differentiation Benefits of GI*

Variables	Initial	Extraction
GI differentiates the products from that of competitors	1.000	.632
GI helps in ensuring the originality of product	1.000	.850
GI helps in communicating the quality of the produce	1.000	.883
GI reduces the information search cost of the customers	1.000	.788
GI registration has reduced the unauthorised external intrusions to the area	1.000	.719
Entry of counterfeit products into the market has reduced	1.000	.180

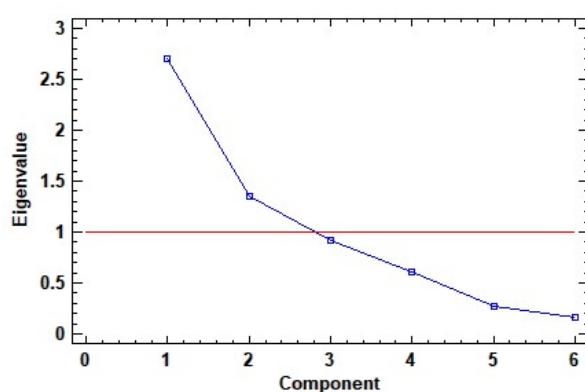
Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The scree plot (Figure 8.20) illustrates each of the eigenvalues for the six factors.

Figure 8.20*Scree Plot– Product Differentiation Benefits of GI*

The scree plot revealed a distinct elbow point at factor two, indicating that two factors should be retained.

d. Total Variances Explained

The eigen values and total variances explained before and after varimax rotation are shown in Table 8.59.

Table 8.59

Total Variances Explained– Product Differentiation Benefits of GI

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.698	44.963	44.963	2.698	44.963	44.963	2.648	44.134	44.134
2	1.355	22.580	67.543	1.355	22.580	67.543	1.405	23.410	67.543
3	0.919	15.310	82.854						
4	0.605	10.084	92.937						
5	.266	4.441	97.378						
6	0.157	2.622	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

Table 8.59 shows that the first two factors had eigenvalue more than 1 and were retained. These two factors explained 67.54 % of the total variance, suggesting that these factors account for a substantial portion of the variability.

e. Factor Loading Matrix After Varimax Rotation

Varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

The rotated factor loading as shown in Table 8.60 reveals two distinct factors which are:

i. Enhanced product recognition

This first factor, which accounted for 44.134 % of total variances consisted of ‘GI helps in communicating the quality of the produce’, ‘GI helps in ensuring the originality of product’ and ‘GI reduces the information search cost of the customers.’

ii. Competitive distinction

The second factor, which accounted for 23.41 % of total variances consisted of ‘GI registration has reduced the unauthorised external intrusions to the area’, ‘GI

differentiates the products from that of competitors’ and ‘entry of counterfeit products into the market has reduced.’

Table 8.60

Factor Loading Matrix After Varimax Rotation– Product Differentiation Benefits of GI

Variables	Component	
	1	2
GI helps in communicating the quality of the produce	.936	
GI helps in ensuring the originality of product	.914	
GI reduces the information search cost of the customers	.888	
GI registration has reduced the unauthorised external intrusions to the area		.823
GI differentiates the products from that of competitors		.772
Entry of counterfeit products into the market has reduced		.431

Extraction Method: Principal Component Analysis

Rotation converged in 3 iterations

Source: Primary Data and Computed

8.3.5.2 Supply Chain and Value Benefits of GI - EFA

The suitability of PCA of five-items that measured ‘effect on supply chain and value benefits of GI’ was assessed prior to analysis.

Table 8.61

Descriptive Statistics – Supply Chain and Value Benefits of GI

Variables	Mean	SD	N
GI Ensures Stable relationship with the Market Intermediaries	3.69	.970	200
GI Increases the Bargaining Power of the Producers over the Market Intermediaries	4.04	0.505	200
GI helps in Obtain long term contracts with the Market Intermediaries	4.05	.484	200
GI aids in improved relation with market intermediaries which increased stability of Business	4.35	.477	200
Benefits of GI registration are enjoyed by the traders and Producers alike	4.27	0.614	200

Source: Primary Data and Computed

The most prominent ‘supply chain and value benefits of GI’ was found to be ‘GI aids in improved relation with market intermediaries which increased stability of business’ ($\bar{X}= 4.35 \pm 0.477$) while ‘GI ensures stable relationship with the market intermediaries’ ($\bar{X}= 3.69 \pm 0.970$) was the least important measure.

I. Assumptions of EFA – Supply Chain and Value Benefits of GI

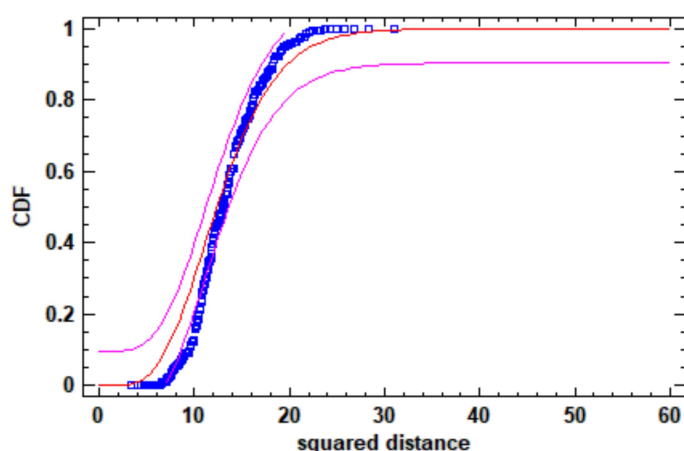
The following assumptions were verified for the applicability of exploratory factor analysis.

a. Multivariate normality

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by the solid line. Figure 8.21 displays the normality scatterplot established and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.21

Mahalanobis distance scatterplot testing multivariate normality– Supply Chain and Value Benefits of GI



b. Factorability

Each variable's intercorrelations were appraised using Pearson's correlations to evaluate the factorability of data. Table 8.62 depicts the Pearson's coefficient of correlation between the variables in the analysis.

Table 8.62*Correlation Matrix – Supply Chain and Value Benefits of GI*

	1	2	3	4	5
1	1.000				
2	.305	1.000			
3	.195	.610	1.000		
4	.380	.217	.107	1.000	
5	.217	.329	.213	.356	1.000

Determinant = .464

Legends

- 1 GI ensures stable relationship with the market intermediaries
- 2 GI increases the bargaining power of the producers over the market intermediaries
- 3 GI helps to obtain long term contracts with the market intermediaries
- 4 GI aids in improved relation with market intermediaries which increased stability of business
- 5 Benefits of GI registration are enjoyed by the traders and producers alike

All variables measuring ‘supply chain and value benefits of GI’ had at least one correlation coefficient greater than 0.30 and appeared suitable for factor analysis.

c. Multicollinearity

The correlation matrix’s determinant’s value was 0.464 (≥ 0.00001), demonstrating the reliability of the model’s results and the absence of multicollinearity in the data.

II. EFA Results – Supply Chain and Value Benefits of GI

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett’s test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.63 displays the KMO and Bartlett’s test results.

Table 8.63*KMO and Bartlett's Test– Supply Chain and Value Benefits of GI*

Kaiser-Meyer-Olkin Adequacy	Measure of Sampling	.702
Bartlett's Test of Sphericity	Approx. Chi-Square	150.936
	Df	10
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.702 which confirms sampling adequacy for factor analysis. The Bartlett's test of Sphericity was significant, as the p value is less than 0.05, confirming that the correlation matrix is not an identity matrix.

b. Communalities Results

In order to find whether the proportion of each variable's variance was explained by the extracted factors communalities were examined. The initial communalities and communalities after extraction are shown in Table 8.64.

Table 8.64*Communalities– Supply Chain and Value Benefits of GI*

Variables	Initial	Extraction
GI ensures stable relationship with the market intermediaries	1.000	.469
GI increases the bargaining power of the producers over the market intermediaries	1.000	.795
GI helps to obtain long term contracts with the market intermediaries	1.000	.796
GI aids in improved relation with market intermediaries which increased stability of business	1.000	.623
Benefits of GI registration are enjoyed by the traders and producers alike	1.000	.521

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

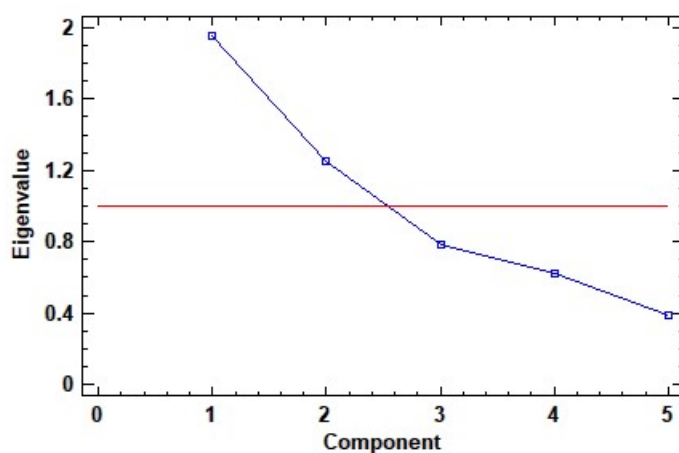
The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The scree plot (Figure 8.22) illustrates each of the eigenvalues for the five factors. The scree plot revealed a distinct elbow point at factor two, indicating that two factors should be retained.

Figure 8.22

Scree Plot– Supply Chain and Value Benefits of GI



d. Total Variances Explained

Table 8.65 displays the eigenvalues and total variances reported prior to and following varimax rotation.

Table 8.65

Total Variances Explained– Supply Chain and Value Benefits of GI

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.954	39.076	39.076	1.954	39.076	39.076	1.643	32.869	32.869
2	1.251	25.019	64.095	1.251	25.019	64.095	1.561	31.226	64.095
3	0.785	15.692	79.786						
4	0.621	12.427	92.214						
5	.389	7.786	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

Table 8.65 shows that the first two factors had eigenvalue more than 1 and were retained. These two factors explained 64.1 % of the total variance, suggesting that these factors account for a substantial portion of the variability.

e. Factor Loading Matrix After Varimax Rotation

Varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

Table 8.66

Factor Loading Matrix After Varimax Rotation– Supply Chain and Value Benefits of GI

Variables	Component	
	1	2
GI helps in obtain long term contracts with the market intermediaries	.889	
GI increases the bargaining power of the producers over the market intermediaries	.886	
GI aids in improved relation with market intermediaries which increased stability of business		.789
GI ensures stable relationship with the market intermediaries		.685
Benefits of GI registration are enjoyed by the traders and producers alike		.674
Extraction Method: Principal Component Analysis		
Rotation converged in 3 iterations		
Source: Primary Data and Computed		

The rotated factor loading reveals two distinct factors which are:

i. Improved bargaining power

This first factor, which accounted for 32.869 % of total variances consisted ‘GI helps in obtain long term contracts with the market intermediaries’ and ‘GI increases the bargaining power of the producers over the market intermediaries.’

ii. Enhanced relationship with market intermediaries

The second factor, which accounted for 31.226 % of total variances consisted of ‘GI aids in improved relation with market intermediaries which increased stability of business’, ‘GI ensures stable relationship with the market intermediaries’ and ‘benefits of GI registration are enjoyed by the traders and producers alike.’

8.3.6 Challenges in the Successful Use of the GI Tag

Separate principal component analysis (PCA) was run on the seven - item interview schedule that measured ‘Registration and Govt. Support Challenges’, seven - item interview schedule that measured ‘Organisational Support Challenges’ and six - item interview schedule that measured ‘Procedural Challenges’ which were obtained as responses on a five-point scale spanning over strongly disagree to strongly agree.

8.3.6.1 Registration and Govt. Support Related Challenges of GI - EFA

The suitability of PCA of seven -items that measured registration and govt. support challenges was assessed prior to analysis.

Table 8.67

Descriptive Statistics – Registration and Govt. Support Challenges of GI

Variables	Mean	SD	N
GI registration was initiated by including all eligible producers	4.07	.506	200
Specification of geographical map included eligible production area	4.16	0.585	200
Registration was done with production technique accepted by the producers	4.26	.437	200
Cost of GI registration is affordable	4.33	.530	200
Producers are willing to follow uniform CoP prescribed in registration process	4.20	0.478	200
Government has taken initiatives to spread awareness about managing GI	2.75	1.143	200
Government is taking initiative for promoting GI	3.20	.987	200

Source: Primary Data and Computed

The most prominent ‘registration and Govt. support challenges’ was found to be ‘cost of GI registration is affordable’ ($\bar{X}= 4.33 \pm 0.530$) while ‘Government has taken initiatives to spread awareness about managing GI’ ($\bar{X}= 2.75 \pm 1.143$) was the least important measure.

I. Assumptions of EFA – Registration and Govt. Support Challenges of GI

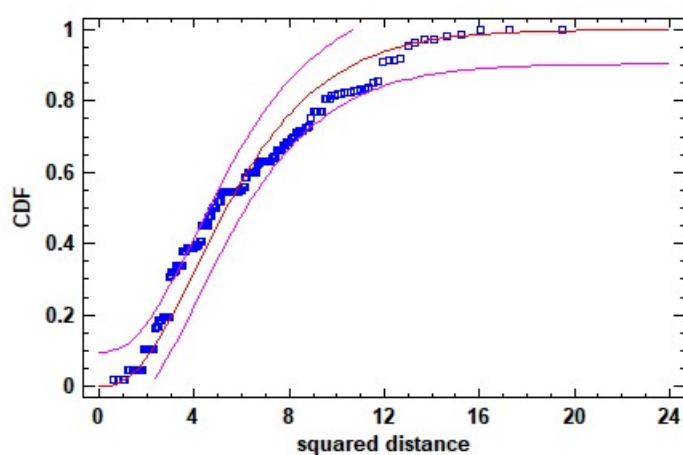
The following assumptions were verified for the applicability of exploratory factor analysis.

a. Multivariate normality

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by the solid line. Figure 8.23 displays the normality scatterplot established and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.23

Mahalanobis distance scatterplot testing multivariate normality – Registration and Govt. Support Challenges of GI



b. Factorability.

Each variable's intercorrelations were appraised using Pearson's correlations to evaluate the factorability of data. Table 8.68 depicts the Pearson's coefficient of correlation between the variables in the analysis.

Table 8.68

Correlation Matrix– Registration and Govt. Support Challenges of GI

	1	2	3	4	5	6	7
1	1.000						
2	.574	1.000					
3	.169	.322	1.000				
4	.158	.258	.378	1.000			
5	.047	.179	.298	.384	1.000		
6	.309	.465	.131	.328	.368	1.000	
7	.233	.363	.126	.211	.226	.620	1.000

Determinant = .188

Legends

- 1 GI registration was initiated by including all eligible producers
- 2 Specification of geographical map included eligible production area
- 3 Registration was done with production technique accepted by the producers
- 4 Cost of GI registration is affordable
- 5 Producers are willing to follow uniform CoP prescribed in registration process
- 6 Government has taken initiatives to spread awareness about managing GI
- 7 Government is taking initiative for promoting GI

All variables measuring ‘registration and Govt. support challenges’ had at least one correlation coefficient greater than 0.30 and appeared suitable for factor analysis.

c. Multicollinearity

The correlation matrix's determinant's value was 0.188 (≥ 0.00001), demonstrating the reliability of the model's results and the absence of multicollinearity in the data.

II. EFA Results – Registration and Govt. Support Challenges of GI

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett's test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.69 displays the KMO and Bartlett's test results.

Table 8.69

KMO and Bartlett's Test– Registration and Govt. Support Challenges of GI

Kaiser-Meyer-Olkin Adequacy	Measure of Sampling	.710
Bartlett's Test of Sphericity	Approx. Chi-Square	327.355
	df	21
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.710 which confirms sampling adequacy for factor analysis. The Bartlett's test of Sphericity was significant, as the p value is less than 0.05, confirming the absence of identity matrix.

b. Communalities Results

In order to find whether the proportion of each variable's variance was explained by the extracted factors communalities were examined.

Both the initial and post-extraction communalities are displayed in Table 8.70.

Table 8.70

Communalities– Registration and Govt. Support Challenges of GI

Variables	Initial	Extraction
GI registration was initiated by including all eligible producers	1.000	.798
Specification of geographical map included eligible production area	1.000	.745
Registration was done with production technique accepted by the producers	1.000	.790
Cost of GI registration is affordable	1.000	.652
Producers are willing to follow uniform CoP prescribed in registration process	1.000	.614
Government has taken initiatives to spread awareness about managing GI	1.000	.748
Government is taking initiative for promoting GI	1.000	.596

Extraction Method: Principal Component Analysis.

Source: Primary Data and Computed

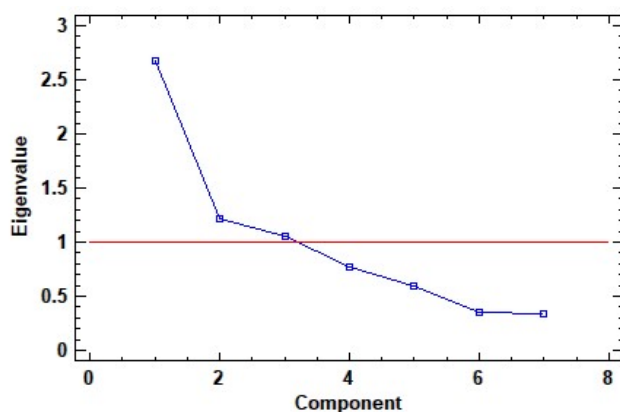
The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The scree plot (Figure 8.24) illustrates each of the eigenvalues for the factors

Figure 8.24

Scree Plot– Registration and Govt. Support Challenges of GI



The scree plot revealed a distinct elbow point at factor three, indicating that three factors should be retained.

d. Total Variances Explained

Three factors with eigenvalues greater than 1 have been extracted. The eigenvalues and total variances explained before and after varimax rotation are shown in Table 8.71.

Table 8.71

Total Variances Explained – Registration and Govt. Support Challenges of GI

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.680	38.289	38.289	2.680	38.289	38.289	1.841	26.304	26.304
2	1.212	17.317	55.606	1.212	17.317	55.606	1.729	24.697	51.001
3	1.052	15.022	70.628	1.052	15.022	70.628	1.374	19.627	70.628
4	0.769	10.983	81.611						
5	0.592	8.452	90.062						
6	0.353	5.037	95.100						
7	0.343	4.900	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

The three factors together account for 70.628% of the variability in the original data before and after varimax rotation.

e. Factor Loading Matrix After Varimax Rotation

Varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

Table 8.72

Factor Loading Matrix After Varimax Rotation– Registration and Govt. Support Challenges of GI

Variables	Component		
	1	2	3
Government has taken initiatives to spread awareness about managing GI	.767		
Producers are willing to follow uniform CoP of practice prescribed in registration process	.743		
Government is taking initiative for promoting GI	.692		
GI registration was initiated by including all eligible producers		.879	
Specification of geographical map included eligible production area		.803	
Registration was done with production technique accepted by the producers			.885
Cost of GI registration is affordable			.723
Extraction Method: Principal Component Analysis			
Rotation converged in 5 iterations			
Source: Primary Data and Computed			

The rotated factor loading reveals three distinct factors which are:

i. Govt. Support and producer compliance challenge

The first factor, which accounted for 26.304 % of total variances consisted of ‘Government has taken initiatives to spread awareness about managing GI’, ‘producers are willing to follow uniform CoP prescribed in registration process’ and ‘Government is taking initiative for promoting GI.’

ii. Producers’ inclusion challenge

The second factor, which accounted for 24.697 % of total variances consisted of ‘GI registration was initiated by including all eligible producers’ and ‘specification of geographical map included eligible production area.’

iii. GI registration feasibility challenge

The third factor, which accounted for 19.627 % of total variances consisted of ‘registration was done with production technique accepted by the producers’ and ‘cost of GI registration is affordable.’

8.3.6.2 Organisational Support Challenges of GI - EFA

The suitability of PCA of seven-items that measured organisational support challenges was assessed prior to analysis.

Table 8.73

Descriptive Statistics– Organisational Support Challenges of GI

Variables	Mean	SD	N
Inspection body ensure that the producers follow uniform CoP	1.61	.489	200
Inspection body is consistent with quality assurance checks	1.66	0.475	200
Inspection body does take corrective action when non-compliance is found	1.68	.470	200
Presence of inspection body is guaranteeing the genuineness of the product	1.66	.477	200
Cooperation among producers aids the reaping of GI benefits	1.69	0.476	200
All producers are equally working towards the protection of GI tag	1.67	.482	200
Competition among the producers reduced after receiving the GI tag	1.77	.425	200

Source: Primary Data and Computed

The most prominent organisational support challenge was found to be ‘competition among the producers reduced after receiving the GI tag’ ($\bar{X}$ = 1.77 $\pm$ 0.425) while ‘inspection body ensure that the producers follow uniform CoP’ ($\bar{X}$ = 1.61 $\pm$ 0.489) was the least important measure.

