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Beyond Intellectual Property: The "Matas de Minas" Geographical Indication as a Mechanism for Rural Development

Gustavo Bastos Braga
Universidade Federal de Viçosa – Viçosa – Minas Gerais – Brasil
ORCID: https://orcid.org/0000-0001-7289-331X

Gonimar Venâncio Teixeira Marques
Universidade Federal de Viçosa – Viçosa – Minas Gerais – Brasil
ORCID: https://orcid.org/0000-0002-0949-3599

Resumo
A Indicação de Procedência (IP) Matas de Minas é uma modalidade de Indicação Geográfica (IG) que tem a finalidade de diferenciar os cafés especiais produzidos na Região das Matas de Minas - Minas Gerais, Brasil. O objetivo deste estudo foi analisar se o processo de reconhecimento da IP contribui para o desenvolvimento rural da região. Para tanto, realizou-se estudo de caso descritivo e exploratório, utilizando a Análise de Redes Sociais (ARS) combinada com a análise de entrevistas, revisão documental e de literatura. Como resultado, observou-se que o processo de reconhecimento da IG é capaz de estruturar uma rede social que pode fortalecer o território. Portanto, além de diferenciar o café, o que lhe agrega valor de mercado, a IP foi capaz de promover a organização socioeconômica e produtiva condicionada a pressupostos existentes no local, como as associações e cooperativas, e o combate ao oportunismo de mercado. Além disso, constatou-se que o processo de reconhecimento deste signo distintivo de origem, também conhecido como ferramenta de propriedade intelectual, dependeu da participação dos produtores, da sociedade local e dos setores público e privado, promovendo o desenvolvimento rural na região.

Palavras-chave: Diferenciação. Organização territorial. Análise de rede social. Café.

Beyond intellectual property: the Indication of Precedence (IP) Matas de Minas as a rural development mechanism

Abstract
The Matas de Minas Indication of Precedende is a type of Geographic Indication (GI) that aims to differentiate specialty coffees produced in the Matas de Minas Region - Minas Gerais, Brazil. Our study aimed to analyze whether the IP recognition process contributes to rural development in the region. To this end, a descriptive and exploratory case study was carried out, using Social Network Analysis (SNA) combined with interview, document and literature review analysis. As a result, it was observed that the GI recognition process is capable of

structuring a social network that can strengthen the territory. Therefore, in addition to differentiating coffee, which adds market value, IP was able to promote socioeconomic and productive organization when recognized based on existing local assumptions, such as associations and cooperatives, and the confrontation against market opportunism. Furthermore, it was verified that the process of recognizing this distinctive sign of origin, also known as an intellectual property tool, relied on the participation of producers, local society and public and private sectors to helping promote rural development in the area.
Keywords: Differentiation. Territorial organization. Social network analysis. Coffee.

Más allá de la propiedad intelectual: la Indicación de la Procedencia (IP) Matas de Minas como mecanismo de desarrollo rural

Resumen
La Indicación de Origen (IO) de Matas de Minas es un tipo de Indicación Geográfica (IG) que tiene como objetivo diferenciar los cafés especiales producidos en la Región de Matas de Minas - Minas Gerais (MG), Brasil. El objetivo de este estudio fue analizar si el proceso de reconocimiento de la propiedad intelectual contribuye al desarrollo rural de la región. Para eso, se llevó a cabo un estudio de caso descriptivo y exploratorio, utilizando Análisis de Redes Sociales (SNA) combinado con análisis de entrevistas, revisión de documentos y literatura. Como resultado, se observó que el proceso de reconocimiento de IG es capaz de estructurar una red social que puede fortalecer el territorio. Por lo tanto, además de diferenciar el café, que agrega valor de mercado, el IP logró promover la organización socioeconómica y productiva condicionada a supuestos locales, como asociaciones y cooperativas, y la lucha contra el oportunismo de mercado. Además, se constató que el proceso de reconocimiento de este signo distintivo de origen, también conocido como herramienta de propiedad intelectual, dependió de la participación de los productores, la sociedad local y los sectores público y privado, promocionando el desarrollo rural de la región.