I. Assumptions of EFA – Organisational Support Challenges of GI

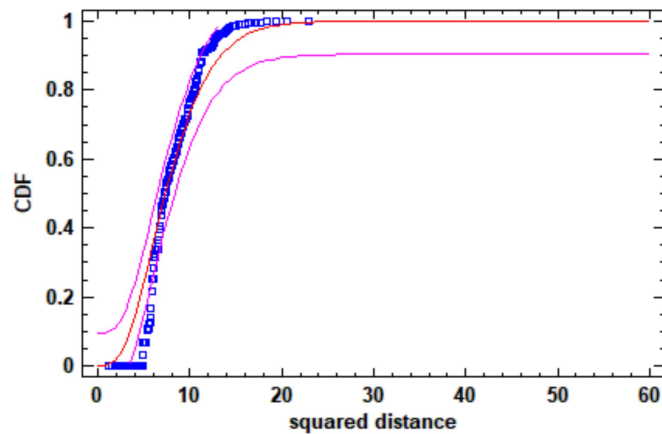
The following assumptions were verified for the applicability of exploratory factor analysis.

a. Multivariate normality

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by the solid line. Figure 8.25 displays the normality scatterplot established and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.25

Mahalanobis distance scatterplot testing multivariate normality– Organisational Support Challenges of GI



b. Factorability

Each variable's intercorrelations were appraised using Pearson's correlations to evaluate the factorability of data. Table 8.74 depicts the Pearson's coefficient of correlation between the variables in the analysis.

Table 8.74

Correlation Matrix– Organisational Support Challenges of GI

	1	2	3	4	5	6	7
1	1.000						
2	.354	1.000					
3	.302	.202	1.000				
4	.218	.367	.103	1.000			
5	.152	.157	.369	.172	1.000		
6	.355	.144	.101	.349	.180	1.000	
7	.210	.249	.169	.144	.354	.384	1.000

Determinant = .701

Legends

- 1 Inspection body ensure that the producers follow uniform CoP
- 2 Inspection body is consistent with quality assurance checks
- 3 Inspection body does take corrective action when non-compliance is found
- 4 Presence of inspection body is guaranteeing the genuineness of the product
- 5 Cooperation among producers aids the reaping of GI benefits
- 6 All producers are equally working towards the protection of GI tag
- 7 Competition among the producers reduced after receiving the GI tag

Every variable in the dimension relating to ‘organisational and support challenges’ was appropriate for factor analysis, with at least one correlation value higher than 0.30.

c. Multicollinearity

The correlation matrix’s determinant’s value was 0.701 (≥ 0.00001), demonstrating the reliability of the model’s results and the absence of multicollinearity in the data.

II. EFA Results – Organisational Support Challenges of GI

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett’s test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.75 displays the KMO and Bartlett’s test results.

Table 8.75

KMO and Bartlett's Test– Organisational Support Challenges of GI

Kaiser-Meyer-Olkin Adequacy	Measure of Sampling	.708
Bartlett's Test of Sphericity	Approx. Chi-Square	69.597
	df	21
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.708 which confirms sampling adequacy for factor analysis. The Bartlett’s test of Sphericity was significant, as the p value is less than 0.05, confirming the absence of identity matrix.

b. Communalities Results

In order to find whether the proportion of each variable’s variance was explained by the extracted factors communalities were examined.

Table 8.76 displays the initial communalities as well as the communalities following extraction.

Table 8.76*Communalities– Organisational Support Challenges of GI*

Variables	Initial	Extraction
Inspection body ensure that the producers follow uniform CoP	1.000	.534
Inspection body is consistent with quality assurance checks	1.000	.698
Inspection body does take corrective action when non-compliance is found	1.000	.549
Presence of inspection body is guaranteeing the genuineness of the product	1.000	.523
Cooperation among producers aids the reaping of GI benefits	1.000	.590
All producers are equally working towards the protection of GI tag	1.000	.508
Competition among the producers reduced after receiving the GI tag	1.000	.468

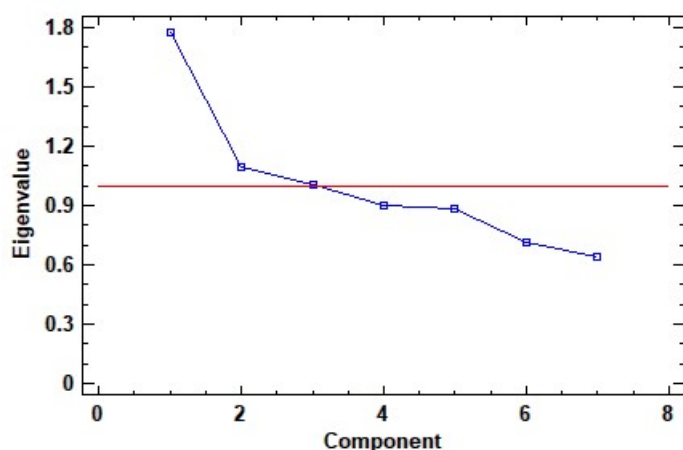
Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The scree plot (Figure 8.26) illustrates each of the eigenvalues for the seven factors.

Figure 8.26*Scree Plot– Organisational Support Challenges of GI*

The scree plot revealed a distinct elbow point at factor three, indicating that three factors should be retained.

d. Total Variances Explained

Table 8.77 displays the eigenvalues and total variances reported prior to and following varimax rotation.

Table 8.77

Total Variances Explained– Organisational Support Challenges of GI

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.771	25.303	25.303	1.771	25.303	25.303	1.316	18.803	18.803
2	1.097	15.670	40.973	1.097	15.670	40.973	1.290	18.424	37.226
3	1.002	14.319	55.293	1.002	14.319	55.293	1.265	18.066	55.293
4	0.896	12.807	68.099						
5	0.880	12.575	80.674						
6	0.714	10.204	90.878						
7	0.639	9.122	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

Table 8.77 shows that the first three factors had eigenvalue more than 1 and were retained. These three factors explained 55.29 % of the total variance, suggesting that these factors account for a substantial portion of the variability.

e. Factor Loading Matrix After Varimax Rotation

By maximizing the variance of the squared loadings, varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

Table 8.78

Factor Loading Matrix After Varimax Rotation– Organisational Support Challenges of GI

Variables	Component		
	1	2	3
Inspection body ensure that the producers follow uniform CoP	.723		
Presence of inspection body is guaranteeing the genuineness of the product	.709		
Inspection body is consistent with quality assurance checks		.828	
Competition among the producers reduced after receiving the GI tag		.545	
Cooperation among producers aids the reaping of GI benefits			.759
Inspection body does take corrective action when non-compliance is found			.622
All producers are equally working towards the protection of GI tag			.510

Extraction Method: Principal Component Analysis

Rotation converged in 5 iterations

Source: Primary Data and Computed

The rotated factor loading reveals three distinct factors which are:

i. Inspection body support challenge

The first factor, which accounted for 18.803 % of total variances consisted ‘inspection body ensure that the producers follow uniform CoP’ and ‘presence of inspection body is guaranteeing the genuineness of the product.’

ii. Quality assurance and competition challenge

The second factor, which accounted for 18.424 % of total variances consisted of ‘inspection body is consistent with quality assurance checks’ and ‘competition among the producers reduced after receiving the GI tag.’

iii. Collective responsibility and compliance challenge

The third factor, which accounted for 18.066 % of total variances consisted of ‘Cooperation among producers aids the reaping of GI benefits’, ‘inspection body does

take corrective action when non-compliance is found’ and ‘all producers are equally working towards the protection of GI tag.’

8.3.6.3 Procedural Challenges of GI - EFA

The suitability of PCA of six - item interview schedule that measured ‘procedural challenges’ was assessed prior to analysis.

Table 8.79

Descriptive Statistics – Procedural Challenges of GI

Variables	Mean	SD	N
Process of registration is easy	1.47	.520	200
GI registration is possible without external support	1.38	0.487	200
Steps to ensure legal protection to GI is strong	1.58	.495	200
Easy to file legal suite when there is a breach of GI rights	1.61	.490	200
There is coordination among the producers when it comes to taking legal initiative	1.67	0.471	200
State / Institutional support makes it easier to protect GI rights	1.65	.490	200

Source: Primary Data and Computed

The most prominent ‘procedural challenges’ was found to be ‘there is coordination among the producers when it comes to taking legal initiative’ ($\bar{X}= 1.67 \pm 0.471$) while ‘GI registration is possible without external support’ ($\bar{X}= 1.38 \pm 0.487$) was the least important measure.

I. Assumptions of GI – Procedural Challenges of GI

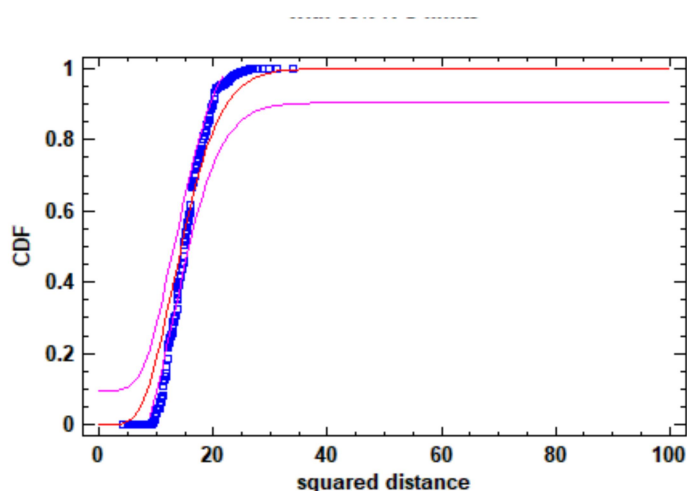
The following assumptions were verified for the applicability of exploratory factor analysis.

a. Multivariate normality.

The theoretical quantiles of a distribution that is normal are shown in the scatterplot by the solid line. Figure 8.27 displays the normality scatterplot established and the data appear to meet the assumption of multivariate normality as a relatively straight line is formed by the points.

Figure 8.27

Mahalanobis distance scatterplot testing multivariate normality– Procedural Challenges of GI



b. Factorability

Each variable's intercorrelations were evaluated using Pearson correlations to appraise the factorability of data. Table 8.80 shows the correlation between the variables in the analysis as determined by Pearson's coefficient.

Table 8.80

Correlation Matrix– Procedural Challenges of GI

	1	2	3	4	5	6
1	1.000					
2	.669	1.000				
3	.040	.249	1.000			
4	.093	.169	.452	1.000		
5	.096	.155	.135	.281	1.000	
6	.119	.379	.232	.166	.230	1.000

Determinant = 0.283

Legends

- 1 Process of registration is easy
- 2 GI registration is possible without external support
- 3 Steps to ensure legal protection to GI is strong
- 4 Easy to file legal suite when there is a breach of GI rights
- 5 There is coordination among the producers when it comes to taking legal initiative
- 6 State / Institutional support makes it easier to protect GI rights

Every variable in the dimension relating to procedural challenges of GI was appropriate for factor analysis, with at least one correlation value higher than 0.30.

c. Multicollinearity

The correlation matrix's determinant's value was 0.283 (≥ 0.00001), demonstrating the reliability of the model's results and the absence of multicollinearity in the data.

II. EFA Results – Procedural Challenges of GI

a. KMO and Bartlett's Test

The KMO test was performed to test the sampling adequacy and the Bartlett's test was done to test whether the correlation matrix is significantly different from an identity matrix. Table 8.81 displays the KMO and Bartlett's test results.

Table 8.81

KMO and Bartlett's Test– Procedural Challenges of GI

Kaiser-Meyer-Olkin Adequacy	Measure of Sampling	.701
Bartlett's Test of Sphericity	Approx. Chi-Square	247.537
	df	15
	Sig.	.000

Figure in bold indicates significant at 5% level

Source: Primary Data and Computed

The KMO test result value is 0.701 which confirms sampling adequacy for factor analysis. The Bartlett's test of Sphericity was significant, as the p value is less than 0.05, confirming that the correlation matrix is not an identity matrix.

b. Communalities Results

In order to find whether the proportion of each variable's variance was explained by the extracted factors communalities were examined.

Table 8.82 displays the initial communalities as well as the communalities following extraction.

Table 8.82*Communalities– Procedural Challenges of GI*

Variables	Initial	Extraction
Process of registration is easy	1.000	.799
GI registration is possible without external support	1.000	.849
Steps to ensure legal protection to GI is strong	1.000	.571
Easy to file legal suite when there is a breach of GI rights	1.000	.631
There is coordination among the producers when it comes to taking legal initiative	1.000	.450
State / Institutional support makes it easier to protect GI rights	1.000	.462

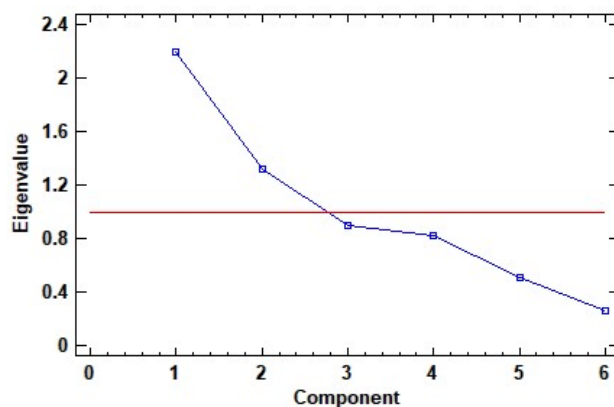
Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

The extraction results showed that the extraction communalities for all the variables were above 0.45, indicating that the variables are well represented by the extracted factors.

c. Scree Plot

The eigenvalues for each of the six factors are presented in the scree plot (Figure 8.28).

Figure 8. 28*Scree Plot– Procedural Challenges of GI*

The scree plot revealed a distinct elbow point at factor two, indicating that two factors should be retained.

d. Total Variances Explained

Table 8.83 displays the eigenvalues and total variances reported prior to and following varimax rotation.

Table 8.83*Total Variances Explained– Procedural Challenges of GI*

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.190	36.494	36.494	2.190	36.494	36.494	1.756	29.263	29.263
2	1.322	22.027	58.522	1.322	22.027	58.522	1.756	29.259	58.522
3	0.902	15.028	73.550						
4	0.820	13.660	87.210						
5	0.506	8.426	95.636						
6	0.262	4.364	100.000						

Extraction Method: Principal Component Analysis

Source: Primary Data and Computed

Table 8.83 shows that the first two factors had eigenvalue more than 1 and were retained. These two factors explained 58.52 % of the total variance, suggesting that these factors account for a substantial portion of the variability.

e. Factor Loading Matrix After Varimax Rotation

Varimax rotation was used to improve the extracted factor's interpretability. For interpretation, factor loadings greater than 0.40 were deemed significant (Hair et al., 2010).

Table 8.84*Factor Loading Matrix After Varimax Rotation– Procedural Challenges of GI*

Variables	Component	
	1	2
GI registration is possible without external support	.895	
Process of registration is easy	.893	
Easy to file legal suite when there is a breach of GI rights		.794
Steps to ensure legal protection to GI is strong		.754
There is coordination among the producers when it comes to taking legal initiative		.546
State / Institutional support makes it easier to protect GI rights		.458

Extraction Method: Principal Component Analysis

Rotation converged in 3 iterations

Source: Primary Data and Computed

The rotated factor loading reveals two distinct factors which are:

i. Registration process challenge

The first factor, which accounted for 29.263 % of total variances, consisted of ‘GI registration is possible without external support’ and ‘process of registration is easy.’

ii. Execution of GI rights challenge

The second factor, which accounted for 29.259 % of total variances, consisted of ‘easy to file legal suite when there is a breach of GI rights’, ‘steps to ensure legal protection to GI is strong’, ‘there is coordination among the producers when it comes to taking legal initiative’ and ‘state / institutional support makes it easier to protect GI rights.’

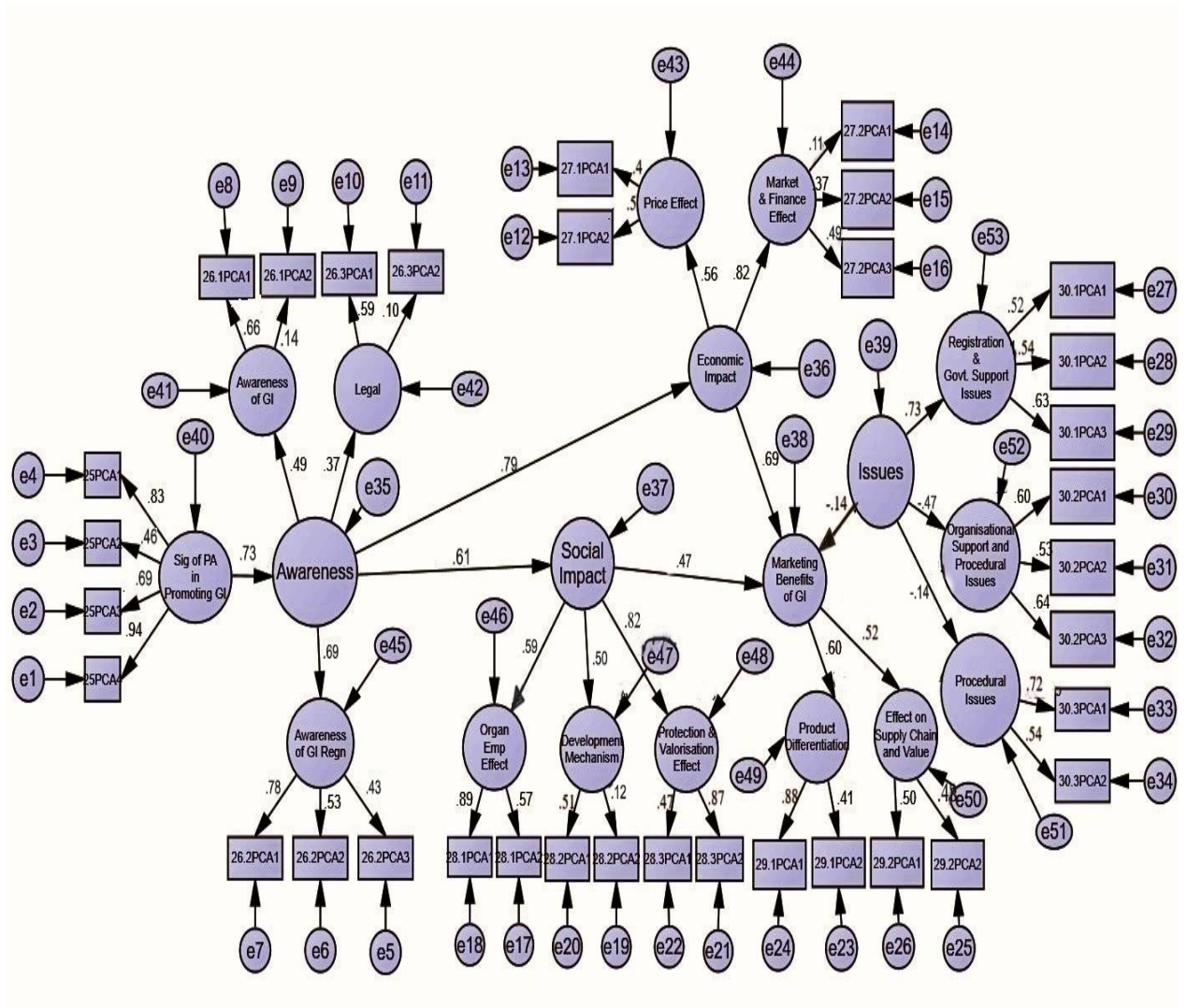
8.4 The Composite Model of Socio Economic Impact and Marketing Benefits of Geographical Indications Tag- Confirmatory Factor Analysis

The description about the theoretical model is discussed in the third chapter covering theoretical framework. Before conducting PCA the data set was randomly split into two and split sample 2 was made use of in confirmatory factor analysis. The principal components identified using split sample 1, for contribution of the producers’ association in promoting GI, awareness of producers in terms of general awareness about GI, GI registrations and about legal aspects of GI, the economic impact in terms of price effect and market and finance effect, the social impact in terms of organisational and employment effect, development mechanism effect and protection and valorisation effect, the marketing benefits of GI in terms of product differentiation and effect on supply chain and value, as well as challenges in the successful usage of the GI tag in terms of registration and govt. support challenges, organisational support challenges and procedural challenges were brought together in the composite model as is shown in figure 8.29.

Figure 8.29

Socio Economic Impact and Marketing Benefits Model of Geographical Indications

Tag – The Composite Model



The dimension namely ‘contribution of producers’ association in promoting GI’ are reflected in four variables which were identified through EFA as principal components. The ‘awareness level of producers’ was measured in three dimensions namely ‘awareness about the general concept of GI’, ‘awareness about GI registrations’ and ‘awareness about the legal aspects of GI’. The general concept of awareness has two principal components, the registration-related awareness has three principal components and the legal awareness has two principal components as derived from EFA. The social impact of GI was measured using the dimensions ‘organisational and employment’, ‘development mechanism’ and ‘protection and

valorization'. After conducting EFA, for every dimension, two principal components were identified. The economic impact was measured using the dimensions 'price effect' and 'market and finance effect'. The EFA identified two principal components for 'price effect' and three principal components for 'market and finance effect'. The marketing benefits of GI was measured using two dimensions namely 'product differentiation' and 'supply chain and value', two principal components each for these dimensions were extracted after EFA. The dimension challenges/ issues in the use of GI were measured using the dimensions 'registration and govt. support challenges', 'institutional support challenges' and 'procedural challenges'. The principal components identified for these dimensions were three, three and two each as per the EFA extraction.