Palabras clave: Diferenciación. Organización territorial. Análisis de redes sociales. Café.

1 Introduction

Geographical Indications (GIs) can be understood as distinctive signs used to identify products or services. According to the Brazilian Industrial Property Law (LPI, Brazil, 1996), GIs are classified into two categories: Indication of Origin (IP) and Denomination of Origin (DO). They are also recognized as mechanisms or instruments of intellectual property rights that certify not only the origin but also other attributes such as quality (Niederle, Mascarenhas, & Wilkinson, 2017). GIs are considered collective legal institutions, as they can be used by all producers established within a specific geographical area (Veloso, 2008).

These intellectual property instruments were initially created to curb adulteration and counterfeiting of agricultural products that had acquired reputation and market value. Historically, this was strongly associated with wine production (Bruch, 2011). The first internationally recognized geographical origin was the Douro Valley Region in Portugal. According to Moreira (1998), the delimitation of this region occurred in 1756 with the establishment of the *Companhia Geral de Agricultura das Vinhas do Alto do Douro* (CGAVAD). Hence, the earliest internationally recognized GIs were established in Europe.

In Latin America, these distinctive signs began to be established, recognized, and regulated only in the 20th century, with the first GI being granted in Mexico for Tequila in 1974 (Bowen, 2012). In Brazil, the first recognized GI was the *Vale dos Vinhedos* Indication of Origin (IPVV) in 2002, in the state of Rio Grande do Sul, for wine. Regarding coffee, the first Brazilian GI recognized was the *Cerrado Mineiro* in Minas Gerais, in 2005, under the IP category, through the creation of the *Conselho das Associações dos Cafeicultores do Cerrado* (CACCER). In 2013, this GI was upgraded to the DO category. Minas Gerais currently holds the highest number of registered GIs in the country (19) (SEBRAE, 2024).

The process of GI recognition in Brazil began in the 1990s, within the context of international agreements such as the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS/WTO, 1995) (Brazil, 1994), the promulgation of the LPI in 1996, compliance with the 1988 Federal Constitution, and other social and food security considerations.

The legal procedure for a GI to be internationally accepted must be conducted through the *Instituto Nacional de Propriedade Industrial* (INPI), an autonomous agency created by Law No. 5.648 of December 11, 1970 (Brazil, 1970). Together with the Ministry of Agriculture, Livestock, and Food Supply (MAPA), INPI forms the core institutional framework promoting GIs in the country. Technical and social support for registration requests has been provided by the Brazilian Micro and Small Business Support Service (SEBRAE), social organizations (producer associations, cooperatives, and unions), and universities (Mata et al., 2024).

In 2005, MAPA established the Coordination for the Promotion of Geographical Indications of Agricultural Products (CIG) within the context of the Doha Round negotiations of the World Trade Organization (WTO). The creation of a specific institutional structure to strengthen and expand the establishment of GIs in Brazil has contributed to recognizing these distinctive signs as tools that promote rural development and reinforce the growth and competitiveness of Brazilian agribusiness (Santiago et al., 2019).

In this context, Brazil has developed a solid bureaucratic structure for GI recognition, demonstrating its significant potential to foster rural development and protect products in international markets. According to Niederle (2014), GIs transcend their role as indicators of quality linked to product origin, as they are also associated with institutional transformation processes. Matos and Braga (2023) emphasize that differentiation through quality, management, communication, associativism, and legislation are drivers of competitiveness among GIs.

When considering whether GIs promote rural development in the regions where they are established, the literature provides a consolidated body of evidence indicating that GI recognition positively influences rural development (Anjos, Criado, & Caldas, 2013; Cazella et al., 2019; Demier et al., 2020; Gonçalves et al., 2020; Prado et al., 2022; Venâncio et al., 2023; Mata et al., 2024). However, for a GI to effectively foster rural development, obtaining registration with INPI must be seen as only one stage in a complex and continuous process, rather than the ultimate goal of the stakeholders involved (Cerdan, 2009; Nunes, Bandeira, & Nascimento, 2012; Anjos, Criado, & Caldas, 2013; Vieira & Pellin, 2015).

Thus, understanding the role of GIs in the rural development of a given region requires examining local production systems and the historical relationships between

people, products, and territory. Products distinguished by such signs are linked not only to geographical origin but also to territory-specific know-how, culture, and tradition. Therefore, the objective of this study is to analyze whether the recognition process of the *Matas de Minas* Indication of Origin contributes to the rural development of the region. Among the coffee-producing areas of Brazil, this is one of the oldest, as coffee cultivation has been economically viable since the early 19th century (Valverde, 1958; Singulano, 2015; Machado, 2017), making it one of the most important coffee-producing regions in the country.

2 Theoretical Framework

Studies in New Economic Sociology (NES) help to fill the gaps left by Classical and Neoclassical Economics by explaining economic action through sociological concepts. Concepts such as *homo economicus* and *methodological individualism* are discussed and complemented by notions such as embeddedness (Granovetter, 1973, 2007; Polanyi, 2000). According to Granovetter (2007), the economic actor is neither "over-socialized," as understood by sociology, nor "under-socialized," as posited by classical and neoclassical economic theory. Rather, the economic agent is inter- and intra-connected within a network of social relations, and economic action is embedded in these social relations.

For Granovetter and Swedberg (1992), economic action corresponds to a form of social action, and economic institutions are social constructions. Thus, NES theory helps explain how institutions reflect the social conditions in which they are embedded. This perspective suggests that the economic actor neither acts strictly as an isolated individual, as in mainstream economics, nor is entirely constrained by social structures, as in Classical Economic Sociology. Therefore, the economic actor operates in a context where their action is embedded within interpersonal ties (Granovetter, 2007).

The concept of *embeddedness*, proposed by Polanyi (2000) and later developed by Granovetter (2007) as a framework for understanding how economic action is situated within the social structure, can explain how the economic act of recognizing an Indication of Origin (IP)—aimed at differentiating coffee—is embedded in the network of social relations existing in the Matas de Minas region. This condition, hypothetically, may promote rural development.

In this sense, the problem of embeddedness is examined through Social Network Analysis (SNA). It is suggested that, by analyzing the Relational Space (RS) formed by the actors involved in the IP recognition process, it is possible to describe the dynamics of rural development occurring within the territory.

The notion of a social network and the methods of SNA can be seen as a sequence of stages and procedures applied in sociometric research. According to Higgins and Ribeiro (2018), sociometric studies began with Simmel in the 19th century. Wasserman and Faust (1994) describe how the representation and quantification of social relations through sociograms began with Jacob Levy Moreno around 1930 and have been refined since then. Fialho (2015) notes that the concept of "social network" was first used by John Barnes in 1954.

The SNA methodology employs a wide range of concepts (Emirbayer & Goodwin, 1994). For instance, a social network is defined as a set of social relationships or ties among a group of actors who are themselves interconnected; thus, SNA investigates social structure. Marques (2007) corroborates this by defining SNA as a set of analytical tools for studying specific cases of social arrangements, aiming to analyze the relationships within them. Marteleto (2001) adds that SNA should not be regarded as an end in itself, but as a means of analyzing social structures to explain certain social phenomena.

The study of the RS within SNA is grounded in the perspective that connections exist among social actors. These connections—described by Granovetter (1973) as social ties—provide social capital to both actors and the structure. According to Wasserman and Faust (1994), graphs—the mathematical representations of social networks—comprise two types of information: nodes and ties. Through both quantitative (mathematical) and qualitative (visual) analysis, it becomes possible to describe a social network.