The composite model illustrated above was evaluated in terms of internal reliability, composite reliability, convergent validity, discriminant validity and construct validity.

8.4.1 Internal Reliability

Cronbach's Alpha was used to calculate the model's internal reliability, which shows how well the measuring items hold together when measuring the corresponding constructs. Table 8.85 displays the internal reliability of the 34 items extracted as principal components for various dimensions after EFA as indicated by Cronbach's alpha. The code used to represent the principal components in the SEM are also given in the table.

When the Cronbach's Alpha is more than 0.70, internal reliability is considered to have been attained. The composite model is considered to have internal reliability because the Cronbach's alpha for the 34 components that were part of the model was 0.721.

8.4.2 Composite Reliability and Convergent Validity

Convergent validity and the composite reliability, which measures the internal consistency of the latent variables, were computed and reported.

The following formula was used to determine the composite reliability, which represents the internal consistency of the latent variable.

$$CR = (\sum K)^2 / [(\sum K)^2 + (\sum 1 - K^2)]$$

K represents the factor loadings on each item

1-K represents the error

In addition to avoiding low factor loading of items in a model, which could lead to the construct failing the convergent validity, the Average Variance Extracted (AVE) for the construct could be calculated as follows to confirm convergent validity.

$$AVE = \sum K^2 / n,$$

where K represents factor loadings on each item

n represents number of items in the measurement model.

Table 8.86 shows the Average Variance explained (AVE) and Composite Reliability (CR) of the composite model.

Since the CR value of 0.916 is higher than the threshold value of 0.70, it was determined that the model under examination has achieved composite reliability, which shows the dependability and internal consistency of the latent structures.

Convergent validity is considered to be attained if AVE is more than the recommended threshold value of 0.5. The AVE for the model in question is 0.577, and as it is higher than the 0.50 requirement, it is concluded that convergent validity is attained.

8.4.3 Discriminant Validity

The model demonstrates discriminant validity, which shows that the composite model is free of redundant items. By determining the redundancy of the items in the model using a discrepancy measure known as Modification Indices (MI) and constraining the redundant pair as 'free parameter estimates' for the redundant items that have a high value of MI, the model has ensured discriminant validity. Which confirms that the composite model is free from redundant items.

An additional prerequisite for discriminant validity is that there should be no more than 0.85 correlation between endogenous constructs. The two variables are redundant or have a significant multicollinearity issue if the correlation value is more than 0.85. Table 8.87 displays the relationships among the variables in the model.

Multicollinearity does not pose a concern as none of the correlations between the variables in the model were more than 0.85.

Table 8.85*Internal Reliability – Cronbach's Alpha*

Latent Constructs	Code	Principal Components	Cronbach's Alpha	No of items
Contribution of producers' association in promoting GI	Q25.PCA1	Assistance in GI management	0.721	34
	Q25.PCA2	Assistance for AU registration and boosting inter-personal relations		
	Q25.PCA3	Involvement in registration and promotion		
	Q25.PCA4	Governance mechanism		
Awareness about Geographical Indications among producers	Q26.1PCA1	Awareness about GI, GI logo and associated benefits		
	Q26.1PCA2	Awareness of national level logo		
	Q26.2PCA1	Awareness of GI registration renewal period and fee		
	Q26.2PCA2	Awareness of GI's territorial coverage		
	Q26.2PCA3	Awareness about validity and procedure of GI registration		
	Q26.3PCA1	Awareness of GI ownership and enforcement		
	Q26.3PCA2	Awareness of GI's legal and collective function		
Economic Impact	Q27.1PCA1	Price advantage		
	Q27.1PCA2	Price influence		
	Q27.2PCA1	Market expansion and economic opportunities		
	Q27.2PCA2	Increased Govt assistance		
	Q27.2PCA3	Enlarged domestic demand and reputation		

Latent Constructs	Code	Principal Components	Cronbach's Alpha	No of items
Social Impact	Q28.1PCA1	Active producers' association and enhanced opportunities		
	Q28.1PCA2	Increased producer awareness and coordination		
	Q28.2PCA1	Increase in community development		
	Q28.2PCA2	Development of rural areas		
	Q28.3PCA1	Increase in status of farming		
	Q28.3PCA2	Protection of traditional knowledge and environment		
Marketing benefits of GI	Q29.1PCA1	Enhanced product recognition		
	Q29.1PCA2	Competitive distinction		
	Q29.1PCA1	Improved bargaining power		
	Q29.1PCA2	Enhanced relationship with market intermediaries		
Challenges in the Successful Usage of the GI Tag	Q30.1PCA1	Govt. Support and producer compliance challenge		
	Q30.1PCA2	Producers' inclusion challenge		
	Q30.1PCA3	GI registration feasibility challenge		
	Q30.2PCA1	Inspection body support challenge		
	Q30.2PCA2	Quality assurance and competition challenge		
	Q30.2PCA3	Collective responsibility and compliance challenge		
	Q30.3PCA1	Registration process challenge		
	Q30.3PCA2	Execution of GI rights challenge		

Source: Primary data and computed

Table 8.86*Average Variance Extracted (AVE) and Composite Reliability*

				κ	κ^2	$1 - \kappa^2$				κ	κ^2	$1 - \kappa^2$
1	Aware	<---	PA Contri	0.733	0.537	0.463	Qn26.3PCA1	<---	GI Legal	0.592	0.350	0.650
2	Eco Imp	<---	Aware	0.785	0.616	0.384	Qn26.3PCA2	<---	GI Legal	0.098	0.010	0.990
3	Soc Imp	<---	Aware	0.612	0.634	0.366	Q27.1PCA2	<---	PE	0.481	0.231	0.769
4	Mar Ben	<---	Eco Imp	0.691	0.477	0.523	Q27.1PCA1	<---	PE	0.402	0.162	0.838
5	Mar Ben	<---	Soc Imp	0.467	0.501	0.499	Q27.2PCA1	<---	MFE	0.492	0.242	0.758
6	Mar Ben	<---	Challenges	-0.136	0.018	0.982	Q27.2PCA2	<---	MFE	0.368	0.135	0.865
7	GI General	<---	Aware	0.495	0.245	0.755	Q27.2PCA3	<---	MFE	0.113	0.013	0.987
8	GI Legal	<---	Aware	0.366	0.134	0.866	Q28.1PCA2	<---	Org emp effect	0.575	0.331	0.669
9	GI regn	<---	Aware	0.698	0.487	0.513	Q28.1PCA1	<---	Org emp effect	0.893	0.797	0.203
10	PE	<---	Eco Imp	0.561	0.315	0.685	Q28.2PCA2	<---	Dev Mech	0.124	0.015	0.985
11	MFE	<---	Eco Imp	0.821	0.674	0.326	Q28.2PCA1	<---	Dev Mech	0.512	0.262	0.738
12	Org emp effect	<---	Soc Imp	0.598	0.358	0.642	Q28.3PCA2	<---	Prot Val Effect	0.873	0.762	0.238
13	Dev Mech	<---	Soc Imp	0.505	0.255	0.745	Q28.3PCA1	<---	Prot Val Effect	0.471	0.222	0.778
14	Prot Val Effect	<---	Soc Imp	0.820	0.672	0.328	Q29.1PCA2	<---	Pro diff	0.412	0.170	0.830
15	Pro diff	<---	Mar Ben	0.604	0.365	0.635	Q29.1PCA1	<---	Pro diff	0.883	0.780	0.220
16	Sup chain	<---	Mar Ben	0.518	0.268	0.732	Q29.2PCA2	<---	Sup chain	0.483	0.233	0.767
17	Reg Gov Sup	<---	Issues	0.731	0.534	0.466	Q29.2PCA1	<---	Sup chain	0.496	0.246	0.754
18	Org Supp	<---	Issues	-0.472	0.223	0.777	Q30.1PCA1	<---	Reg Gov Sup	0.529	0.280	0.720
19	Proc issues	<---	Issues	-0.143	0.020	0.980	Q30.1PCA2	<---	Reg Gov Sup	0.545	0.297	0.703
20	Q25PCA4	<---	PA Contri	0.938	0.880	0.120	Q30.1PCA3	<---	Reg Gov Sup	0.628	0.394	0.606
21	Q25PCA3	<---	PA Contri	0.698	0.487	0.513	Q30.2PCA1	<---	Org Supp	0.596	0.355	0.645
22	Q25PCA2	<---	PA Contri	0.463	0.214	0.786	Q30.2PCA2	<---	Org Supp	0.525	0.276	0.724
23	Q25PCA1	<---	PA Contri	0.827	0.684	0.316	Q30.2PCA3	<---	Org Supp	0.638	0.407	0.593
24	Qn26.2PCA3	<---	GI regn	0.429	0.184	0.816	Q30.3PCA1	<---	Proc Challe	0.722	0.521	0.479
25	Qn26.2PCA2	<---	GI regn	0.527	0.278	0.722	Q30.3PCA2	<---	Proc Challe	0.541	0.293	0.707
26	Qn26.2PCA1	<---	GI regn	0.783	0.613	0.387	Total			27.714	18.917	34.083
27	Qn26.1PCA1	<---	GI General	0.661	0.437	0.563	Average Variance Extracted (AVE)				0.577	
28	Qn26.1PCA2	<---	GI General	0.142	0.020	0.980	Composite Reliability (CR)					0.916

Source: Primary data and computed

Table 8.87

Correlations between Variables

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34
1 Q30.3PCA2	1.00																																	
2 Q30.3PCA1	0.26	1.00																																
3 Q30.2PCA3	0.11	0.41	1.00																															
4 Q30.2PCA2	0.09	0.34	0.34	1.00																														
5 Q30.2PCA1	0.10	0.39	0.38	0.31	1.00																													
6 Q30.1PCA3	0.02	0.07	0.14	0.11	0.13	1.00																												
7 Q30.1PCA2	0.03	0.11	0.22	0.18	0.21	0.63	1.00																											
8 Q30.1PCA1	0.01	0.04	0.01	0.02	0.01	0.01	0.03	1.00																										
9 Q29.2PCA1	0.02	0.07	0.15	0.12	0.14	0.23	0.36	0.01	1.00																									
10 Q29.2PCA2	0.02	0.07	0.15	0.12	0.14	0.22	0.35	0.07	0.24	1.00																								
11 Q29.1PCA1	0.02	0.09	0.18	0.15	0.17	0.28	0.44	0.04	0.30	0.29	1.00																							
12 Q29.1PCA2	0.01	0.04	0.08	0.06	0.07	0.11	0.18	0.01	0.12	0.12	0.41	1.00																						
13 Q28.3PCA1	0.01	0.03	0.06	0.05	0.05	0.09	0.14	0.11	0.10	0.09	0.12	0.05	1.00																					
14 Q28.3PCA2	0.02	0.08	0.16	0.13	0.15	0.25	0.39	0.01	0.27	0.26	0.32	0.13	0.36	1.00																				
15 Q28.2PCA1	0.01	0.05	0.11	0.09	0.10	0.16	0.26	0.12	0.18	0.17	0.21	0.09	0.07	-0.19	1.00																			
16 Q28.2PCA2	0.02	0.06	0.12	0.10	0.11	0.18	0.29	0.01	0.20	0.19	0.24	0.10	0.08	0.21	-0.14	1.00																		
17 Q28.1PCA1	0.02	0.08	0.16	0.13	0.15	0.25	0.39	0.02	0.27	0.26	0.32	0.13	0.20	0.57	-0.19	0.21	1.00																	
18 Q28.1PCA2	0.01	0.05	0.10	0.09	0.10	0.16	0.25	0.01	0.17	0.17	0.21	0.09	0.13	0.36	-0.12	0.14	0.51	1.00																
19 Q27.2PCA3	0.01	0.05	0.11	0.09	0.10	0.17	0.27	0.18	0.18	0.18	0.22	0.09	0.07	-0.20	0.13	-0.15	-0.20	-0.13	1.00															
20 Q27.2PCA2	0.01	0.04	0.09	0.08	0.09	0.14	0.22	0.02	0.15	0.15	0.18	0.08	0.06	0.16	-0.11	0.12	0.16	0.10	-0.16	1.00														
21 Q27.2PCA1	0.02	0.06	0.12	0.10	0.11	0.19	0.30	0.02	0.20	0.20	0.24	0.10	0.08	0.22	-0.14	0.16	0.22	0.14	-0.22	0.18	1.00													
22 Q27.1PCA1	0.04	0.02	0.03	0.03	0.03	0.05	0.08	0.10	0.06	0.06	0.07	0.03	0.02	-0.06	0.04	-0.05	-0.06	-0.04	0.70	-0.04	-0.05	1.00												
23 Q27.1PCA2	-0.03	0.01	0.02	0.02	0.02	0.04	0.06	0.04	0.04	0.04	0.05	0.02	0.02	-0.04	0.03	-0.03	-0.04	-0.03	0.48	-0.02	-0.03	0.03	1.00											
24 Qn26.3PCA2	-0.01	0.01	0.01	0.01	0.01	0.02	0.03	0.02	0.02	0.02	0.02	0.01	0.01	-0.02	0.01	-0.01	-0.02	-0.01	0.01	-0.01	-0.01	0.00	0.00	1.00										
25 Qn26.3PCA1	0.01	0.03	0.07	0.05	0.06	0.10	0.16	0.02	0.11	0.11	0.13	0.05	0.04	0.12	-0.08	0.09	0.12	0.08	-0.08	0.07	0.09	-0.03	-0.02	-0.06	1.00									
26 Qn26.1PCA2	-0.04	0.02	0.04	0.03	0.03	0.06	0.09	0.01	0.06	0.06	0.07	0.03	0.02	-0.06	0.04	-0.05	-0.06	-0.04	0.04	-0.04	-0.05	0.01	0.01	0.00	-0.03	1.00								
27 Qn26.1PCA1	0.02	0.07	0.15	0.12	0.14	0.23	0.36	0.01	0.25	0.24	0.30	0.12	0.10	0.26	-0.18	0.20	0.26	0.17	-0.18	0.15	0.20	-0.06	-0.04	-0.02	0.11	-0.24	1.00							
28 Qn26.2PCA1	-0.03	0.10	0.21	0.17	0.20	0.32	0.51	0.21	0.35	0.34	0.42	0.17	-0.13	-0.37	0.25	-0.28	-0.37	-0.24	0.26	-0.21	-0.28	0.08	0.06	0.03	-0.15	0.08	-0.35	1.00						
29 Qn26.2PCA2	-0.01	0.05	0.11	0.09	0.10	0.17	0.27	0.12	0.18	0.18	0.22	0.09	-0.07	-0.20	0.13	-0.15	-0.20	-0.13	0.13	-0.11	-0.15	0.04	0.03	0.01	-0.08	0.04	-0.18	0.53	1.00					
30 Qn26.2PCA3	-0.01	0.03	0.07	0.06	0.07	0.11	0.17	0.11	0.11	0.11	0.14	0.06	-0.04	-0.12	0.08	-0.09	-0.12	-0.08	0.08	-0.07	-0.09	0.03	0.02	0.01	-0.05	0.03	-0.11	0.33	0.17	1.00				
31 Q25PCA1	-0.03	0.11	0.23	0.19	0.22	0.35	0.56	0.41	0.38	0.37	0.47	0.19	-0.15	-0.41	0.27	-0.31	-0.41	-0.27	0.28	-0.23	-0.31	0.09	0.06	0.03	-0.17	0.09	-0.38	0.54	0.28	0.18	1.00			
32 Q25PCA2	-0.01	0.03	0.06	0.05	0.06	0.09	0.14	0.11	0.10	0.28	0.12	0.05	0.51	-0.11	0.07	-0.08	-0.11	-0.07	0.07	-0.06	-0.08	0.02	0.02	0.01	-0.04	0.02	-0.10	0.14	0.07	0.05	0.18	1.00		
33 Q25PCA3	-0.02	0.09	0.20	0.16	0.18	0.30	0.48	0.33	0.32	0.31	0.39	0.16	-0.13	-0.35	0.23	-0.26	-0.35	-0.22	0.24	-0.20	-0.26	0.07	0.05	0.02	-0.14	0.08	-0.32	0.45	0.24	0.15	0.58	0.15	1.00	
34 Q25PCA4	-0.03	-0.13	-0.26	-0.22	-0.25	0.40	0.64	0.41	0.43	0.42	0.53	0.22	-0.17	-0.47	0.31	-0.35	-0.47	-0.30	0.32	-0.26	-0.35	0.10	0.07	0.03	-0.19	0.11	-0.43	0.61	0.32	0.20	0.78	0.20	0.66	1.00

Source: Primary data and computed

8.4.4 Construct Validity

The measurement models were examined using AMOS to calculate Confirmatory Factor Analysis (CFA). The construct validity can be considered as achieved when fitness indices comply with the predetermined standards. The items' fit in assessing their respective latent constructs is indicated by the fitness indices. Table 8.88 illustrates the fitness indices for the model 'Socio Economic Impact and Marketing Benefits of Geographical indications Tag'.

Table 8.88

Fitness Indices – Composite Model of Socio-Economic Impact and Marketing Benefits of Geographical indications Tag

Composite Model		Values	df	p	Threshold Values
Standardized RMR		0.058			<0.08
Absolute Fit	CMIN χ^2	1779.047	516	0.059	p>0.05
	RMSEA	0.074			<0.08
	GFI	0.932			>0.90
Incremental fit	CFI	0.943			>0.90
	NFI	0.926			>0.90
Parsimonious fit	χ^2 /df (Discrepancy Ratio)	3.448			<5

Source: Primary Data and Computed

Table 8.88 reveals that all the indices were found to be within the permissible range, fulfilling the threshold value requirements.

The fit indices for the model shown in Table 8.88 fell within the acceptable range: χ^2 /df = 3.448, the goodness of fit (GFI) = 0.932, CFI = 0.934, SRMR = 0.04 and RMSEA = 0.074. The model is thus regarded as a good fit.

Table 8.89 displays the coefficient together with probability figures.

The probability of coefficient for all measured variables, except 'challenges in successful usage of GI' on 'marketing benefits', 'organisational support challenges' and procedural challenges' on 'challenges in successful usage of GI', 'awareness about legal aspects of GI' on 'awareness of GI's legal and collective function' and 'registration and government support challenge' on 'producers' inclusion challenge' as well as on 'GI registration feasibility challenge', were significant at either 1% or 5% level of

significance, this shows that the latent variables can be accurately predicted by the variables that are found to be significant.

Table 8.89

Coefficient – Composite Model of Socio-Economic Impact and Marketing Benefits of Geographical indications Tag

		Coefficient		p			Coefficient		p
Aware	<---	PA_Contri	0.733	***	Qn26.1PCA1	<---	GI_General	0.661	***
Eco_Imp	<---	Aware	0.785	***	Qn26.1PCA2	<---	GI_General	0.142	***
Soc_Imp	<---	Aware	0.612	***	Qn26.3PCA1	<---	GI_Legal	0.592	***
Mar_Ben	<---	Eco_Imp	0.691	***	Qn26.3PCA2	<---	GI_Legal	0.098	0.633
Mar_Ben	<---	Soc_Imp	0.467	***	Q27.1PCA2	<---	PE	0.481	***
Mar_Ben	<---	Challenges	-0.136	0.999	Q27.1PCA1	<---	PE	0.402	***
GI_General	<---	Aware	0.495	***	Q27.2PCA1	<---	MFE	0.492	***
GI_Legal	<---	Aware	0.366	0.006**	Q27.2PCA2	<---	MFE	0.368	***
GI_regn	<---	Aware	0.698	***	Q27.2PCA3	<---	MFE	0.113	***
PE	<---	Eco_Imp	0.561	***	Q28.1PCA2	<---	Org_emp_effect	0.575	***
MFE	<---	Eco_Imp	0.82	***	Q28.1PCA1	<---	Org_emp_effect	0.893	***
Org_emp_effect	<---	Soc_Imp	0.598	***	Q28.2PCA2	<---	Dev_Mech	0.124	***
Dev_Mech	<---	Soc_Imp	0.505	***	Q28.2PCA1	<---	Dev_Mech	0.512	***
Prot_Val_Effect	<---	Soc_Imp	0.82	***	Q28.3PCA2	<---	Prot_Val_Effect	0.873	***
Pro_diff	<---	Mar_Ben	0.604	***	Q28.3PCA1	<---	Prot_Val_Effect	0.471	***
Sup_chain	<---	Mar_Ben	0.518	***	Q29.1PCA2	<---	Pro_diff	0.412	***
Reg_Gov_Sup	<---	Issues	0.731	***	Q29.1PCA1	<---	Pro_diff	0.883	***
Org_Supp	<---	Issues	-0.472	0.999	Q29.2PCA2	<---	Sup_chain	0.483	***
Proc_issues	<---	Issues	-0.143	0.999	Q29.2PCA1	<---	Sup_chain	0.496	***
Q25PCA4	<---	PA_Contri	0.938	***	Q30.1PCA1	<---	Reg_Gov_Sup	0.529	***
Q25PCA3	<---	PA_Contri	0.698	***	Q30.1PCA2	<---	Reg_Gov_Sup	0.545	0.999
Q25PCA2	<---	PA_Contri	0.463	***	Q30.1PCA3	<---	Reg_Gov_Sup	0.628	0.999
Q25PCA1	<---	PA_Contri	0.827	***	Q30.2PCA1	<---	Org_Supp	0.596	***
Qn26.2PCA3	<---	GI_regn	0.429	***	Q30.2PCA2	<---	Org_Supp	0.525	***
Qn26.2PCA2	<---	GI_regn	0.527	***	Q30.2PCA3	<---	Org_Supp	0.638	***
Qn26.2PCA1	<---	GI_regn	0.783	***	Q30.3PCA1	<---	Proc_Challe	0.722	***
					Q30.3PCA2	<---	Proc_Challe	0.541	***

*** indicates significant at .001 level, ** indicates significant at .01 level

Source: Primary Data and Computed

8.5 Hypotheses Test of Each Construct

The following alternate hypotheses were tested for each of the constructs.