Furthermore, Granovetter (2007) emphasizes that there is a social dynamic in actors' behavior within networks, and it is through this social dynamic that economic relationships emerge. Hence, economic relations are embedded in the social dynamics of a given territory, creating what Vale (2007) refers to as *relational capital.* Therefore, SNA must consider the movement of agents within networks, making it one of the most comprehensive approaches to observing how the economy is embedded in social action (Mizruchi, 2006).

The connections within a social network are classified as *strong* or *weak ties*, indicating the intensity of the relationship (Granovetter, 1973). Thus, the position of actors within the network structure reflects their status in relation to others. Depending on this position, it is possible to assess their ability to establish relationships or exert power. Another important structural characteristic of a social network is its configuration, which explains the flow of information, its effectiveness in securing collective interests, and its capacity to provide opportunities to actors.

Studies such as those by Granovetter (1973) and Mizruchi (2006) help to understand how the creation of economic institutions is embedded in social action. The analysis of this theoretical framework, together with an understanding of historical, political, and socioeconomic processes, provides an analytical foundation for this research (Comerford, 2003; Pires, 2007; Soares, 2009; Carneiro, 2013; Vitoretto, 2016; Freire & Andrade, 2019).

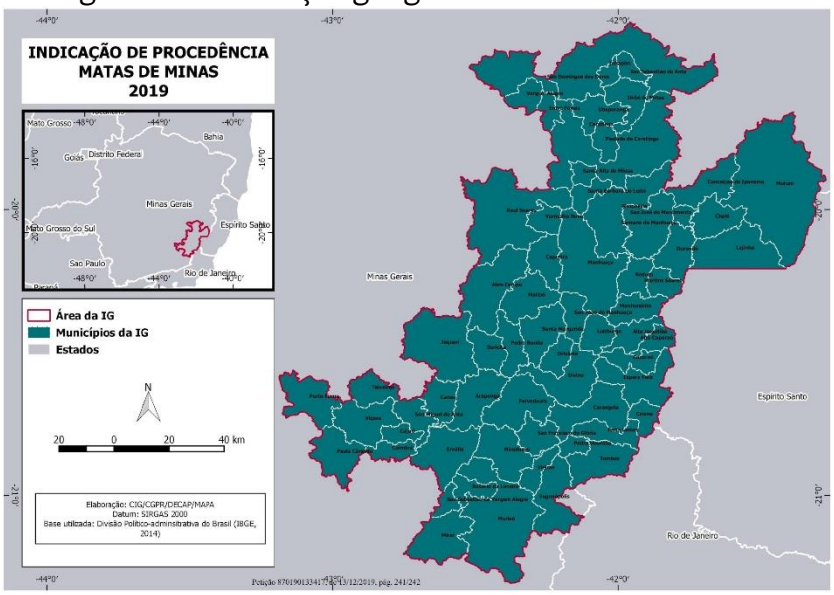
3 Metodologia

The study analyzed whether the process of recognizing the Matas de Minas Indication of Origin (IP), located in Minas Gerais, contributes to the rural development of the region. The Matas de Minas IP covers the area within the river basins of the Paraíba do Sul, Doce, and Itabapoana Rivers in the eastern part of the state (Figure 1). This region has recently gained recognition for producing high-quality specialty coffees (Machado, 2017).

The IP encompasses 64 municipalities situated within the planning regions of Zona da Mata and Vale do Rio Doce in Minas Gerais. Formerly known as Zona da

Mata—a region historically associated with socio-technological underdevelopment and the production of low-quality coffee—it has since been rebranded as Matas de Minas, reflecting its new identity as a source of high-quality coffee and regional transformation

Figura 1 – Localização geográfica da IP Mata de Minas.



Fonte: INPI, 2024.

The study was conducted through a holistic investigation of the historical, political, and socioeconomic processes that shaped and conditioned the associative movement of individuals and organizations that comprise the Coffee Entities Council of Matas de Minas (Conselho das Entidades do Café das Matas de Minas – CECMM[1]).

A mixed-method (qualitative and quantitative) approach was adopted to characterize the actors involved in the creation of the Matas de Minas Indication of Origin (IP) and to analyze the patterns of "ties" formed among them. The methods applied included Social Network Analysis (SNA), interview analysis, and documentary and literature review. Primary data and information used in the SNA and interview analyses were obtained through a sociometric questionnaire and a semi-structured interview guide.

The fieldwork phase was carried out after approval by the Research Ethics Committee of the Federal University of Viçosa (CEP-UFV), which issued the substantiated opinion CEP-UFV No. 4.789.833 on June 18, 2021. Accordingly, the interviews were conducted remotely, and the questionnaires were administered online between August and October 2021. The document search was conducted concurrently with other field activities, including meetings and participation in field days.

SNA was employed to describe the Relational Space (RS) formed by the actors involved in the regional coffee production chain. The study covered the period from the deregulation of the coffee market in the early 1990s to the establishment of the

[1]Coocafé, Sicoob Credicaf, Sicoob Credisudeste, Sicoob União, Sicoob Credlivre, Credicooper, Sindicato Rural, Sindicato Rural, Sicoob Credcooper, Sindicato Rural, Scamg, Hanns R. Neumann Stiftung do Brasil.

IP registration in 2020. The UCINET software, version 6 (Borgatti et al., 2002), was used for network quantification, and the graphs were generated using NetDraw (Borgatti, 2002), as recommended by Higgins and Ribeiro (2018).

Four semi-structured interviews were conducted with participants directly involved in the IP recognition process. The interviewees were selected based on their representation of entities that make up the CECMM, using a convenience sampling approach (Gil, 2002). The sociometric questionnaire was applied for data collection and compilation of information used in the SNA, following the methodological guidelines of Wasserman and Faust (1994). The questionnaire was distributed via Information and Communication Technologies (ICTs) to 17 individuals, of whom 13 provided complete responses.

4 Results and discussion

The literature reviewed indicates that the Matas de Minas region represents the oldest geographical area in Brazil where coffee production continues to be significant. According to Singulano (2015, 2016), the region still maintains expressive production levels when compared to other historical coffee-producing areas such as the Paraíba do Sul Valley, northern Rio de Janeiro, and western São Paulo. According to data from the National Supply Company (CONAB, 2024), the regions of Zona da Mata/Rio Doce and Central—currently designated as Matas de Minas—rank among the largest coffee-producing areas in Brazil. For 2024, CONAB estimates a harvest of approximately 7.89 million 60-kg bags of coffee, placing the region behind only the area comprising southern and central-western Minas Gerais, projected to produce 14.93 million bags (CONAB, 2024)

Although coffee production in the region is significant, it remains underrepresented in technical and technological studies, especially when compared to regions such as the Cerrado Mineiro. Nevertheless, there is a substantial body of literature addressing the historical, political, and socioeconomic formation of the region. Scholars suggest that this research imbalance stems from a perceived lack of academic interest due to the region's sociocultural and economic structure. As Singulano (2016) notes, the sociocultural development of coffee cultivation in Matas de Minas has historically been associated with traditional, low-tech farming systems.

The term Matas de Minas is relatively recent and has gained broader usage only since the 1990s. It first appeared officially in Ordinance No. 165 of the Instituto Mineiro de Agropecuária (IMA) (Instituto Mineiro de Agropecuária, 1995), which delineated the region then referred to as the "Montanhas das Minas" (Mountains of Minas), now formally known as Matas de Minas. Although documentation describing and characterizing the region remains limited, this has not hindered its recognition for producing high-quality coffee—an essential prerequisite for obtaining Geographical Indication (GI) registration with the Brazilian National Institute of Industrial Property (INPI).

Documentary analysis revealed significant efforts by the government of Minas Gerais to organize policies supporting the state's coffee sector. This is exemplified by the creation of the Programa Estadual de Incentivo à Certificação da Origem do Café (CERTICAFÉ) through Decree No. 38.559 of December 17, 1996 (Minas Gerais, 1996).