8.5.1 Hypotheses Test Results of Contribution of Producers' Association in Promoting GI

The test results and inferences of the measurement model of 'contribution of producers' association in promotion of GI' are shown in Table 8.90.

Table 8.90

Contribution of Producers' Association in Promotion of GI- Hypothesis Test Results

	Alternate Hypothesis	Coefficient	p	Supported/ Not Supported
H ₀₁	The principal component identified as 'assistance in GI management' is a significant reflection of 'contribution of producers' association in promotion of GI'	0.827	<0.001***	Supported
H ₀₂	The principal component identified as 'Assistance for AU registration and boosting inter-personal relations' is a significant reflection of 'Contribution of producers' association in promotion of GI'	0.463	<0.001***	Supported
H ₀₃	The principal component identified as 'Involvement in registration and promotion' is a significant reflection of 'Contribution of producers' association in promotion of GI'	0.698	<0.001***	Supported
H ₀₄	The principal component identified as 'Governance mechanism' is a significant reflection of 'Contribution of producers' association in promotion of GI'	0.938	<0.001***	Supported

*** indicates significant at 0.001 level, * indicates significant at 0.05 level

Source: Primary Data and Computed

It was observed that the principal components extracted namely 'assistance in GI management', 'assistance for AU registration and boosting inter personal relations', 'involvement in registration and promotion' and 'governance mechanism' were significant predictors of the dimension 'contribution of producers' association in promotion of GI'.

The construct namely ‘contribution of producers’ association in promotion of GI’ has strong factor loadings on all the constructs, indicating that producers' associations play a significant role in promoting GI.

8.5.2 Hypotheses Test Results of Awareness of Producers about GI

The test results and inferences of the measurement model of ‘awareness about the GI tag among the producers’ and its constituent first order latent variables namely ‘awareness about general aspects of GI’, ‘awareness about GI registrations’ and ‘awareness about legal aspects of GI’ are shown in Table 8.91.

Table 8.91

Awareness about the GI among the producers - Hypothesis Test Results

	Alternate Hypothesis	Coefficient	p	Supported/ Not Supported
H ₀₅	The ‘Awareness about general aspects of GI’ is critical predictor of ‘Awareness about the GI tag among the producers’	0.495	<0.001***	Supported
H ₀₆	The 'Awareness about GI registrations' is critical predictor of ‘Awareness about the GI tag among the producers’	0.698	<0.001***	Supported
H ₀₇	The 'Awareness about legal aspects of GI' is critical predictor of ‘Awareness about the GI tag among the producers’	0.366	0.006**	Supported
H ₀₈	The principal component identified as 'Awareness about GI, GI logo and associated benefits' is a significant reflection of ‘Awareness about general aspects of GI’	0.661	<0.001***	Supported
H ₀₉	The principal component identified as 'Awareness of national level logo' is a significant reflection of ‘Awareness about general aspects of GI’	0.142	<0.001***	Supported
H ₁₀	The principal component identified as 'Awareness of GI registration renewal period and fee' is a significant reflection of ‘Awareness about GI registrations’	0.783	<0.001***	Supported

	Alternate Hypothesis	Coefficient	p	Supported/ Not Supported
H ₁₁	The principal component identified as 'Awareness of GI's territorial coverage' is a significant reflection of 'Awareness about GI registrations'	0.527	<0.001***	Supported
H ₁₂	The principal component identified as 'Awareness about validity and procedure of GI registration' is a significant reflection of 'Awareness about GI registrations'	0.429	<0.001***	Supported
H ₁₃	The principal component identified as 'Awareness of GI ownership and enforcement' is a significant reflection of 'Awareness about legal aspects of GI'	0.592	<0.001***	Supported
H ₁₄	The principal component identified as 'Awareness of GI's legal and collective function' is a significant reflection of 'Awareness about legal aspects of GI'	0.098	0.633	Not supported

*** indicates significant at 0.001 level, **indicates significant at 0.051level

Source: Primary Data and Computed

It was observed that 'general awareness about general aspects of GI', 'awareness about GI registrations' and 'awareness about legal aspects of GI' were significant predictors of 'awareness about the GI tag among the producers.'

All the principal components identified namely 'awareness about GI, GI logo and associated benefits', 'awareness of national level logo' were significant reflections of 'awareness about general aspects of GI.'

'Awareness of GI registration renewal and fee', 'awareness of GI's territorial coverage' and 'awareness about validity and procedure for getting GI registration' were significant reflections of 'awareness about GI registrations.'

However, in the case of 'awareness about legal aspects of GI' only the principal component identified as 'awareness of GI ownership and enforcement' was found to be a significant reflection. The other principal component identified as 'awareness of GI's

legal and collective function’ was not a significant reflection of ‘awareness about legal aspects of GI.’

‘Awareness about general aspects of GI’, ‘awareness about GI registrations’ and ‘awareness about legal aspects of GI’ were found to be significant predictors of ‘awareness about the GI tag among the producers’.

8.5.3 Hypotheses Test Results of Economic Impact of GI

The economic impact of GI products was measured through subcomponents like ‘price effect’ and ‘market and financial effect’. The hypothesis test results relating to economic impact of GI products are shown in Table 8.92.

Table 8.92

Economic impact of GI – Hypothesis Test Results

	Alternate Hypothesis	Coefficient	p	Supported/ Not Supported
H ₁₅	The 'Price effect' is a significant predictor of 'Economic impact of GI products'	0.561	<0.001***	Supported
H ₁₆	The 'Market and finance effect' is a significant predictor of 'Economic impact of GI products'	0.821	<0.001***	Supported
H ₁₇	The 'Price advantage' is a significant reflection of 'Price effect'	0.481	<0.001***	Supported
H ₁₈	The 'Price influence' is a significant reflection of 'Price effect'	0.402	<0.001***	Supported
H ₁₉	The 'Market expansion and economic opportunities' is a significant reflection of 'Market and finance effect'	0.492	<0.001***	Supported
H ₂₀	The 'Increased Govt assistance' is a significant reflection of 'Market and finance effect'	0.368	<0.001***	Supported
H ₂₁	The 'Enlarged domestic demand and reputation' is a significant reflection of 'Market and finance effect'	0.113	<0.001***	Supported

*** indicates significant at 0.001 level

Source: Primary Data and Computed

The principal components identified namely ‘price advantage’ and ‘price influence’ were found to be significant reflections of ‘price effect’.

The principal components identified namely ‘market expansion and economic opportunities’, ‘increased govt assistance’ and ‘enlarged domestic demand and reputation’ were significant reflections of ‘market and finance effect.’

the 'price effect' and ‘market and finance effect’ were found to be significant in predictors of ‘economic impact of GI.’

8.5.4 Hypotheses Test Results of Social Impact of GI

The social impact of GI was measured through subcomponents like ‘organisational and employment effect’, ‘development mechanism’ and ‘protection and valorisation effect.’ the hypothesis test results relating to ‘social impact of GI tagged products’ are shown in Table 8.93.

Table 8.93

Social impact of GI – Hypothesis Test Results

	Alternate Hypothesis	Coefficient	p	Supported/ Not Supported
H ₂₂	The 'Organisational and employment effect' is significant in predictor of ‘Social impact of GI tagged products’	0.598	<0.001***	Supported
H ₂₃	The 'Development mechanism' is significant in predictor of ‘Social impact of GI tagged products’	0.505	<0.001***	Supported
H ₂₄	The 'Protection and valorisation effect' is significant in predictor of ‘Social impact of GI tagged products’	0.820	<0.001***	Supported
H ₂₅	The 'Active producers association and enhanced opportunities’ is a significant reflection of ‘Organisational and employment effect’	0.893	<0.001***	Supported
H ₂₆	The 'Increased awareness and coordination' is a significant reflection of ‘Organisational and employment effect’	0.575	<0.001***	Supported
H ₂₇	The 'Increase in community development' is a significant reflection of ‘Development mechanism’	0.124	<0.001***	Supported
H ₂₈	The 'Development of rural areas' is a significant reflection of ‘Development mechanism’	0.512	<0.001***	Supported

	Alternate Hypothesis	Coefficient	p	Supported/ Not Supported
H ₂₉	The 'Increase in status of farming' is a significant reflection of 'Protection and valorisation effect'	0.471	<0.001***	Supported
H ₃₀	The 'Protection of traditional knowledge and environment' is a significant reflection of 'Protection and valorisation effect'	0.873	<0.001***	Supported

*** indicates significant at 0.001 level

Source: Primary Data and Computed

The principal components identified namely 'active producers' association and enhanced opportunities' and 'increased awareness and coordination' were found to be significant reflections of 'organisational and employment effect'.

The principal components 'increase in community development' and 'development of rural areas' were significant reflections of 'development mechanism.' Similarly, the principal components identified namely 'increase in status of farming' and 'protection of traditional knowledge and environment' were significant reflections of 'protection and valorisation effect.'

The 'organisational and employment effect', 'development mechanism' and 'protection and valorisation effect', were significant predictors of 'social impact' of GI tagged products.

8.5.5 Hypotheses Test Results of Marketing Benefits of GI

The marketing benefits of GI was measured through subcomponents like 'product differentiation benefits' and 'supply chain and value benefits' the hypothesis test results relating to 'marketing benefits of GI' are shown in Table 8.94.

Table 8.94

Marketing Benefits of GI– Hypothesis Test Results

	Alternate Hypothesis	Coefficient	p	Supported / Not Supported
H ₃₁	The 'Product differentiation benefit' is significant in predictor of 'Marketing benefits of GI'	0.604	<0.001***	Supported

	Alternate Hypothesis	Coefficient	p	Supported / Not Supported
H ₃₂	The 'Supply chain and value benefit' is significant in predictor of 'Marketing benefits of GI'	0.518	<0.001***	Supported
H ₃₃	The 'Enhanced product recognition' is a significant reflection of 'Product differentiation'	0.883	<0.001***	Supported
H ₃₄	The 'Competitive distinction' is a significant reflection of 'Product differentiation'	0.412	<0.001***	Supported
H ₃₅	The 'Improved bargaining power' is a significant reflection of 'Effect on supply chain and value'	0.496	<0.001***	Supported
H ₃₆	The 'Enhanced relationship with market intermediaries' is a significant reflection of 'Effect on supply chain and value'	0.483	<0.001***	Supported

*** indicates significant at 0.001 level

Source: Primary Data and Computed

The principal components identified as 'enhanced product recognition' and 'competitive distinction' were significant reflections of 'product differentiation'.

The principal components 'improved bargaining power' and 'enhanced relationship with market intermediaries' were significant reflections of 'effect on supply chain and value.'

The hypotheses that 'product differentiation benefit' and 'supply chain and value benefit' are significant predictor of 'marketing benefits of GI' fails to get rejected. Which means that the 'product differentiation' and 'supply chain and value benefits' are significant in influencing the 'marketing benefits of GI'.

8.5.6 Hypotheses Test Results of Challenges in the Use of GI

Finally, the 'challenges in the successful usage of the GI tag' was measured through subcomponents like 'registration and govt. support challenges', 'organisational support challenges' and 'procedural challenges.' the hypothesis test results relating to 'challenges in the successful usage of the GI tag' are shown in Table 8.95.

Table 8.95*Challenges in the Successful Usage of the GI Tag – Hypothesis Test Results*

	Alternate Hypothesis	Coefficient	p	Supported/ Not Supported
H ₃₇	The 'Registration and Govt. support challenges' is significant in predictor of 'Challenges in the successful usage of the GI tag'	0.731	<0.001 ^{***}	Supported
H ₃₈	The 'Organisational support challenges' is significant in predictor of 'Challenges in the successful usage of the GI tag'	-0.472	0.999	Not Supported
H ₃₉	The 'Procedural challenges' is significant in predictor of 'Challenges in the successful usage of the GI tag'	-0.143	0.999	Not Supported
H ₄₀	'Govt. support and producer compliance challenge' is a significant reflection of 'Registration and Govt. support challenges'	0.529	<0.001 ^{***}	Supported
H ₄₁	The 'Producers' inclusion challenge' is a significant reflection of 'Registration and Govt. support challenges'	0.545	0.999	Not Supported
H ₄₂	The 'GI registration feasibility challenge' is a significant reflection of 'Registration and Govt. support challenges'	0.628	0.999	Not Supported
H ₄₃	The 'Inspection body support challenge' is a significant reflection of 'Organisational support challenges'	0.596	<0.001 ^{***}	Supported
H ₄₄	The 'Quality assurance and competition challenge' is a significant reflection of 'Organisational support challenges'	0.525	<0.001 ^{***}	Supported
H ₄₅	The 'Collective responsibility and compliance challenge' is a significant reflection of 'Organisational support challenges'	0.638	<0.001 ^{***}	Supported
H ₄₆	The 'Registration process challenge' is a significant reflection of 'Procedural challenges'	0.722	<0.001 ^{***}	Supported
H ₄₇	The 'Execution of GI rights challenge' is a significant reflection of 'Procedural challenges'	0.541	<0.001 ^{***}	Supported

*** indicates significant at 0.001 level

Source: Primary Data and Computed

‘Registration and govt. support challenges’ was significant predictor of ‘challenges in the successful usage of the GI tag’, whereas ‘organisational support challenges’ and ‘procedural challenges’ were not found to be significant predictors of ‘challenges in the successful usage of the GI tag’.

The ‘Govt. support and producer compliance challenge’ was a significant reflection of ‘Registration and Govt. support challenges’. Whereas ‘producers’ inclusion challenge’ and ‘GI registration feasibility challenge’ were not significant reflection of ‘registration and Govt. support challenges’.

All the principal components identified namely ‘inspection body support challenge’, ‘quality assurance and competition challenge’ and ‘collective responsibility and compliance challenge’ were significant reflections of ‘organisational support challenges.’

Likewise, the two principal components identified namely ‘registration process challenge’ and ‘execution of GI rights challenge’ were significant reflections of ‘procedural challenges.’

8.5.7 Hypotheses Test Results of Composite Model

The impact of ‘contribution of producers’ association in promotion of GI’ on ‘awareness of GI among producers’. The effect of ‘awareness of GI among producers’ on economic and social impact of GI tagged products’, and the effect of ‘economic and social impact of GI tagged products’ and ‘challenges in successful use of GI tags’ on marketing benefits of GI products are evaluated as is depicted in Table 8.96.

Table 8.96

Socio Economic Impact and Marketing Benefits of Geographical Indications Tag – Composite Model

	Alternate Hypothesis	Coefficient	p	Model Fitness	Supported/ Not Supported
H ₄₈	The 'Contribution of producers' association in promoting GI' significantly impacts 'Awareness of GI among producers'	0.733	<0.001***	X ² /df= 3.448, RMSEA = 0.074	Supported
H ₄₉	The 'Awareness of GI among producers' significantly affects 'Economic impact of GI tagged products'	0.785	<0.001***		Supported
H ₅₀	The 'Awareness of GI among producers' significantly affects 'Social impact of GI tagged products'	0.612	<0.001***		Supported
H ₅₁	The 'Economic impact of GI tagged products' significantly affects 'Marketing benefits of GI products'	0.691	<0.001***		Supported
H ₅₂	The 'Social impact of GI tagged products' significantly affects 'Marketing benefits of GI products'	0.467	<0.001***		Supported
H ₅₃	The 'Challenges in successful use of GI tag' significantly impacts 'Marketing benefits of GI products'	-0.136	0.999		Not Supported

*** indicates significant at 0.001 level

Source: Primary Data and Computed

H₄₈ – tests the influence of ‘contribution of producers association for GI promotion’ on the ‘awareness level of producers about GI’. The results indicate that ‘contribution of producers association for GI promotion’ significantly influences the ‘awareness level of producers about GI’ ($\beta = 0.733$, $p < 0.001$). Since the p-value is below 0.01, the relationship is statistically significant at the 1% level. This finding suggests that higher ‘contribution of producers’ association towards GI promotion’ is strongly associate with greater ‘awareness level of producers about GI’. Therefore, H₄₈ is supported.

H₄₉ – tests the influence of ‘producers’ awareness of GI’ on the ‘economic effect of GI’. The results indicate that ‘producers’ awareness of GI’ significantly influences ‘economic impact’ ($\beta = 0.785$, $p < 0.001$). Since the p-value is below 0.01, the

relationship is statistically significant at the 1% level. This finding suggests that higher producer awareness about GI is strongly associated with greater economic benefits from GI. Therefore, H₄₉ is supported.

H₅₀ – tests the influence of ‘producers’ awareness of GI’ on the ‘social effect of GI’. The results indicate that ‘producers’ awareness of GI’ significantly influences ‘social impact’ ($\beta = 0.612$, $p < 0.001$). Since the p-value is below 0.01, the relationship is statistically significant at the 1% level. This finding suggests that higher producer awareness about GI is strongly associated with greater social benefits from GI. Therefore, H₅₀ is supported.

H₅₁ – tests the influence of ‘economic benefits of GI’ on ‘marketing benefits of GI’. The results indicate that higher economic benefits of GI significantly influence marketing benefits ($\beta = 0.691$, $p < 0.001$). Since the p-value is below 0.01, the relationship is statistically significant at the 1% level. This finding suggests that higher economic benefits are strongly associated with greater marketing benefits from GI. Therefore, H₅₁ is supported.

H₅₂ - tests the influence of ‘social effects of GI’ on ‘marketing benefits of GI’. The results indicate that ‘social effects’ of GI significantly influence marketing benefits ($\beta = 0.467$, $p < 0.001$). Since the p-value is below 0.01, the relationship is statistically significant at the 1% level. This finding suggests that higher social effects are strongly associated with greater marketing benefits from GI. Therefore, H₅₂ is supported.

H₅₃ – test the influence of ‘the challenges in the use of GI’ on the ‘marketing benefits of GI’. The analysis shows that the relationship between the ‘challenges in the use of GI’ and ‘marketing benefits’ is not statistically significant ($\beta = -0.136$, $p = 0.999$). Since the p-value is greater than 0.05, there is insufficient evidence to confirm this effect. This suggests that challenges in the use of GI may not directly influence marketing benefits from GI. Therefore, H₅₃ is not supported.

8.6 CONCLUSION

The model suggests that the more the producers are aware of GI processes and its benefits, the more positively they are affected in terms of both economic and social gains, for which the contribution of producers’ association is significant.

The contribution of producers' association in the promotion of GI was found to significantly influence the awareness about GI among producers, showing that the role

of producers' associations is vital in increasing awareness among producers regarding GIs. This is consistent with the opinion of (Pick & Marie-Vivien, 2021) who in their study states that the producer group led approach of GI management is more efficient than the State driven GI management. Similarly, awareness of GI among producers significantly influences the economic and social benefits from GI. This leads to the inference that increased awareness directly enhances economic outcomes, such as better pricing and market access for GI-labelled products. Similarly, as awareness grows there is a corresponding improvement in social outcomes, such as better community recognition and protection of cultural heritage.

The economic and social benefits of GI tagged products significantly affect marketing benefits of GI products. This suggests that the economic and social success of GI products lead to better marketing opportunities. Producers can leverage their GI status to enhance product visibility and differentiation in the market.

The 'challenges in successful use of GI labels' does not significantly influence the 'marketing benefits of GI products.'

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Chapter 9

Findings, Conclusion and Suggestions

9.1 INTRODUCTION

Geographical Indications represent an Intellectual Property Right that signals the quality and reputation of a product that emanate from a particular geographical area. These are often acknowledged by many researchers as a tool for rural development, cultural preservation, and branding. By registering a product as a GI, many socio-economic and marketing benefits are expected like price premium, increased demand, enhanced market access, protection of traditional knowledge, rural development, product differentiation and enhanced bargaining power.