Additionally, initiatives at the federal level have sought to encourage GI registration and promotion, particularly from 2003 onwards. According to Tápias (2005), Pellin (2019), and Santiago et al. (2019), such efforts materialized through the establishment of institutional structures such as the CIG in 2005.

With the liberalization of the coffee market in the early 1990s, producers lost the state protection once provided by the Brazilian Coffee Institute (IBC) and were compelled to differentiate their products to meet the demands of an increasingly sophisticated market. Producers also faced new pressures for certification, as consumers began requiring assurances of sustainable production practices encompassing social, environmental, and food safety standards, as well as product traceability. Consequently, differentiation, certification, and technological innovation have become defining trends in the current Brazilian coffee market (Rati, 2015).

In the private sector, initiatives led by SEBRAE—Brazil's principal private organization supporting GI recognition—have played a crucial role. According to Vianna and Pandolfo (2021), SEBRAE has participated in the recognition process of most Brazilian GIs registered with the INPI. In the case of the Matas de Minas GI, SEBRAE-MG worked alongside the *Associação de Cafés Especiais de Minas Gerais* (SCAMG) to support local producers.

In response to the demands of this evolving coffee market, various Brazilian institutions—public, private, and civil society organizations—have increasingly invested in the recognition and establishment of GIs. Beyond ensuring the authenticity of regional coffee production, these indications certify product quality and foster rural development (Anjos, Criado, & Caldas, 2013).

Furthermore, attributes linked to increased product visibility can open up new market opportunities for complementary activities, strengthening sectors such as tourism and gastronomy, as highlighted by Minasse (2022). The analysis also revealed incentives for promoting environmental protection and the preservation of local heritage.

4.1 The pursuit of rural development: re-signifying a region

Social factors are as important as purely economic ones in the context of coffee production. In developing countries, Geographical Indications (GIs) not only function as tools to prevent product counterfeiting and adulteration but also act as drivers of rural development. Brazil's regulatory framework for GIs is relatively recent, primarily governed by the Industrial Property Law (LPI) and by the National Institute of Industrial Property's (INPI) Normative Instruction No. 095 of December 28, 2018 (Brazil, 2018).

Socioeconomic processes such as the organization of producers into associations, cooperatives, and unions have been essential for advancing the recognition of the Protected Indication of Origin (IP). Maintaining coordination and articulation among producers through their representative organizations—whether political, economic, or cooperative in nature—thus becomes a crucial component of territorial governance (Perosa, Jesus, & Ortega, 2017).

The case study revealed that, although still incipient, the organization of coffee producers into associations, cooperatives, and unions has yielded tangible results, including the official recognition of the IP. As highlighted by Perosa, Jesus,

and Ortega (2017), obtaining a GI registration from the INPI does not automatically equate to the construction of a territorial identity; rather, it is the preexisting social fabric and producer organization within the territory that gives rise to the certification process.

Moreover, Anjos, Criado, and Caldas (2013) emphasize the importance of understanding GIs as mechanisms for promoting rural development in territories of developing countries. The authors argue that the successful establishment of GIs depends on the presence of preexisting social, economic, and cultural conditions that can sustain and legitimize these processes. In t

> [...] as indicações geográficas podem converter-se em um importante instrumento para o desenvolvimento de muitas zonas rurais do Brasil, sempre e quando exista uma base conceitual mais ampla, a qual estabeleça a identidade cultural dos territórios no centro das estratégias de intervenção dos entes públicos ou privados interessados nesses processos (Anjos; Criado; Caldas, 2013, p. 209).

The IP under analysis is closely linked to the territory, as well as to the methods of production, harvesting, and processing, becoming an important mechanism for promoting rural development. In this regard, Vieira and Pellin (2015) also conclude that one of the major economic contributions of GIs is their capacity to add financial value to the product.

Studies such as those by Anjos, Criado, and Caldas (2013), Anjos, Silva, and Caldas (2020), and Demier et al. (2020) conceptualize GIs as social constructs. According to these authors, the establishment and recognition of a GI can be understood as the manifestation of a preexisting rural development process within a territory. Consequently, they emphasize the need for broad participation of rural producers in the process.