In recent years GIs are gaining popularity due to the shift in the global market from standardized products to differentiated products. The GI protection has extensive coverage ranging from agricultural products to handicrafts. While the advocates of GI argue that it can bring in several socio-economic and marketing benefits, the critics points out to the challenges in the GI enforcement and lack of uniformity in the GI law across the globe.

This study was comprehensive in nature covering various dimensions of GI impact such as producers' associations contribution, awareness of the producers about GI, socio-economic impact of GI, marketing benefit of GI and challenges in the successful use of GI. The study was conducted from the perspective of the GI producers from agricultural sector. By examining the experiences of the GI producers this research aims to provide insights into the effectiveness of GI and identify the areas that needs policy interventions.

9.2 STATEMENT OF THE RESEARCH PROBLEM

Geographical Indications are recognised as a tool for enhancing the economic and social wellbeing of the producers from rural area by WIPO. The Govt. of India has taken the initiative for the protection of GIs by passing a separate Act, which came into force in the year 2003, September 15. It is more than twenty years since the GI Act was passed in India. Every policy needs to be evaluated inorder to ascertain how far the policy was successful in achieving its objectives. It was found at the time of literature review that even though studies have been conducted to evaluate the socio-economic impact of GI, much of the research have taken place in the European countries and the nature of research was case studies. The results of these researches are not generalizable to the developing world context(Mancini, 2013). The present

study evaluates the benefits derived from the implementation of the GI Act and the challenges in the successful use of GI. The social, economic and marketing benefits of GI needs to be evaluated in order to understand the outcomes of the policy implementation. The challenges in the successful utilisation of GI needs to be identified so that the Government can design proper intervention programs to remove the hindrances in the use of GI. This study is an effort to address the need to evaluate GI Policy by investigating the key factors like, the involvement of producers' associations, producers' awareness, the social, economic and marketing benefits derived from the GI and the challenges in utilizing GI.

9.3 OBJECTIVES OF THE STUDY

The primary objective of the study is to evaluate the socio-economic impact of Geographical Indications tag on selected products in Kerala. The following specific objectives are assessed in this research.

1. To analyse the perception of producers about the contribution of producers' association in promoting GI.
2. To ascertain the awareness level of producers about GI.
3. To evaluate the socio-economic impact of GI.
4. To analyse the producers' perception about the marketing benefits of GI.
5. To identify the challenges faced by the producers in the successful use of GI.
6. To examine the relationships among the contribution of producers' associations in GI promotion, producers' awareness of GI, their perceived socio-economic impacts, marketing benefits, and the challenges in the successful use of GI.

9.4 RESEARCH HYPOTHESES

The hypotheses framed for individual objectives are listed below:

Objective 1

- 1.H₁: Producers' perception about the contribution of producers' association in promoting geographical indications differs significantly between different GIs and different domiciles.

Objective 2

- 2.H₂: The producers' awareness about the general aspects of geographical indications significantly differs between different GIs and different domiciles.

- 3.H₃: The producers' awareness about the geographical indications registrations significantly differs between different GIs and different domiciles.
- 4.H₄: The producers' awareness about the legal aspects of geographical Indications significantly differs between different GIs and different domiciles.

Objective 3

- 5.H₅: The producers' perception on the price effect of geographical indications differs significantly between different GIs and different domiciles.
- 6.H₆: The producers' perception on the market and finance effect of geographical indications differs significantly between different GIs and different domiciles.
- 7.H₇: Geographical indications tag has a significant impact on the area of cultivation of the GI product.
- 8.H₈: Geographical indications tag has a significant impact on the quantity of production of the GI product.
- 9.H₉: The producers' perception on the organisational and employment effect of geographical indications differs significantly between different GIs and different domiciles.
- 10. H₁₀: The producers' perception on the development mechanism effect of geographical indications differs significantly between different GIs and different domiciles.
- 11. H₁₁: The producers' perception on the protection and valorisation effect of geographical indications differs significantly between different GIs and different domiciles.

Objective 4

- 12. H₁₂: The producers' perception on the product differentiation benefits of geographical indications differs significantly between different GIs and different domiciles.
- 13. H₁₃: The producers' perception on the supply chain and value benefits of geographical indications differs significantly between different GIs and different domiciles.

Objective 5

- 14. H₁₄: The producers' perception on the registration and government support challenges of geographical indications differs significantly between the various GIs and different domiciles.

15. H₁₅: The producers' perception on the organisational support challenges of geographical indications differs significantly between the various GIs and different domiciles.
16. H₁₆: The producers' perception on the procedural challenges of geographical indications differs significantly between the various GIs and different domiciles.

Objective 6

17. H₁₇: The contribution of producers' association in promoting GI significantly influence the awareness level of GI among producers.
18. H₁₈: The awareness level of GI among producers' significantly influences the economic effects of GI tagged products.
19. H₁₉: The awareness level of GI among producers' significantly affects social effects of GI tagged products.
20. H₂₀: The economic effects of GI tagged products' significantly influences the marketing benefits of GI products.
21. H₂₁: The social effects of GI tagged products' significantly influences the marketing benefits of GI products.
22. H₂₂: The challenges in successful use of GI tag significantly influences the marketing benefits of GI products.

9.5 RESEARCH METHODOLOGY

Research methodology provides the logical plan of action that the researcher follows to address the research problem identified.

9.5.1 Research Design and Data Source

The present study involves both descriptive and analytical approach, for which both primary and secondary data were exercised. The secondary data were taken from the official website of Intellectual Property Office, Department of Economics and statistics, Thiruvananthapuram, Karshika Keralam, Krishi Bhavan, Principal Agricultural Office and WIPO. The primary data were collected from the GI producers of Kaipad Rice, Chengalikodan Nendran, Tirur Vettala and Marayoor Sharkara using pre-tested structured interview schedule.

9.5.2 Sampling Design and Procedure

The sampling technique applied in the present study is Multistage sampling. There were three stages in sampling process.

Stage 1: Agricultural GIs were selected for the present study as it constituted the highest number with 24 registrations.

Stage 2: The stage two brought down the number of Agricultural GIs to be considered for the present study to eight GIs after applying the inclusion criteria.

The inclusion criteria were :

- a) The agricultural produce should have completed five years since the date of award of GI tag as of 2023.
- b) The geographical location of the selected GI product should be exclusive to Kerala state.
- c) there should be a producers' association for the producers of the product. And
- d) the registered GI produce should have an Inspection Body

Stage 3: The eight agricultural GIs belong to different crop categories such as rice, fruits, leafy crop and sugarcane. In the third stage one GI from each crop category having the highest number of producers were taken.

The GIs selected after the three-stage categorization are, Kaipad Rice, Tirur Vettla, Chengalikodan Nendran and Marayoor Sharkara.

The sample size for the present study were estimated using Cochran's formula for finite population and Krejcie and Morgan formula. The sample size as per the formula for the present study was 366 which were rounded to an upper value of 400. The samples were selected from each of the GI product proportionate to the number of producers in the producers' association of the selected GIs. The required samples were selected from the producers list available with the producers' association by applying simple random sampling technique.

9.5.3 Tools used for Data Analysis

The data collected for the present study were analysed using SPSS Version 25, R 4.4.1 and AMOS 21. The descriptive statistics were performed using Mean, Standard Deviation, Mean Percentage Score, Approval rate and CAGR. The inferential statistics were performed using MANOVA, ANOVA and Bonferroni Post Hoc Test. The quantitative economic impact assessment was conducted using Difference in Difference Method, the software R 4.4.1 was used for conducting DiD evaluation. The proposed model of the research was tested using Exploratory Factor Analysis, Confirmatory Factor Analysis and Structural Equation Model (SEM) for which AMOS 21 software was used.

9.6 MAJOR FINDINGS OF THE STUDY

The findings of the present study are organised based on the objectives of the study.

9.6.1 Findings on the Demographic Profile of the GI Producers

1. Among the 400 GI producers taken for the study, 72.5 % of the producers are in the age group of 51-60, and the least number of producers, 1.8 %, are in the age group 21-30.
2. Most of the GI producers in the study are male (91%).
3. Out of the 400 respondents 66.5 % of the GI producers belong to rural area followed by semi-urban area forming 20.3 %.
4. The education qualification of majority of the respondents are school level (86.3%).
5. With regards to the annual family income of the respondents, 53.8 % belong to the income group of rupees one lakh to rupee two lakh fifty thousand; this forms the major group of the study, which is consistent with the average monthly income of the agricultural households in Kerala.
6. Majority of the GI producers in the study belong to nuclear family (93.5 %).
7. Based on the land used for cultivation, 58.3 % of the respondents uses both own and leased land, followed by 23.5 % of the producers who cultivates solely on own land.

8. Among the 400 GI producers 98.5 % belong to marginal scale and 1.5 % belong to small scale categorisation of producers.

9.6.2 Findings on the General Information and Perception of Producers About Geographical Indications

1. Among the 400 respondents 82.3 % of the producers got GI registration with the support of Kerala Agricultural University and 17.8 % of the producers got the support of Krishi Bhavan for getting GI registration.
2. The present study shows that 72 % of the respondents handles processed products where as 28 % of them handles raw products.
3. Among the major channels of distribution, majority of the respondents, forming 53 %, distributes their produce through agents followed by 23.75 % producers who distributes through Karshaka Sangam.
4. As per the present study, the perceived benefit of 71 % of the respondents from GI registration was to 'protect tradition', followed by 12.8 % of the producers who perceive the 'benefit of legal protection' by getting GI registration.
5. Among the 400 respondents, 53.8 % of the producers belong to the GI produce having 10-15 years of GI registration and 46.25 % of the producers belong to the GI produce having 5-10 years of GI registration.
6. None of the GI agricultural product under present study have GI registration in foreign nations.
7. The main reason for not getting foreign GI registration, as expressed by majority of producers, forming 82.5 % of the respondents, was that the procedure for getting registration abroad is complex.

9.6.3 Findings on the Contribution of the Producers' Association in Promoting Geographical Indications

9.6.3.1 Descriptive Analysis

1. The contribution of producers' association was perceived to be high in the case of 'active participation during the registration process' and 'spreading awareness about GI among public' with an overall MPS of 92.8 % and 75 % respectively.

2. Moderate contribution from the side of producers' association was perceived by the producers in the case of the statements 'producers' association organises event to promote GI', 'assists the producers stick to CoP', and 'ensures GI management by the inspection body' with an MPS between 51% and 75%.
3. Low level of contribution of producers' association was perceived by its members in the case of the statements 'assisted the producers in getting AU registration' 'ensuring that the producers stick to the CoP', 'producers' association have a dispute redressal system to address GI-related issues' and 'raises GI-related issues with the Government' with MPS between 36% and 50%.
4. When it comes to building unity among the producers, the associations have a moderate contribution as perceived by its members with all three statements, 'producers' association membership has increased the confidence of the producers', producers' association holds regular meetings' and 'producers' association have boosted interpersonal links among producers' having an MPS between 51 % and 75 %.

9.6.3.2 GI wise Findings on the Contribution of Producers' Association in Promoting Geographical Indications

1. The most prominent measure of significance in the GI wise analysis of 'contribution of producers' association' was found to be 'producers' association was actively involved in GI registration' in the case of Kaipad Rice ($\bar{X} = 4.77 \pm 0.423$) whereas the least prominent one was 'producers' association assists the producers stick to CoP' ($\bar{X} = 1.49 \pm 0.503$) in the case of Tirur Vettla.
2. The MANOVA and ANOVA test results confirmed statistically significant difference in the opinion of the producers of various GIs on all the variables measuring the contribution of producers' association in promoting GI.
3. In the case of 'producers' association was actively involved in GI registration' pairwise comparison revealed maximum contribution from the association of Kaipad Rice and least from Tirur Vettla with a mean difference of 0.493.
4. The pairwise comparison revealed maximum contribution from Kaipad Rice Producers' Association and least contribution from the Association of Tirur

Vettila in the cases of 'producers' association takes awareness initiatives on GI among public,' 'producers' association's involvement in ensuring CoP among the producers' and 'producers' association assists the producers stick to CoP' with a mean difference of 0.484, 0.161 and 2.223 respectively.

5. When it comes to the statement 'producers' association organises events to promote GI' the maximum contribution from the producers' association was perceived by the producers of Chengalikodan Nendran and least contribution by the producers of Tirur Vettila with a mean difference score of 2.189.
6. The pairwise comparison result revealed maximum contribution from the producers' association of Tirur Vettila and least from Marayoor Sharkara in the case of 'producers' association assistance in AU registration' with a mean difference score of 2.192.
7. To the statement 'producers' association ensures GI management by inspection body' pairwise comparison results revealed that maximum variance exists between Kaipad Rice and Chengalikodan Nendran with a mean difference score of 1.409, which reveals highest contribution from the producers' association of Kaipad Rice and least contribution from Chengalikodan Nendran.
8. The pairwise comparison result of the statement 'producers' association has dispute redressal system to resolve GI issues' revealed maximum contribution from the producers' association of Chengalikodan Nendran and least from Marayoor Sharkara with mean score difference of 0.291.
9. The pairwise comparison revealed that, in the case of 'producers' association raises GI related issues with the Government', maximum contribution was from the producers' association of Kaipad Rice and least from Tirur Vettila with mean difference of 0.875.
10. In the case of the statement that 'producers' association membership has increased the confidence of the producers' maximum contribution of Association was perceived by the producers of Kaipad Rice and the least contribution by Marayoor Sharkara with a mean difference of 1.937.
11. The statement 'producers' association have boosted interpersonal links among the producers' revealed maximum mean difference score of 1.886 between Tirur Vettila and Marayoor Sharkara.

12. The statement ‘producers’ association holds regular meetings’ reveals maximum contribution from the producers’ association of Tirur Vettala and least from Marayoor Sharkara with mean difference of 1.602.

9.6.3.3 Domicile wise Findings on the Contribution of the Producers Association in Promoting Geographical Indications

1. The most prominent measure of producers’ associations contribution was found to be ‘producers’ association was actively involved in GI registration’ ($\bar{X}= 4.67 \pm 0.577$) in the case of urban domicile whereas the least prominent one was ‘producers’ association ensures practice of CoP by members’ ($\bar{X}= 1.33 \pm 0.477$) in the case of urban domicile.
2. The ANOVA test results did not show any significant difference in the opinion of the producers of different domiciles in the case of the statements ‘producers’ association was actively involved in GI registration’, ‘producers’ association takes awareness initiatives on GI among public’, ‘producers’ association ensures practice of CoP by members’, ‘producers’ association has dispute redressal system to resolve GI issues’, ‘producers’ association raises GI-related challenges with Government’, producers’ association holds regular meetings’, and ‘producers’ association have boosted interpersonal links among producers’.
3. In the case of ‘producers’ association organises event to promote GI’ higher contribution of producers’ association was perceived by the producers of semi-urban domicile and least contribution was perceived by urban domicile producers with mean difference of 2.032.
4. In the case of ‘producers’ association assisted in getting AU registration’ highest contribution was perceived by the producers of urban domicile and the least contribution was perceived by the producers from rural domicile with mean difference of 1.609.
5. Higher contribution from the producers’ association were perceived by the rural producers towards the statements, ‘producers’ association assists the producers stick to CoP’, ‘producers’ association ensures GI management by inspection body’ and ‘producers’ association membership has increased the confidence of the producers’ and least contribution were perceived by the

producers of semi-urban domicile with a mean difference of 0.971, 0.873 and 0.510 respectively.

9.6.4 Findings on the Diffusion of GI Scheme and the Awareness Level of GI among the Producers

9.6.4.1 Diffusion of GI Scheme at National Level

1. The year-wise growth rate of the GI applications is highly fluctuating. These fluctuations are due to the mass registration initiatives taken by the commodity boards during certain years, which results in the negative rate of registrations in the following years.
2. The overall approval rate till the year 2023-24 is 53 %. This means the approval of only half of the GI applications received were approved by the Registry. This can be due to the lengthy registration process involving multiple verification and validation of the uniqueness and originality of the product.
3. Last three years showed significant growth in the number of AU registrations with a total of 5745, 9102 and 12766 applications of AU received during the year 2021-22, 2022-23 and 2023-24 respectively. Out of the total AU applications received by the Registry, 56.30 % applications belonged to the year 2023-2024 and 40.15% applications belonged to the year 2022-2023.
4. The category wise approval rate results showed that the approval rate of AU registration applications was higher than 80 % in all cases. The overall approval rate of AU registration is 83%, which shows that the GI Registry is very efficient in approving the AU registrations received.
5. Among the producers taken for the present study, only the producers belonging to Chengalikodan Nendran and Tirur Vettala are having AU registrations.

9.6.4.2 Findings on the Level of Awareness of Producers Towards Geographical Indications

a.Descriptive Statistics

1. The producers of GI tagged products were highly aware about the concept of GI, GI logo and the usage of GI logo with an MPS of above 76%.

2. The producers had moderate level of awareness, with MPS between 51% and 75 %, about the pan India recognition of GI tag, the fees for GI registration, that GIs are a legal protection instrument and that GI can provide collective protection.
3. The producers had low level of awareness about AU registration, validity of GI registration, renewal of GI registration, renewal fees of GI registration and that GI tag can provide the producers of a collective monopoly with MPS between 36% and 50%.
4. The producers were having very low level of awareness about the national level GI logo and its usage.
5. The awareness level of producers was very low about the procedures of GI registration, that overseas protection is available only to those products having GI in India, the right to use GI can be transferred only to their legal heirs and not to any external parties and about the legal procedures to be followed in case of GI Act violation, with an MPS below 35 %.

b. GI wise Findings on the Producers' Level of Awareness about General Aspects of Geographical Indications

1. The most prominent measure of awareness about general aspects of GI was found to be 'awareness about own product having GI logo' ($\bar{X}$ = 4.973± 0.164) in the case of Marayoor Sharkara, whereas the least prominent one was 'awareness that national level logo and tagline for GI and that it can be attached to GI products' ($\bar{X}$ = 1.012 ± 0.125) that too in the case of Marayoor Sharkara.
2. The MANOVA test results confirmed statistically significant difference in the opinion of the producers of various GIs on all the variables measuring the awareness level of producers about the general concepts of GI.
3. The ANOVA test results showed that the producers of different GIs were having different level of awareness about the general aspects of GI except in the case of awareness about the national-level logo and tagline for GI product and that it can be attached to all registered GI products.
4. In the case of 'awareness about the concept of GI', 'awareness about GI Logo', 'awareness that own product has a registered GI logo' and 'awareness that GI

logo can be attached to products for branding' the producers of Marayoor Sharkara was found to have higher level of awareness when compared to other GI producers.

5. There is no significant difference in the level of awareness between the producers of different GIs about the national-level logo and tagline for the GI product and that the national level logo and tagline can be attached to all registered GI products.

c. GI wise Findings on the Producers' Level of Awareness about Geographical Indications Registrations

1. The most prominent measure of awareness about Geographical Indications registration was found to be 'Awareness that Producers can get individual AU registration' ($\bar{X} = 3.854 \pm 0.358$) in the case of Chengalikodan Nendran, whereas the least prominent one was 'Awareness that Producers can get Individual AU registration' ($\bar{X} = 1.085 \pm 0.142$) in the case of Kaipad Rice.
2. The MANOVA and ANOVA test results confirmed statistically significant difference in the awareness level of the producers of various GIs on all the variables measuring the awareness level of producers about the GI registrations.
3. The producers of Kaipad Rice were having higher level of awareness when compared to other GI producers in the cases relating to renewal of GI registration, GI registration fees and renewal fees as well as the fact that only products having GI registration in their home country can seek GI registration abroad. The Kaipad Rice producers have the least level of awareness in the case of individual AU registration.
4. The producers of Marayoor Sharkara had higher level of awareness in matters relating to procedures for getting GI registration and the validity of GI. But had the least level of awareness to the fact that only products having GI registration in their home country can seek GI registration abroad.
5. The producers of Chengalikodan Nendran had higher level of awareness regarding individual AU registration and least level of awareness in the matters relating to procedures for getting GI registration and GI registration fees and renewal fees.

6. The producers of Tirur Vettala had higher level of awareness about the fact that single GI registration can provide pan India legal protection and least level of awareness about the validity and renewal of GI registration.

d. GI wise Findings on Producers' Level of Awareness about Legal Aspects of Geographical Indications

1. The most prominent measure of awareness about legal aspects of GI was found to be 'awareness that GI gives the product legal protection' ($\bar{X} = 4.197 \pm 0.768$) in the case of Tirur Vettala, whereas the least prominent one was 'awareness about the legal procedures in case of GI Act violation' ($\bar{X} = 1.146 \pm 0.358$) in the case of Chengalikodan Nendran.
2. The results of MANOVA test found statistically significant difference in the awareness level of GI producers on all the variables measuring legal aspects of GI.
3. The ANOVA test results showed that producers of different GIs were having the same level of awareness relating to the legal procedures to be followed in the event of GI violation and different level of awareness regarding other variables measuring awareness of legal aspects on GI.
4. The producers of Tirur Vettala showed higher level of awareness regarding the statements 'GI gives the product legal protection', 'GI is a collective mark' and 'GI registration can give my product a collective monopoly'.
5. The producers of Chengalikodan Nendran revealed higher level of awareness to the statements 'the right to used registered GI can be transferred to my legal heir' and 'the GI tag is an exclusive right' (cannot be transferred to external parties).
6. The producers of Marayoor Sharkara and Kaipad Rice were having lower level of awareness about the legal aspects of GI.

9.6.4.3 Domicile Wise Findings on Producers' Level of Awareness about Geographical Indications

a. Domicile wise Findings on the Producers' Level of Awareness about General Aspects Geographical Indications

1. The most prominent measure of awareness about GI was found to be 'awareness about own product having GI logo' ($\bar{X} = 4.667 \pm 0.577$) in the case of urban producers, whereas the least prominent one was 'awareness that national level logo and tagline can be attached to GI products' ($\bar{X} = 1.023 \pm 0.131$) that too among producers from Urban areas.
2. The GI producers of different domiciles had different level of awareness on all measures of the general aspects of GI, except in the case of usage of national level logo and tagline. The producers' level of awareness between different domiciles were the same when it comes to the usage of national level logo and tagline.
3. The GI producers of rural domiciles were having higher level of awareness about all the variables measuring the awareness on general concept of GI, except in the case of usage of national level logo and tagline. The least level of awareness was shown by the GI producers of semi-urban domicile.

b. Domicile wise Findings on the Producers' Level of Awareness about Geographical Indications Registrations

1. The most prominent measure of awareness about GI registration was found to be 'awareness that producers can get individual AU registration' ($\bar{X} = 3.839 \pm 0.374$) in the case of semi-urban producers, whereas the least prominent one was 'awareness about procedures for getting GI registration' ($\bar{X} = 1.031 \pm 0.612$ each) in the case of urban producers.
2. The GI producers of different domiciles in the study were having statistically significant difference in the level of awareness on all the variables measuring the awareness on GI registration, except in the case that 'GI protected in the home country can seek protection abroad'.
3. The GI producers of rural domiciles were having higher level of awareness in the matters relating to the procedures for getting GI registration as well as GI

registration and renewal fees. The least level of awareness to these variables were exhibited by GI producers of semi-urban domiciles.

4. In the case of AU registration and validity of GI registration the producers of semi-urban domiciles were having higher level of awareness.
5. The GI producers of urban domiciles were more aware of the fact that GI registration can provide pan India protection.

c. Domicile wise Findings on Producers' Level of Awareness about Legal Aspects of Geographical Indications

1. The most prominent measure of the 'awareness about legal aspects of GI' was found to be 'awareness that GI is a collective mark' ($\bar{X} = 4.963 \pm 0.221$) in the case of urban producers, whereas the least prominent one was 'awareness about the legal procedures in case of GI Act Violation' ($\bar{X} = 1.097 \pm 0.301$) in the case of semi-urban producers.
2. The GI producers of different domiciles had no significant difference in the level of awareness in matters relating to legal procedure to be followed in case of GI violation and that GI is a collective mark.
3. The GI producers of rural domicile were more aware of the fact that GI tag can provide their product with legal protection.
4. The GI producers from the semi-urban domiciles were more aware about the ownership and transfer related legal aspects of GI.
5. The GI producers from urban domiciles had higher awareness that the GI tag can bring collective monopoly to its producers.

9.6.5 Findings on the Economic Impact of Geographical Indications

9.6.5.1 Descriptive Statistics

1. From among the statements measuring the price effect of GIs, 'experiencing price stability for the product in the market' and 'getting price premium for the produce' showed high effect of GI with MPS of above 76 %.
2. The statement 'power to fix price for the produce' had moderate effect of GI with MPS of 57.06 %.
3. The statement 'need to follow uniform CoP increased the production cost' have very low effect of GI with MPS of 34.56 %, which means that the need to

follow CoP for complying with GI regulation has not increased the production cost.

4. The producers of GI products perceived high level of market effect of GI in the case of statements 'increase in the market value (reputation) of the product' and 'increase in the demand for the product in domestic market' with an MPS of 84.9% and 78.8% respectively.
5. The GI producers perceived moderate effect of GI in the case of the statement 'Increase in Tourism Prospects of the region' with an MPS of 50% and very low effect of GI to the statements 'increase in access to new markets' and 'increase in export for the product' with an MPS of 32.66% and 32.96% respectively.
6. The perceived finance effect of GI shows the producers perceives higher effect of GI in the case of 'increase in Govt schemes after receiving GI tag' with an MPS of 75% and low effect of GI in the case of statements 'greater interest on the part of the financial institution in providing credit to the producers after the receipt of GI tag' and 'increase in Government subsidies / grants' with MPS of 36.2% and 43.96% respectively.

9.6.5.2 GI wise Findings on the Economic Impact of Geographical Indications

a. GI wise Findings on the Price Effect of Geographical Indications

1. The most prominent measure price effect of GI was found to be 'experiencing price stability for the product in the market' ($\bar{X} = 4.419 \pm 0.494$) in the case of Kaipad rice, whereas the least prominent one was 'need to follow uniform CoP increased the production cost' ($\bar{X} = 1.428 \pm 0.496$) that too in the case of Kaipad Rice.
2. MANOVA and ANOVA test results revealed that there was statistically significant difference in the perceived economic effects of GI among various GI producers in the study.
3. In the cases of 'power to fix price' and 'experiencing price stability of the product' after the receipt of GI it is seen that the producers of Kaipad Rice had higher edge over other producers of the GIs in the study. The producers of Chengalikodan Nendran had the least level of agreement to these statements.

4. The producers of the Kaipad Rice have not experienced significant change in the cost of production after receiving the GI tag.
5. The producers of Tirur Vettala had higher agreement that their products received price premium after the receipt of GI tag and the producers of Chengalikodan Nendran had the least level of agreement about receiving price premium after receipt of GI tag.
6. It was found that the producers of Chengalikodan Nendran did not receive much price related benefit after the receipt of GI tag.

b. GI wise Findings on the Market and Finance Effect of Geographical Indications

1. The most prominent measure of market and finance effect was found to be 'Increase in the reputation of the product' ($\bar{X} = 4.526 \pm 0.554$) in the case of Kaipad rice, whereas the least prominent one was 'increase in access to new markets' ($\bar{X} = 1.387 \pm 0.487$) that too in the case of Kaipad rice.
2. MANOVA and ANOVA test results revealed that there was statistically significant difference in the perceived market and finance effects of GI among various GI producers in the study.
3. The producers of Kaipad Rice perceived higher effects of GI in the case of 'increased the reputation of the product' and 'increased demand for the product in the domestic market'.
4. The producers of Tirur Vettala perceived higher effect of GI in the case of 'increase in access to new markets' and 'increase in the export of the product' and the least effect of GI to the statements were perceived by the producers of Kaipad Rice.
5. The producers of Marayoor Sharkara perceived higher effects of GI in the case of increase in tourism prospects of the region, greater interest on the part of the financial institutions to provide credit, increase in government subsidies/grants and increase in government schemes after receiving GI tag.
6. The producers of Chengalikodan Nendran perceived least effect of GI in the case of increased market reputation, increase in demand for the product, increase in tourism prospects of the region and increase in access to credits.

9.6.5.3 Domicile wise Findings on the Economic Impact of Geographical Indications

a. Domicile wise Findings on the Price Effect of Geographical Indications

1. The most prominent measure of the price effect of GI was found to be ‘experiencing price stability for the product in the market’ ($\bar{X} = 4.339 \pm 0.529$) in the case of rural area, whereas the least prominent one was ‘power to fix price for the produce’ ($\bar{X} = 1.685 \pm 0.213$) in the case of urban area.
2. MANOVA and ANOVA test results revealed that there was statistically significant difference in the perceived price effects of GI, among the GI producers of different domiciles in the study.
3. The producers of semi-urban domicile perceived higher effect of GI in the case of ‘power to fix the price of the product’.
4. The producers of rural domicile perceived higher effect of GI in the case of ‘received price premium for my product’ and ‘received price stability for my product’.

b. Domicile wise Findings on the Market and Finance Effect of Geographical Indications

1. The most prominent measure market and finance effect of GI was found to be ‘increase in the reputation of the product’ ($\bar{X} = 4.35 \pm 0.655$) in the case of rural areas, whereas the least prominent one was ‘increase in tourism prospects of the region’ ($\bar{X} = 1.55 \pm 0.506$) in the case of semi-urban areas.
2. ANOVA test results revealed that the statements, increase in access to new market, increase in export, greater access to credit, increase in Govt. subsidies and increase in Govt. schemes after the receipt of GI tag, did not show significant difference in the opinion of producers between different domiciles.
3. The GI producers of rural domicile perceived higher effect of GI to the statements increase in the reputation of the product, increase in the tourism prospects of the region, and increase in the demand for the product in the domestic market after the receipt of GI tag.

9.6.6 Findings on the Economic Impact of Geographical Indications - Quantitative Assessment

1. The DiD regression results revealed that there is no statistically significant impact of GI on the area of production and quantity of production in the case Chengalikodan Nendran, Marayoor Sharkara and Tirur Vettla.

9.6.7 Findings on the Social Impact of Geographical Indications

9.6.7.1 Descriptive Statistics

1. Among the organisational and employment effect of GI the statement ‘producers’ association was helpful in spreading awareness about GI registration among members’ has the highest effect with MPS of 85.63 %.
2. The statements ‘increase in coordination among the producers’, ‘producers’ association has become more active’, ‘relationship among producers in the association improved’, ‘increase in employment opportunity in the area’ and ‘more youth joining the production and farming activities’ have low effect with MPS between 36 and 50 %.
3. Among the development mechanism effect of GI, the statement ‘strengthened the social identity of the product’ has high effect with MPS of 85.96 %.
4. The statements ‘encouraged the settlement of younger generation in their hometown’, ‘reduced the migration to urban area’, ‘increased the migration from outside to the region’ and ‘increase in allied job in the region’ showed low effect from GI tag with MPS between 36 and 50 %.
5. The statements ‘positive complementary effect on other products of the region’ and ‘increase in land value in the region’ have very low effect from GI tag with MPS below 35 %.
6. Among the protection and valorisation effect of GI, the statements ‘GI protection prevents the name from becoming generic’, ‘ensured protection of traditional knowledge’, ‘ensures environmental protection’, ‘GI registration has helped in attracting the attention of media’ and ‘GI registration has helped in increasing the popularity of the region’ revealed high effect of GI with MPS above 76 %.

7. The statements ‘protection of indigenous species of plant varieties’, ‘GI registration has helped in attracting the attention of LSG to the area’, ‘increase in the status of the farming profession’ and ‘attitude of the youth towards farming has changed for good after the receipt of GI registration’ have medium effect of GI with MPS between 51 and 75 %.
8. The statement ‘more recognition is bestowed on producers after the receipt of GI registration’ the GI tag has low effect with MPS of 49.7 %.

9.6.7.2 GI wise Findings on the Social Impact of Geographical Indications

a. GI wise Findings on the Organisational and Employment Effect of Geographical Indications

1. The most prominent measure in organisational and employment effect of GI was found to be ‘producers’ association helped spread awareness about GI registration among members’ ($\bar{X}= 4.537 \pm 0.505$) in the case of Chengalikodan Nendran, whereas the least prominent one was ‘more youth joining the production and farming activities’ ($\bar{X}= 1.659 \pm 0.530$) that too in the case of Chengalikodan Nendran.
2. MANOVA and ANOVA test results revealed that the producers of different GIs were having different level of perception about the organisational and employment effect of GI.
3. The producers of Tirur Vettala perceived higher effect of GI in the cases of ‘increased coordination among the producers after getting GI registration (Social Cohesion)’, ‘producers’ association has become more active after receiving the GI registration’ and ‘the relationship of the producers with the association has improved after getting GI registration’.
4. The producers of Chengalikodan Nendran perceived higher effect of GI in the case of ‘producers’ association helped to spread awareness about GI among its members’.
5. The producers of Tirur Vettala perceived higher employment effect of GI with more agreement to the statements ‘increase in employment opportunities in the area after the product received the GI tag’ and ‘more youth joining the production after the product received the GI tag’. While the producers of

Chengalikodan Nendran perceived least effect of GI on employment related aspects.

b. GI wise Findings on the Development Mechanism Effect of Geographical Indications

1. The most prominent measure of development mechanism was found to be ‘strengthened the social identity of the product’ ($\bar{X} = 4.690 \pm 0.466$) in the case of Tirur Vettala, whereas the least prominent one was ‘reduced the migration to urban area’ ($\bar{X} = 1.439 \pm 0.502$) in the case of Chengalikodan Nendran.
2. MANOVA and ANOVA test results revealed that the producers of different GIs were having significantly different level of perception about the development effect of GI.
3. The producers of Tirur Vettala have perceived higher effect of GI in the cases ‘GI tag has strengthened the social identity of the product (maintaining a good public image/ popularity)’, ‘the GI registration has encouraged the settlement of younger generations in their hometown’ and ‘GI tag has played a substantial role in reducing migration to urban areas (decreasing rural drift)’.
4. The producers of Marayoor Sharkara perceived higher effect of GI in the case of ‘GI tag has brought about a complementary effect on other products from the region’, ‘the GI tag for the product has increased migration to the region from outside’, ‘increase in allied jobs after getting GI tag’ and ‘the receipt of GI registration has increased the land value of the place’.
5. The producers of Kaipad Rice perceived least effect of GI to the statements ‘increase in allied jobs after getting GI tag’ and ‘GI tag has brought about a complementary effect on other products from the region’.
6. The producers of Chengalikodan Nendran perceived the least effect of GI in reducing the rural drift.

c. GI wise Findings on the Protection and Valorisation Effect of Geographical Indications

1. The most prominent measure of protection and valorisation effect of GI was found to be ‘GI tag has ensured environmental preservation as the producers stick to the traditional method of production’ ($\bar{X} = 4.777 \pm 0.417$) in the case of Kaipad rice, whereas the least prominent one was ‘attitude of the youth

towards farming has changed for good after the receipt of GI registration' ($\bar{X} = 1.479 \pm 0.501$) that too in the case of Kaipad rice.

2. MANOVA and ANOVA test results revealed that the producers of different GIs were having different level of perception about the protection and valorisation effect of GI.
3. The producers of Tirur Vettala perceived higher effect of GI towards the statements 'GI registration has protected the name of the produce from becoming generic', 'the receipt of the GI helped attract the attention of local self-government towards the area', 'receipt of the GI helped to attract the attention of the media towards the area', 'GI registration has increased the popularity of the place among public', 'the receipt of GI registration has increased the status of the farming profession among the public' and 'there is a change in the attitude of youth towards the farming after the receipt of the GI tag'.
4. The producers of Chengalikodan Nendran perceived higher effect of GI in the case of 'protection of traditional knowledge relating to the produce'.
5. The producers of Kaipad Rice perceived higher effect of GI towards the statements 'GI tag has ensured environmental preservation as the producers stick to the traditional method of production', 'GI facilitated the protection of indigenous species of plant varieties' and 'more recognition is being bestowed upon producers after the receipt of GI tag'.
6. The producers of Tirur Vettala perceived that the GI tag had an effect in 'change in the status of farming profession' and 'change in the attitude of youth towards farming', but the Kaipad Rice producers did not perceive the same.

9.6.7.3 Domicile Wise Findings on the Social Impact of Geographical Indications

a. Domicile wise Findings on the Organisational and Employment Effect of Geographical Indications

1. The most prominent measure price effect of GI was found to be 'producers' association was helpful in spreading awareness about GI registration among members' ($\bar{X} = 4.581 \pm 0.502$) in the case of semi-urban area, whereas the least

prominent one was ‘more youth joining the production and farming activities’ ($\bar{X} = 1.774 \pm 0.497$) that too in the case of semi-urban area.

2. ANOVA test results revealed no significant difference in the opinion of GI producers of different domicile towards the statements ‘the relationship of the producers with the association has improved after getting GI registration’ and ‘increase in employment opportunities in the area after the product received the GI tag’.
3. In the case of ‘increased coordination among the producers (Social Cohesion)’ higher effect of GI was perceived by the producers of rural domicile.
4. In the case of ‘producers’ association has become more active’ and ‘producers’ association helped to spread awareness about GI among its members’ higher effect of GI were perceived by the producers of semiurban domicile.
5. The producers of urban domicile perceived higher effect of GI in the case of ‘more youth joining the production’.

b. Domicile wise Findings on Development Mechanism Effect of Geographical Indications

1. The most prominent measure development mechanism of GI was found to be ‘strengthened the social identity of the product’ ($\bar{X} = 4.581 \pm 0.502$) in the case of semi-urban area, whereas the least prominent one was ‘increase in land value in the region’ ($\bar{X} = 1.333 \pm 0.577$) in the case of urban area.
2. The ANOVA test results revealed that the GI producers of different domiciles were having the same level of perception about the effect of GI in the case of ‘positive complementary effect on other products of the region’, ‘encouraged the settlement of the younger generation in their hometown’, ‘increased migration from outside to the region’ and ‘increase in land value in the region’.
3. The producers of semiurban domicile perceived higher effect of GI tag in ‘strengthening the social identity of the product’ (maintaining a good public image/ popularity).
4. The producers of urban domiciles perceived higher effect of GI tag in increasing allied job in the region.

c. Domicile wise Findings on the Protection and Valorisation Effect of Geographical Indications

1. The most prominent measure protection and valorisation effect of GI was found to be ‘increase in the status of the farming profession’ ($\bar{X} = 4.874 \pm 0.241$) in the case of urban area, whereas the least prominent one was ‘more recognition is bestowed on producers after the receipt of GI registration’ ($\bar{X} = 1.742 \pm 0.445$) in the case of urban area.
2. The ANOVA test results did not find any significant difference in the perception of GI producers of different domiciles in the case of ‘GI tag ensures the protection of traditional knowledge’ and ‘GI tag ensures environmental protection’.
3. The producers of semi-urban domiciles perceived higher effect of GI in the case of ‘protected the name of the produce from becoming generic’, ‘help protect indigenous species of plant varieties’, ‘attracted the attention of local self-government and media towards the area’, ‘increased the popularity of the place among public’ and ‘more recognition is being bestowed upon GI producers’.
4. In the case of ‘increase in the status of the farming profession among the public’ and ‘change in the attitude of youth towards the farming’, higher effect of GI was perceived by the GI producers of urban domicile.

9.6.8 Findings on the Marketing Benefits of Geographical Indications

9.6.8.1 Descriptive Statistics

1. The producers perceived higher benefit from GI in the case of ‘GI helps in ensuring the originality of product’, ‘GI helps in communicating the quality of the produce’ and ‘GI reduces the information search cost of the customers’ with MPS of above 76 %.
2. The statements ‘GI differentiates the products from that of competitors’ and ‘entry of counterfeit products into the market have reduced’ have low effect from GI tag, with MPS between 36 and 50 %.
3. The statement ‘GI registration has reduced the unauthorised external intrusions to the area’ has very low effect with MPS of 33.2 %.

4. From among the statements relating to supply chain and value benefits of GI, the statements ‘GI ensures stable relationship with the market intermediaries’, ‘GI increases the bargaining power of the producers over the market intermediaries’, ‘GI aids in improved relation with market intermediaries which increased stability of business’, ‘benefits of GI registration are enjoyed by the traders and producers alike’ had medium effect with MPS between 51 and 75 %.
5. The statement ‘GI helps to obtain long term contracts with the market intermediaries’ has very low effect with MPS of 32.5 %.

9.6.8.2 GI Wise Findings on the Marketing Benefits of Geographical Indications

a. GI wise Findings on the Product Differentiation Benefits of Geographical Indications

1. The most prominent measure product differentiation benefits of GI were found to be ‘GI helps in communicating the quality of the produce’ ($\bar{X} = 4.775 \pm 0.421$) in the case of Tirur Vettala, whereas the least prominent one was ‘GI registration has reduced the unauthorised external intrusions to the area’ ($\bar{X} = 1.474 \pm 0.501$) that too in the case of Kaipad rice.
2. The MANOVA and ANOVA test results showed significant difference in the opinion of GI producers in all the variables measuring the product differentiation benefits of GI.
3. The producers of Tirur Vettala perceived higher benefit from GI in the case of ‘helped in differentiating the product from that of other similar products’, ‘helped to ensure the genuineness of the product (original product)’, ‘helped in communicating the genuine quality of the products/ produce to the customers’, ‘reduced the information search cost for customers’, ‘GI registrations have reduced the instances of counterfeit products in the market’ and ‘reduced the unauthorized external intrusions to the area’.
4. The producers of Marayoor Sharkara perceived least benefit from GI in the case of ‘helped to ensure the genuineness of the product (original product)’, ‘helped in communicating the genuine quality of the products/ produce to the customers’, ‘GI registrations have reduced the instances of counterfeit

products in the market’ and ‘reduced the information search cost for customers’.

b. GI wise Findings on the Supply Chain and Value Benefits of Geographical Indications

1. The most prominent measure of supply chain and value benefits of GI was found to be ‘benefits of GI registration are enjoyed by the traders and producers alike’ ($\bar{X} = 4.380 \pm 0.489$) in the case of Tirur Vettila, whereas the least prominent one was ‘GI helps to obtain long term contracts with the market intermediaries’ ($\bar{X} = 1.340 \pm 0.484$) in the case of Kaipad Rice.
2. The MANOVA and ANOVA test results showed significant difference in the opinion of GI producers in all the variables measuring the product supply chain and value benefits of GI.
3. The producers of Tirur Vettila perceived higher benefit from GI in the case of ‘GI registration has helped ensure a stable relationship between the producers and market intermediaries’, ‘the benefit of GI registration is enjoyed by traders and producers alike’ and ‘the stability of business has increased due to improved relations with market intermediaries’.
4. The producers of Kaipad Rice perceived higher benefit of GI in the case ‘GI registration has helped in enabling greater bargaining power over intermediaries (bilateral negotiation)’.
5. The producers of Marayoor Sharkara perceived higher benefit from GI in the case of ‘GI registration has helped in obtaining single long-term contracts with intermediaries’.

9.6.8.3 Domicile Wise Findings on the Marketing Benefits of Geographical Indications

a. Domicile wise Findings on the Product Differentiation Benefits of Geographical Indications

1. The most prominent measure of product differentiation benefit of GI was found to be ‘GI helps in ensuring the originality of product’ ($\bar{X} = 4.667 \pm 0.511$) in the case of urban area, whereas the least prominent one was ‘entry of

counterfeit products into the market has reduced' ($\bar{X} = 1.333 \pm 0.577$) that too in the case of urban area.

2. ANOVA test results revealed similar opinion in the perceived benefit of GI among the producers of different domiciles in the case of 'GI registration has reduced the unauthorised external intrusions to the area' and 'entry of counterfeit products into the market has reduced'.
3. The producers of urban domicile perceived higher benefit from GI in the case of the statements 'GI tag has helped in differentiating the product from that of the competitors', 'GI tag has helped to ensure the genuineness of the product (original product)', 'GI tag has helped in communicating the genuine quality of the products/ produce to the customers' and 'GI tag has reduced the information search cost for customers'.
4. The producers of rural domicile perceived least benefit from GI in the case of 'the GI tag has helped in differentiating the product from that of competitors'.
5. The producers of semi-urban domiciles perceived least benefit from GI in the case of the statements 'the GI tag has helped to ensure the genuineness of the product (original product)', 'the GI tag has helped in communicating the genuine quality of the products/ produce to the customers' and 'the GI tag has reduced the information search cost for customers'.
6. The producers of urban domicile perceived greater benefits from GI tag in differentiating their products from that of the competitors.

b. Domicile wise Findings on the Supply Chain and Value Benefits of Geographical Indications

1. The most prominent measure of supply chain and value benefits of GI was found to be 'benefits of GI registration are enjoyed by the traders and producers alike' ($\bar{X} = 4.333 \pm 0.577$) in the case of urban producers, whereas the least prominent one was 'GI helps in obtain long term contracts with the market intermediaries' ($\bar{X} = 1.612 \pm 0.630$) in the case of rural producers.
2. ANOVA test results revealed similar opinion in the perceived benefit of GI among the producers of different domiciles in the case of 'GI helps to obtain long term contracts with the market intermediaries' and 'benefits of GI registration are enjoyed by the traders and producers alike'.

3. The producers of rural domiciles perceived higher benefit from GI in the case of ‘the GI registration has helped ensure a stable relationship between the producers and market intermediaries’ and ‘the stability of business has increased due to improved relations with market intermediaries’, and the least benefit was perceived by the producers of semiurban domicile.
4. The producers of rural domiciles perceived greater benefit from GI tag in gaining supply chain benefits.

9.6.9 Findings on the Challenges in the Successful Usage of GI Tag

9.6.9.1 Descriptive Statistics

1. From among the registrations and Govt. support challenges of GI the statements ‘GI registration was initiated by including all eligible producers’, ‘specification of geographical map included eligible production area’, ‘registration was done with production technique accepted by the producers’, ‘cost of GI registration is affordable’ and ‘producers are willing to follow uniform CoP prescribed in registration process’ has high level of agreement among all the producers with MPS of above 76 %.
2. The statements ‘Government has taken initiatives to spread awareness about managing GI’ and ‘Government is taking initiative for promoting GI’ had moderate level of agreement among the producers with MPS of between 51% and 75%.
3. Among the statements relating to organisational support challenges of GI, the statement ‘competition among the producers reduced after receiving the GI tag’ has low level of agreement among the producers with MPS of 35.3 %. The statements ‘cooperation among producers aids the reaping of GI benefits’ and ‘all producers are equally working towards the protection of GI tag’ had very low level of agreement among the producers with MPS below 35%. These findings indicate that there is only minimal effort among the GI producers in jointly working towards the utilisation of GI tag.
4. The statements ‘inspection body ensures that the producers follow uniform CoP’, ‘inspection body is consistent with quality assurance checks’, ‘inspection body does take corrective action when non-compliance is found’, ‘presence of inspection body is guaranteeing the genuineness of the product’ had very low

level of agreement among the producers with MPS below 35 % in all the cases. These findings suggest that, overall, the inspection body formed at the time of GI registration has failed in meeting its objectives.

5. From among the statements measuring procedural challenges of GI, the statements ‘process of GI registration is easy’, ‘GI registration is possible without external support’, ‘steps to ensure legal protection to GI is strong’, ‘easy to file legal suite when there is a breach of GI rights’, ‘there is coordination among the producers when it comes to taking legal initiative’ and ‘State / Institutional support makes it easier to protect GI rights’ had very low level of agreement among the producers with MPS of below 35 %. The findings point out that all the procedural formalities are posing challenges to the GI producers. The lack of institutional/Govt support and lack of cooperation among the GI producers makes it difficult in utilising the benefits of GI tag.

9.6.9.2 GI wise Findings on Challenges in the Successful Usage of GI Tag

a. GI wise Findings on the Registration and Govt. Support Challenges of Geographical Indications

1. The highest mean score for the dimension, registration and govt. support challenge of GI was found to be ‘cost of GI registration is affordable’ ($\bar{X} = 4.507 \pm 0.501$) in the case of Kaipad Rice, whereas the least mean score was to the statement ‘Government has taken initiatives to spread awareness about managing GI’ ($\bar{X} = 1.561 \pm 0.502$) in the case of Chengalikodan Nendran.
2. The MANOVA and ANOVA test results showed significant difference in the opinion of GI producers in all the variables measuring the registration and Govt. support challenges of GI.
3. The post hoc test results of the statements ‘the GI registration was initiated by including all the genuinely eligible producers’, ‘the registration was done with a production technique accepted by the producers’, ‘the registration was done with a production technique accepted by the producers’, ‘the cost of GI registration is affordable’ and ‘all producers are willing to follow the uniform CoP mentioned during registration’ showed higher level of agreement among the producers of

Kaipad Rice. This means that the producers of Kaipad Rice was having lower level of GI registration related challenges when compared to other GI producers.

4. The post hoc test results of the statements ‘the Government has taken the initiative to provide an awareness programme relating to managing GI rights’ and ‘the Government has taken the initiative to promote GI’ revealed higher level of agreement among the producers of Kaipad Rice when compared to other GI producers. This reveals that the producers of Kaipad Rice was having lower level of Govt. support related challenges when compared to other GI producers.

c. GI wise Findings on the Organisational Support Challenges of Geographical Indications

1. The highest mean among the organisational support challenges of GI was found to be ‘benefits of GI registration are enjoyed by the traders and producers alike’ ($\bar{X} = 4.380 \pm 0.489$) in the case of Tirur Vettala, whereas the least mean was for ‘GI helps in obtain long term contracts with the market intermediaries’ ($\bar{X} = 1.340 \pm 0.484$) in the case of Kaipad Rice.
2. The MANOVA and ANOVA test results showed significant difference in the opinion of GI producers in all the variables measuring the organisational support challenges of GI.
3. The post hoc test results of the statements ‘the inspection body ensures that the uniform CoP is followed by all the producers of the products’, ‘the inspection body constituted at the time of GI registration is consistent with quality assurance checks’, ‘the inspection body do take corrective measures when non-compliance with the CoP is found’ and ‘the presence of inspection body helps in guaranteeing the genuineness of the GI product’ showed higher level of agreement among the producers of Marayoor Sharkara and least level of agreement among the producers of Chengalikodan Nendran. This means that the producers of Chengalikodan Nendran perceived least assistance from the inspection body when compared to other GI producers in the study.
4. The statements ‘the cooperation among the producers is making it easy to reap the benefit of the GI tag’, ‘all producers are equally working towards the protection of the GI tag’ and ‘the GI registration has reduced the competition between the producers’ subject to pairwise comparison had higher level of agreement among

the producers of Marayoor Sharkara and least level of agreement among the producers of Chengalikodan Nendran and Tirur Vettla. This means that the challenges in coordinating the producers work towards fully utilising the benefits of GI were found among the producers of Chengalikodan Nendran and Tirur Vettla.

d. GI wise Findings on the Procedural Challenges of Geographical Indications

1. The highest mean among the procedural challenges of GI was found to be ‘state / institutional support makes it easier to protect GI rights’ ($\bar{X} = 2.214 \pm 0.229$) in the case of Marayoor Sharkara, whereas the least mean was ‘process of registration is easy’ ($\bar{X} = 1.195 \pm 0.397$) in the case of Kaipad Rice.
2. The MANOVA and ANOVA test results showed significant difference in the opinion of GI producers in all the variables measuring the procedural challenges of GI.
3. The pairwise comparison of the statements ‘the process of GI registration is easy’ and ‘producers can do GI registration without external support’ revealed higher level of agreement from the producers of Marayoor Sharkara and least level of agreement from Kaipad Rice producers. This means that the registration related procedural challenges were perceived more by the producers of Kaipad Rice.
4. The post hoc test results of the statements ‘the steps to ensure legal protection for GI tags are strong’, ‘it is easy to register for a legal suite in case of a breach of GI tag rights’, ‘coordination among the producers when it comes to taking legal initiatives towards GI tag abuse’ and ‘State / institutional support is making it easier to protect the GI tag and the rights attached’ disclosed higher level of agreement among the producers of Marayoor Sharkara and least level of agreement among the producers of Tirur Vettla. This shows that the producers of Tirur Vettla perceived higher level of challenges during the legal execution of GI benefits.

9.6.9.3 Domicile wise Findings on Challenges in the Successful Usage of GI Tag

a. Domicile wise Findings on the Registration and Govt. Support Challenges of Geographical Indications

1. The highest mean score on the registration and Govt. support challenges of GI was found to be ‘cost of GI registration is affordable’ ($\bar{X} = 4.352 \pm 0.527$) in the case of rural producers, whereas the lowest mean was to the statement ‘Government has taken initiatives to spread awareness about managing GI’ ($\bar{X} = 1.333 \pm 0.577$) in the case of urban producers.
2. The ANOVA test results showed that there is no difference in the challenges perceived by GI producers of different domiciles in the case of ‘production technique registered is accepted by the producers’, ‘producers are willingness to follow uniform CoP prescribed in registration process’ and ‘Government has taken initiatives for promoting GI’.
3. Post hoc test results of the statements ‘the GI registration was initiated by including all the genuinely eligible producers’, ‘the geographical map registered includes all the areas where the production takes place’ and ‘the cost of GI registration is affordable’ showed maximum variance between rural and semi-urban domiciles. This means that the producers of rural domicile perceived lower level of registration and govt. support challenges than the producers of semi-urban domicile.

b. Domicile wise Findings on the Organisational Support Challenges of Geographical Indications

1. The highest mean score measure of the organisational support challenges of GI was found to be towards the statement ‘all producers are equally working towards the protection of GI tag’ ($\bar{X} = 2.128 \pm 0.425$) in the case of urban producers, whereas the least mean score was ‘inspection body ensured that the producers follow uniform CoP’ ($\bar{X} = 1.114 \pm 0.227$) in the case of urban producers.
2. ANOVA test results revealed no difference in the challenges perceived by the GI producers of different domiciles in the case of the statements ‘inspection body was consistent with quality assurance checks’, ‘cooperation among

producers help in reaping GI benefits’ and ‘all producers are equally working towards the protection of GI tag’.

3. The statements ‘inspection body takes corrective action when non-compliance is found’ and ‘competition among the producers reduced after receiving the GI tag’ showed maximum mean difference between the producers of rural and semi-urban domiciles. The statement ‘presence of inspection body is guaranteeing the genuineness of the product’ showed maximum mean difference between the producers of rural and urban domiciles. This means that the producers of rural domiciles perceived lower level of organisational support challenges.

c. Domicile wise Findings on the Procedural Challenges of Geographical Indications

1. The highest mean measure of the procedural challenges of GI was found to be ‘process of GI registration is easy’ ($\bar{X} = 2.115 \pm 0.178$) in the case of urban producers, whereas the least one was ‘State / Institutional support makes it easier to protect GI rights’ ($\bar{X} = 1.385 \pm 0.577$) that too in the case of ‘urban producers.’
2. The ANOVA test and post hoc test revealed that all the GI producers of different domiciles had the same level of perceived challenge in all the variables measuring procedural challenges. This means that GI producers of all the domiciles had the same opinion on all the variables relating to the procedural challenges of GI.

9.6.10 Impact Assessment of Geographical Indications Tag

1. Contribution of producers’ association in promoting GI significantly influences the awareness level of producers about GI ($\beta = 0.733$, $p < 0.001$). Since the p-value is below 0.01, the relationship is statistically significant at the 1% level. The finding suggests that higher contribution of producers’ association towards GI promotion is strongly associated with higher level of awareness among producers about GI’.
2. Producers' awareness level about GI significantly influences the economic effects of GI ($\beta = 0.785$, $p < 0.001$). Since the p-value is below 0.01, the

relationship is statistically significant at the 1% level. The finding suggests that higher producer awareness about GI is strongly associated with greater economic benefits from GI.

3. Producers' awareness level about GI significantly influences social effects of GI ($\beta = 0.612$, $p < 0.001$). Since the p-value is below 0.01, the relationship is statistically significant at the 1% level. The finding suggests that higher producer awareness about GI is strongly associated with greater social benefits from GI.
4. Higher economic effects of GI significantly influence marketing benefits of GI ($\beta = 0.691$, $p < 0.001$). Since the p-value is below 0.01, the relationship is statistically significant at the 1% level. The finding suggests that higher economic effects of GI are strongly associated with greater marketing benefits from GI.
5. Social effects of GI significantly influence marketing benefits of GI ($\beta = 0.467$, $p < 0.001$). Since the p-value is below 0.01, the relationship is statistically significant at the 1% level. The finding suggests that higher social effects of GI are strongly associated with greater marketing benefits from GI.
6. Challenges in the use of GI and marketing benefits of GI is not statistically significant ($\beta = -0.136$, $p = 0.999$). Since the p-value is greater than 0.05. This suggests that challenges in the use of GI may not directly influence marketing benefits from GI.

9.7 CONCLUSION

The place-based significance of GI is a blend of socio-cultural, economic and environmental features which instils the product with its uniqueness. The GI products are valued more than other similar products as they hold a set of distinct and unique features.

The problems posed by the industrial scale manufacture of products brought forth the necessity to impose GI as a legal tool. The market started facing the issue of helplessness to trace the origin of the product as the effect of product standardisation and commodification. Transnational corporations (TNCs) are seen as the force behind the standardisation and commodification of agricultural

products as they are keen in controlling every aspect of agricultural production, right from production to distribution. This dominance of TNCs restricts the development of local farming communities and less developed provinces. GIs are seen as an instrument that solves the issues relating to the product's origin. The impersonal characteristics of GI encourages community advancements as these IPRs cannot be held individually.

Being a collective mark, the producers cannot capitalise the benefits of GI without the support of a collective organisation. The contribution of producers' association from the point of view of producers were analysed, and it showed that the producers' association did play an active role in the registration and spreading awareness about GI among public. But it was found that the producers' association did not have a dispute redressal system and failed to ensure that the producers stick to the CoP, which is inevitable for ensuring the quality of the product. The producers' association should hold regular meetings so as to bring cohesion among the producers. The evaluation of the awareness level of the producers revealed that they are not knowledgeable enough about the legal aspects of GI. This inflates the role of producers' association. The producers' association should concentrate in building a strong governance system so that the GI can managed efficiently. The producers' association should take initiative to address the violation of GI Act and should extend legal support whenever a dispute arises regarding the breach of GI Act.

Producers are the prominent stakeholders who relishes the economic and marketing benefits of GI. This makes it essential on the part of the GI producers to be aware about the technical and legal aspects of GI. An evaluation of the awareness level of producers revealed that the producers were aware about the general concept of GI but did not have much knowledge regarding the legal aspects of it. The study also found that the producers were not aware of the procedures to be followed in case of GI violation. Moreover, the producers were ignorant about the presence of national level logo and tag line. This lack of awareness about the legal aspects of GI can hinder the use of GI to its full potential. This can create the notion that the GIs are not strong enough like other industrial IPRs in providing legal protection.

The significance of GI in fostering economic growth was established in the study with the producers gaining price premium and price stability. The producers also enjoyed increase in reputation and demand for their product. The Govt. has also extended various schemes for assisting producers and promoting GI. The study revealed lower level of direct financial aid from the Government and financial institutions. More direct financial assistance to GI producers can speed up the effective utilisation and management of GI. It can also help in creating a positive worth in the minds of the producers about GI.

By granting producers exclusive right to use products name, based on its origin, GI serves as a powerful tool for preserving cultural heritage while promoting sustainable development. The success of GI can encourage younger generation in adopting farming and allied activities, which in turn reduces rural exodus. The ultimate significance of GI is that it is a branding tool. The GI tag facilitates product differentiation and helps in communicating the uniqueness and originality of the product. The standardised and commodified products often damage the market of small producers as these producers cannot meet the scale and economies of large producers. Bringing back the traditional and cultural uniqueness of food by providing GI protection is the only antidote against product standardisation. Collective nature of this exclusive IPR can enhance the bargaining power of the producers by bringing more strength to large number of small producers.

The present study also reveals that the producers of rural domiciles perceived that they have economic, social and marketing benefits from GI. This signals the contribution of GI towards rural development.

The results of the present study underscore various challenges associated with the GI, especially the enforcement issues. GIs are susceptible to judicial loopholes that can be exploited by the politically and economically influential transnational corporations (TNCs). A strong inspection body along with an active producers' association can enable appropriate use of GI. Despite the challenges, GIs can be a valuable mechanism for ensuring product authenticity. In an increasingly globalised world, where authenticity and province hold growing importance, GIs will continue to shape economic and cultural landscapes.

9.8 SUGGESTIONS

Based on the findings of the present study, suggestions are formulated to enhance the effectiveness of GI and to resolve the challenges identified.

9.8.1 Suggestions for Improving the Contribution of Producers Association in Promoting Geographical Indications

1. Producers' association should make sure that its members stick to the CoP so as to ensure the quality of the produce, the producers' association can work jointly with their respective inspection bodies to ensure that the producers stick to CoP.
2. Producers' association should form a committee which is responsible for undertaking dispute resolution process relating to GIs. This committee can include legal experts, members from agricultural office and LSG. This committee should be responsible for identifying GI Act violations and initiating actions against such violations as per the GI Rules.
3. Producers' Association should facilitate AU registration to all its members; this will enhance a sense of belonging towards GI among the producers which will help the producers to cherish the value of GIs.
4. Regular meeting should be conducted by the producers' association which can include session on production and marketing activities with resource support from the agricultural institutions like, Krishi Bhavan, Agricultural Research Stations and Kerala Agricultural University, which can encourage the participation of the producers in the meeting. This frequent interaction and meeting among the producers can help in improving the relationship between the producers which is crucial for the functioning of the GI system.
5. The producers' association should organise promotional events to popularize the GI among the public. The promotional events can be linked with cultural events celebrated in the State. The producers' association can also work with Tourism Promotion Council of the State to popularize the GI products.

6. Producers' association can start common retail outlets and e-commerce platforms for selling the GI products sourced from its members.
7. Producers' association can form a liaison with the Govt. to develop policy framework for the promotion and protection of GI.

9.8.2 Suggestions for Improving the Awareness Level of Producers about Geographical Indications

1. The producers should be given awareness about the national level logo and tagline; this can help producers understand the national level importance of GIs and that GIs are IPRs capable of providing pan India protection. Moreover, national level GI logo and tagline can facilitate easy identification of Indian origin GIs in the international market.
2. The producers should be made aware that they could get Authorised User (AU) registration from GI registry. The producers should be made aware that AU registration can further enhance their credibility as GI producer which can be useful in getting GI related benefits like price premium, new market access, export potential etc. The AU registration among the producers can be enhanced by making it mandatory to have AU registration for availing Government schemes which are exclusive for GI producers.
3. The producers should be given awareness about the legal procedures to be followed at the time of detection of GI violation by the GI Registry.
4. The GI producers should be informed and encouraged to participate in trade fairs and exhibitions organised by the Cell for IPR Promotion and Management (CIPAM) to get first-hand experience in the promotion of GI.
5. The NGO and Government Departments like Agriculture, MSME, DIC, can conduct awareness programs for GI producers and inform them about the benefits of GI tag. The CIPAM is currently offering awareness about IPRs to students under National Intellectual Property Awareness Mission (NIPAM), this program can be extended to other stakeholders also. Moreover, rather than conducting general IPR awareness campaign, awareness campaigns specific to GI can be extended to the GI producers.

9.8.3 Suggestion for Improving the Economic Impact of Geographical Indications

1. Geographical Indications tag can be used to boost tourism prospects of a region by highlighting the regional specialties and cultural significance of the produce. Different approaches can be used such as promoting experiential tourism by providing tourists with first-hand experience by involving them in farming and production process. Another approach to enhance tourism is to provide GI tourism trails by linking regions producing GI tagged items. Other approaches for promoting tourism are through culinary tourism and through festivals, events and exhibitions. The GI tagged products can be promoted as a part of sustainable tourism and can be included in the tourism campaigns of the State through Tourism Promotion Council.
2. National Bank for Agricultural and Rural Development should provide special loan schemes for the producers of GI tagged products. The NABARD through refinance schemes can appeal to the commercial banks to provide financial assistance to the GI producers.
3. The Agricultural and Processed Food Products Export Development Authority (APEDA) should actively support the producers in export of GI products. The involvement of APEDA in supporting exports can help the producers avoid the exploitation of middle men there by increasing their income.
4. The Government can provide direct subsidy to the GI producers for availing services for the agricultural purpose.
5. The Government can provide financial assistance for developing common facility centers exclusive to GI products, that supports processing, packaging, warehousing etc. of GI products.

9.8.4 Suggestions for Improving the Social Impact of Geographical Indications

1. Since GI is a collective IPR the full benefit can be enjoyed only if there is coordination among the producers. The Producers Association's role in enhancing the relationship among the producers is undeniable. Agricultural institutions like Krishi Bhavan and other agricultural offices and institutions

like Kerala Agricultural University should provide support to the functioning of the producers' association.

2. The success of the GIs will encourage the younger generation to take up agricultural activities which can promote the settlement of younger generation in hometowns thus slowing down the rural drift. Hence success stories of GI products should be popularized through social media.
3. The registered GIs should bear the name of the geographic location to which the product belongs, this can increase the popularity of the place of origin.
4. Improving the recognition for producers is essential to elevate their status in the society. Government should initiate awards and recognitions to producers who strive hard to protect the GIs in its originality. The success stories of GI producers should be highlighted to encourage youth towards farming activities; this can be done through social media campaigns.
5. The Government should invite the representation of producers in policy making events which can further enhance their self-esteem.

9.8.5 Suggestions for Improving the Marketing Benefits of GI

1. The producers should be encouraged to use the GI logo in their products either in the form of hologram sticker or normal stickers which can help in recognizing genuine products from counterfeit ones and can help in popularizing the logo among public there by familiarizing the customers with the logo.
2. QR code can be incorporated in the product packages to trace back to the producers producing the product and to ensure the originality of the product.
3. Certification marks, individual marks and collective marks can be used in conjunction with GI tag as a marketing measure to position the product in the market.
4. The packaging of the GI products can use story telling marketing method because the GIs have a rich backstory about the culture, tradition and heritage

of the region, this can help the customers to identify the unique value of the product.

5. The producers of GI should make maximum effort to popularize their GI tag which can help them in gaining bargaining power over the market mediaries.

9.8.6 Suggestions for Resolving Challenges in the Successful Use of GI

1. The inspection body setup at the time of GI registration can play a significant role in helping the producers use GI as a marketing tool. There should be specific guidelines as to the functioning of the inspection body. The inspection bodies can follow the guidelines in order to ensure the proper implementation of the GI system.
2. The inspection body should conduct regular check at the place of production to ensure that the producers stick to their CoP and to understand the problems faced by the producers.
3. The inspection body can undertake various support programs like seminars and workshop in order to spread the awareness about the importance of GI among the producers.
4. The inspection body is having representation from the Kerala Agricultural University, Krishi Bhavan and producers' association, hence they can act as a mediator between the producers and the Government there by proposing various schemes that can help in supporting the GI producers.
5. The producers' association should encourage the member producers to report instances of GI violation and should take the initiative for registering legal action against such violations.

Chapter 10
***Recommendations and Scope For
Further Research***

10.1 INTRODUCTION

Based on the preceding chapter, which summarises the major findings of the study, the present chapter offers a set of recommendations aimed at improving the implementation and utilisation of Geographical Indications Policy. Additionally, the chapter outlines areas for further research that were not included in the scope of the present study.

10.2 RECOMMENDATIONS

1. The Government should initiate exclusive schemes for the promotion of GI tagged products. Various Government departments can assist the promotion of GI in different ways. Department of Industries and Commerce can provide funding for GI-based startups, help in brand development and IP enforcement. The Directorate General of Foreign Trade (DGFT) can promote GI products in global markets and facilitate the registration of Indian GIs in major export markets. Ministry of Tourism can initiate both National level and State level schemes for the promotion of GI. Exclusive GI tourism circuits can be developed for each state. The Government can also give preferences for GI products as an official protocol gift for national and international dignitaries during official events.
2. National level advertisement campaigns can be initiated by the Government for spreading awareness among the producers and the public about the significance of Geographical Indications tag. Documentaries can be prepared for capturing the uniqueness of each GI product and the production process involved in the making of the product.
3. The Government can extend support for marketing of GI produce like providing financial assistance for the branding and promotional expenses. Government can help build E – Commerce platforms for procuring and selling GI products. Government can fund participation of GI producers in international trade fairs which can increase the presence of Indian GIs in international markets. The Government can also give preference to GI products in schemes such as ‘One District One Product’.
4. The Government can encourage the registration of GIs by providing subsidy for the GI registration fees. The registration process of GI can be made more

streamlined by making it digitalized. For improving GI registration facilities, a dedicated GI portal can be setup where all the forms and documents can be uploaded electronically. The GI Registry should provide downloadable templates for filing the proof of origin, production process and maps. For field survey and verification of the originality of the documents the support of the LSG can be sought which can reduce the unnecessary delay in the registration process.

5. The agricultural institutions like Kerala Agricultural University, the Krishi Bhavana and the Agricultural Research stations can play multiple roles in the sustenance of GI products. These institutions can work with the producers' association in organising campaigns to spread awareness about the benefits of GI among different stakeholders. Krishi Bhavan office can help the producers in gaining access to various Govt. schemes and subsidies. These organisations can also act as a mediator between the Govt. and the producers of GI, so that the issues that need immediate consideration can be brought to the attention of the Govt.
6. The Kerala Agricultural University along with other academic and research institutions can support the GI producers in preserving the traditional knowledge and conserve indigenous plant species associated with GI. These institutions can provide marketing and value addition support. They can act as policy advocates and help prepare policy recommendations to be submitted to the Govt. for the development of GI products.
7. State wise GI support centers should be opened for ensuring GI support access regionally, this can speedup the challenges relating to registration of GI as well as dispute redressal in case of GI violation.
8. The GI portal should also have provision for registering GI related complaints with real time complaint tracking.
9. The public can also be encouraged to report counterfeit products through online portal and can be encouraged by incentivizing the whistleblowers with appreciation certificates by the Government.

10. The IPR cell of higher education institution and universities should be encouraged to take up awareness initiative about GI among their students. The cell can initiate start-ups with GI products of their region.

10.3 SCOPE FOR FURTHER RESEARCH

1. Interstate comparison of socio-economic impact of Geographical Indication tag.
2. Cross product socio-economic impact assessment of Geographical Indications can be done. Eg. Comparison between agricultural products and handicraft products.
3. Geographical Indications as a tool for social inclusion – How marginal farmers are benefited from GI.
4. Study on the role of State in the governance of Geographical Indications tag.
5. An assessment of Geographical Indications as a branding tool can be done from the customer point of view.
6. Role of Geographical Indications in International Trade Agreements.
7. Comparative study between the legal framework for the protection of GI adopted by different nations can be carried out in order to understand the effectiveness of the GI law.

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Appendices

INTERVIEW SCHEDULE

I. Demographic Information About Producers having GI Product

1. Name of the product

2. Age

Below 20 ☐

21-30 ☐

31-40 ☐

41-50 ☐

51-60 ☐

Above 60 ☐

3. Gender

Male ☐

Female ☐

4. Area of Residence:

Urban ☐

Rural ☐

Semi Urban ☐

5. Educational Qualification:

School Level ☐

Graduate ☐

Post Graduate ☐

Professional ☐

Diploma ☐

6. Annual Income of the family:

< 1 lakh ☐

1 lakh – 2.5 lakh ☐

2.5 lakh – 5 lakh ☐

5 lakh – 7.5 lakh ☐

7.5 lakh – 10 lakh ☐

>10 lakh ☐

7. Type of Family:

Nuclear ☐

Joint ☐

8. Ownership of Land used for Cultivation

Own Land ☐

Leased Land ☐

Both ☐

9. How will you categorise your scale of farming?

Marginal scale ☐

Small Scale ☐

Semi Medium ☐

Medium scale ☐

Large Scale ☐

10. How did you get the GI registration?

Self-registration ☐

Registered with the support of Kerala Agricultural University ☐

Registered with the support of Krishi Bhavan ☐

Registered by the commodity board ☐

Others (Specify)

11. What is the nature of the GI product?

Raw ☐

Processed ☐

12. What is your major channel to sell GI products?

Directly to the customer ☐

Through Agents ☐

Through Cooperative society / Karshaka Sangham ☐

Through FPO ☐

Through Major Markets ☐

II. General Information and Perception of Producers Towards Geographical Indications

13. What perceived benefit is expected from getting GI registration?

- Protect the tradition / Culture ☐
- Legal protection for the product name usage ☐
- Help customers in easy identification of the genuine product ☐
- Registration effort was taken by outside agencies/institutions ☐
- Demarcate the area within which the product is to be produced ☐
- Use GI as a marketing tool ☐
- Others (Specify) ☐

14. For how many years have you had the GI tag?

- Less than 5 years ☐
- 5-10 years ☐
- 10-15 years ☐
- Above 15 years ☐

15. Have you registered the GI in other countries?

- Registered ☐
- Not Registered ☐

16. If 'YES', the reason for getting GI registration abroad

- For promoting exports ☐
- To prevent unauthorised use of the GI abroad ☐
- For getting legal protection abroad ☐
- For branding purpose ☐
- Others (specify)

17. If 'NO', the reason for not getting GI registration abroad

- Complex Procedure ☐
- Lack of Awareness ☐
- Lack of Consensus among the producers regarding foreign Reg. ☐
- No Perceived Benefit ☐
- No Government/ Organisational Support ☐
- Others ☐

18. Mark your level of agreement to the following statements aimed at measuring the Contribution of the Producers' Association in promoting Geographical indications.

(SA Strongly Agree, A Agree, N Neutral, DA Disagree, SDA Strongly Disagree)

Sl.No	Statement	SA	A	N	DA	SDA
1	The producers' association had an active role in Geographical Indications registration of the product					
2	The producers' association is taking initiatives to spread awareness of GI among the Public					
3	The producers' association organises events to promote GI products					
4	The producers' association helped get authorised user registration					
5	The producers' association ensures that the member producer practices the code of practice mentioned during GI registration					
6	The producers' association assists the producers stick to the code of practice by lending tools, procuring fertilisers etc.					
7	The producers' association ensures that the inspection body is involved in the management of GI					
8	The producers' association has a dispute redressal system to solve the disputes relating to GI					
9	The producers' association takes the initiative to raise issues faced by the producers with the Government bodies					
10	The membership in the producers' association has increased the confidence of the producers					
11	The producers' association holds regular meetings to discuss the problems of producers					
12	The producers' association have boosted the interpersonal links among producers					

19. Mark your Level of Awareness to the following statements relating to Geographical Indications

(NA – Not at all aware, SA – Slightly aware, SWA – Somewhat aware, MA – Moderately aware and EA – Extremely aware)

Sl.No	Producers Awareness	NA	SA	SWA	MA	EA
	Awareness About General Aspects of Geographical Indications					
1	I am aware of the concept of Geographical Indications					
2	I am aware of the Geographical Indications Product Logo					
3	I am aware that my product has a registered GI logo					
4	I am aware that the GI logo can be attached to the product to ensure brand identity					
5	I am aware that there is a national-level logo and tagline for the GI product					
6	I am aware that the national-level logo and tagline can be attached to all registered GI products					
	Awareness About Geographical Indications Registrations					
7	I am aware of the procedures for getting GI registration					
8	I am aware that each producer can get individual AU registration					
9	I am aware that the GI registration is valid for 10 years					
10	I am aware that the GI registration should be renewed after 10 years of registration					
11	I am aware that a single GI registration can provide pan-India legal protection for my product					
12	I am aware that only products having GI registration in their home country can seek GI registration abroad					
13	I am aware that the GI registration fee is Rs. 5000					
14	I am aware that the GI registration renewal fee is Rs. 3000					

	Awareness About Legal Aspects of Geographical Indications					
15	I am aware that GI provides legal protection					
16	I am aware that the right to use a GI tag can be transferred only to my legal heirs					
17	I am aware of the steps for legal procedures in case of disputes / GI Act Violation					
18	I am aware that GI is a collective mark					
19	I am aware that GI registration can give my product a collective monopoly					
20	I am aware that the GI tag is an exclusive right (cannot be transferred to external parties)					

20. Mark your level of agreement to the following statements measuring the perceived socio-economic impact of Geographical Indications tag.

a. Economic Impact Assessment – Subjective Method

Sl.No	Statement	SA	A	N	DA	SDA
	Price Effect					
1	I have more power to fix the price of my product after getting the GI tag					
2	I am experiencing price stability for my produce after getting the GI tag					
3	I am experiencing an increase in the input cost since the producers must maintain certain quality standards as per GI registration					
4	I am getting a price premium for my product after getting the GI tag					
	Market and Finance Effect					
1	I believe that GI tag has increased the market value (Reputation) of the product					
2	I believe that the GI tag has increased the demand for the product in the domestic market					
3	I am experiencing an increase in access to new markets after receiving GI registration					
4	I am experiencing an increase in the export of my product after getting the GI tag					

5	I have seen an increase in the tourism prospects in the region after getting GI registration					
6	I have experienced that financial institutions are showing greater interest in providing credit after the product receives the GI tag					
7	I have seen an increase in government subsidies/grants after getting the GI tag					
8	I have seen an increase in Govt. schemes after getting GI tag					

b. Social Impact Assessment – Subjective Assessment

Sl.No	Statement	SA	A	N	DA	SDA
	Organisational and Employment Effect					
1	I am experiencing increased coordination among the producers after getting GI registration (Social Cohesion)					
2	I am experiencing that the producers' association has become more active after receiving the GI registration					
3	I am experiencing that the relationship of the producers with the association has improved after getting GI registration					
4	I believe that the producers' association helped spread awareness about GI among its members					
5	I have seen an increase in employment opportunities in the area after the product received the GI tag					
6	I have seen more youth joining the production after the product received the GI tag					
	Development Mechanism					
7	I believe that the GI tag has strengthened the social identity of the product (maintaining a good public image/ popularity)					
8	I believe that the GI tag has brought about a complementary effect on other products from the region					
9	I believe that the GI registration has encouraged the settlement of younger generations in their hometown					

10	I believe that the GI tag has played a substantial role in reducing migration to urban areas (decreasing rural drift)					
12	I believe that the GI tag for the product has increased migration to the region from outside					
13	I have seen an increase in allied jobs after getting GI tag					
14	I believe that the receipt of GI registration has increased the land value of the place					
	Protection and Valorization Effect					
15	I believe that the GI registration has protected the name of the produce from becoming generic					
16	I have seen that the GI registration for the product has ensured the protection of traditional knowledge relating to the produce					
17	I have seen that the GI tag has ensured environmental preservation as the producers stick to the traditional method of production					
18	I believe that GI registration can help protect Indigenous species of plant varieties					
19	I believe that the receipt of the GI helped attract the attention of local self-government towards the area					
20	I believe that the receipt of the GI helped to attract the attention of the media towards the area					
21	I believe that GI registration has increased the popularity of the place among public					
22	I feel that the receipt of GI registration has increased the status of the farming profession among the public					
23	I feel that there is a positive change in the attitude of youth towards the farming after the receipt of the GI tag					
24	I feel that more recognition is being bestowed upon producers after the receipt of the GI tag					

21. Mark your level of agreement to the following statements measuring the perceived marketing benefits of Geographical Indications tag.

Sl.No	Statement	SA	A	N	DA	SDA
	Product Differentiation Benefits					
1	I have realized that the GI tag has helped in differentiating the product from that of other similar products					
2	I perceive that the GI tag has helped to ensure the Originality of the product					
3	I believe that the GI tag has helped in communicating the genuine quality of the products/ produce to the customers					
4	I believe that the GI tag has reduced the information search cost for customers					
5	I believe that GI registration has reduced the unauthorized external intrusions to the area					
6	I believe that the Geographical indications registrations have reduced the instances of counterfeit products in the market					
	Supply Chain and Value Benefits					
7	I believe that GI registration has helped ensure a stable relationship between the producers and market intermediaries					
8	I believe that GI registration has helped in enabling greater bargaining power over intermediaries (bilateral negotiation)					
9	I believe that GI registration has helped in obtaining single long-term contracts with intermediaries.					
10	I believe that the stability of business has increased due to improved relations with market intermediaries					
11	I believe that the benefit of GI registration is enjoyed by traders and producers alike					

22. Mark your level of agreement to the following statements measuring the perceived challenges of Geographical Indications tag usage.

Sl.No	Statement	SA	A	N	DA	SDA
	Registration and Govt. Support Challenges					
1	I believe that the GI registration was initiated by including all the genuinely eligible producers					
2	I believe that the geographical map registered includes all the areas where the production takes place					
3	I believe that the registration was done with a production technique accepted by the producers					
4	I believe that the cost of GI registration is affordable					
5	I feel that all producers are willing to follow the uniform code of production mentioned during registration					
6	I believe the Government has taken the initiative to provide awareness programme relating to managing GI rights.					
7	I believe that the government is taking the initiative to promote geographical indications					
	Organisational Support Challenges					
8	I have observed that the inspection body ensures that the uniform CoP is followed by all the producers of the product					
9	The inspecting body constituted at the time of GI registration is consistent with quality assurance checks					
10	The inspecting bodies do take corrective measures when non-compliance of the CoP is found					
11	The presence of inspecting bodies helps in guaranteeing the genuineness of the GI product					
12	I feel that cooperation among the producers is making it easy to reap the benefit of the GI tag					
13	I believe that all producers are equally working towards the protection of the GI tag					

14	I believe that the GI registration has reduced the competition between the producers					
	Procedural Challenges					
15	I believe that the process of GI registration is easy					
16	I believe that producers can do GI registration without external support					
17	I believe that the steps to ensure legal protection for GI tags are Strong					
18	I believe that it is easy to register for a legal suite in case of a breach of GI tag rights					
19	I see coordination among the producers when it comes to taking legal initiatives towards GI tag abuse					
20	I believe that State / Institutional support is making it easier to protect the GI tag and the rights attached					

DIRECTORATE OF RESEARCH, UNIVERSITY OF CALICUT

General Format for Submitting Report on Peer – Reviews Research Publication (Latest First)

Sl No	Authors in order and Title of Publication *	Journal Name, Volume, Number, Year & Digital Object Identifier (DOI) Number	International/ National**	Publisher with ISSN	Web Address of the Journal	Indexed by***	Impact Factor if any
1	Rekha Menon P Dr. Vasanthakumari P Purchase Intention of Customers towards Handloom Textiles with Geographical Indications	Journal of Business Management and Information Systems, Vol 11, March 2024 https://doi.org/10.48001/jbmis.2024.si1001	National	E-ISSN: 2394-3130	https://jbmis.qtanalytics.in	Google Scholar, Academia.edu, Crossref	
2	Rekha Menon P Dr. Vasanthakumari P Implications of GI on Indian Specialty Coffee – A Case Study on 'Monsooned Malabar Arabica Coffee'	Journal of Intellectual Property, Vol 27, September 2022 https://doi.org/10.56042/jipr.v27i5.61884	National	E-ISSN: 0975-1076	https://or.niscpr.res.in/index.php/JIPR	Scopus, Scimago	
3	Rekha Menon P Dr. Vasanthakumari P An Evaluation of Geographical Indications Tagged Products from Kerala	Our Heritage, Vol 68, December 2019	National	ISSN: 0474-9030			Impact Factor – 6.3

*The applicant/candidate should be first author on the corresponding author, review papers may not be entertained.

**Preference may be given to International Journals.

***Agency which popularizes the publication, e.g., google scholar, scopes, etc..

Specific Remark/recommendation of the Chairperson, PGBS/Head of the Research Centre, based on the above criteria.

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