Silva et al. (2012) and Niederle, Mascarenhas, and Wilkinson (2017) examine the institutionalization and governance of GIs in Brazil. They highlight the involvement of multiple actors across different governmental scales and levels in the GI registration process. The institutionalization of GIs is embedded within local cooperative and association movements while also involving international entities and multiple government agencies. Therefore, they suggest that GI recognition should transcend the central role of the State as the sole regulator, as is still largely the case with INPI.

The creation of institutions such as GIs can occur endogenously or exogenously within a region's social processes. This proposition is illustrated by Anjos, Silva, and Caldas (2020) in their comparison of the Denominação de Origem Vale dos Vinhedos (DOVV) and the Indicação de Procedência Carne do Pampa Gaúcho (IPCPG). The authors demonstrate that DOVV succeeded due to broad participation by local grape producers, whereas IPCPG, lacking wide engagement from cattle producers, has remained fragile and has not produced the expected rural development outcomes.

Souza (2006) emphasizes that the origin of agricultural products such as coffee has evolved into a differentiation strategy, initially driven by individual initiatives from traditional family farms or small roasting companies. Historically, quality requirements were linked to processing steps, such as classification and roasting. However, since the mid-2000s, quality has increasingly been associated with

production methods, including agronomic practices, harvesting, and post-harvest handling. Today, quality is closely tied to the activity of the coffee grower.

GIs serve as efficient differentiation mechanisms, enabling small producers to compete within the agri-food sector. In an environment characterized by increasing competition and dominance of large corporations, "*a presença de pequenos produtores só se viabiliza a partir da diferenciação de seus produtos e da diversificação dos seus canais de venda*" (Mascarenhas; Wilkinson, 2014, p. 10).

According to Singulano (2016) and Singulano and Higgins (2021), until 1990, coffee policy in Brazil was conducted federally by the IBC. With the dissolution of this agency through Decree No. 99.240, of May 7, 1990 (Brazil, 1990), coffee policy became fragmented, and over time, the state of Minas Gerais assumed responsibility for research, technical assistance, and rural extension. These functions were managed by the Empresa de Pesquisa Agropecuária de Minas Gerais (EPAMIG), the IMA, and the Empresa de Assistência Técnica e Extensão Rural do Estado de Minas Gerais (EMATER-MG).

In this context, Ordinance No. 165 of April 27, 1995 (IMA, 1995) delineated coffee-producing regions, demonstrating the public sector's effort to establish production boundaries aimed at certifying and valorizing coffee. This ordinance initially designated the area as the "Região das Montanhas de Minas." Subsequent amendments through Ordinances Nos. 937 and 401 of 2000 and Ordinance No. 437 of 2001 formalized the region under the name *Matas de Minas* (IMA, 2000, 2001).

Over the last 15 years, the private sector in the region has also sought to reorganize coffee production through the *Foco Competitivo do Café das Matas de Minas* project, implemented by SEBRAE-MG. This methodology is based on four pillars: governance, quality, identity, and market. Within this framework, governance was strengthened through producer engagement, leading to the creation of the CECMM. Quality was addressed with support from researchers at the *Centro de Excelência do Café das Matas de Minas* (CEC). Identity was institutionalized with the establishment of the collective brand "Região das Matas de Minas" in 2017. Finally, market strategies were developed, as the regional coffee remained largely unknown and was often associated with coffee from southern Minas Gerais, as noted by one interviewee:

> [...] a primeira coisa que aconteceu foi o registro da marca coletiva né. E, avançando na marca coletiva vendo o trabalho que o Cerrado faz e que ele até hoje ele trabalha muito essa questão da Indicação Geográfica, Indicação de Procedência, nós identificamos que seria necessário a região também ter a Indicação de Procedência, indicação geográfica, porque é um território extremamente importante para a economia regional. Devido a sua característica bem peculiar na produção de cafés, cafés com diferentes sabores, nuances e, são 63 [64] municípios produtores. Então nós enxergamos que seria mais um valor agregado para a região e também essa região até pouco tempo atrás, ..., ela era desconhecida pelo mercado. Ela era assim, o mercado entendia que nosso café era café de Varginha. E hoje com a marca coletiva, com a indicação geográfica e com a Indicação de Procedência, eu acho que isso está dando uma conotação muito para o mercado e o mercado hoje está pagando pouco mais nesse café, porque o produtor também, com a Indicação Geográfica com o selo das Matas de Minas, ele começou a melhorar a qualidade do produto. Então hoje a nossa região é reconhecida pelo mercado, ainda falta muito o que fazer, mas hoje nós temos um nome, nós temos um território demarcado, com um solo

> espetacular na produção de café. (Entrevista realizada com um participante do processo de reconhecimento da IP em 23/08/2021).

As presented, it is through social relationships that a set of norms and rules with economic purposes was established. In Matas de Minas, the formation of connections among coffee producers, social organizations, state actors, and market stakeholders—taking into account how actors in the Cerrado Mineiro region recognized their GI—led certain leaders to create a network of social relations centered on the process of IP recognition.

In this context, in 2010, a team of SEBRAE-MG technicians sought solutions to address the lack of governance and representation structures for the Matas de Minas region within the Coffee Entities Council (CEC), located at the Federal University of Viçosa (UFV), Viçosa, MG, as highlighted in the account of one of the interviewees:

> [...] eu recebi a visita de quatro jovens, na época jovens funcionários/técnicos do SEBRAE – MG e eles tinham uma preocupação. Eles me confessaram a preocupação interessante que eles diziam o seguinte, é eles tinham feito uma pesquisa sobre a Zona da Mata e identificaram que o café era o principal produto agrícola da região e contribui muito com PIB nacional, e o SEBRAE então tinha o interesse em fazer alguma coisa para o café. Eles então me perguntaram o nome da instituição que representaria os cafeicultores da Zona da Mata, porque eles queriam conversar e começar a pensar em algo a fazer para a Zona da Mata. Eu então falei pra eles que não tinha uma governança na Zona da Mata, ao contrário, por exemplo, da região do Cerrado, que tem uma rede, uma governança institucionalizada, lá com cooperativas, com o conselho das federações cooperativas do Cerrado e na Zona da Mata não tinha nada igual. (Entrevista realizada com um participante do processo de reconhecimento da IP em 10/08/2021).

Thus, the formation of the Relational Space (RS) between SEBRAE-MG, SCAMG, and UFV actors regarding the legal framework established by the state of Minas Gerais can be observed. The organization of these entities was responsible for creating a new governance system for coffee production in Matas de Minas—the CECMM. This entity submitted the GI registration request to INPI in 2018, which was officially recognized in 2020.

No documents formalizing the initial social network among the individuals or entities were found, suggesting that the organization of actors became institutionalized with the establishment of the CECMM statute. Beyond the statute, formal recognition was granted only to specific processes required by law for IP registration. Although not governed solely by economic acts, the social network formed around the CECMM successfully created the collective brand Região das Matas de Minas, organized the Coffee Entities Council of Matas de Minas, and achieved IP registration. According to interviews, these institutions were modeled on the governance structure established in the Cerrado Mineiro region, which had been organized since the 1990s. Thus, Cerrado Mineiro served as a template for institutionalizing the governance system in Matas de Minas.

Therefore, it was primarily through the actions of the state, via the IMA, the private sector through SEBRAE-MG, and a group of regional coffee producers, mainly represented by SCAMG, that the pursuit of IP recognition was made possible. Despite these coordinated efforts to reorganize coffee production in the region, moments of

misalignment occurred between public authorities, the private sector, and civil society. For example, the manner in which IMA issued Ordinance No. 773, of May 12, 2006 (IMA, 2006), aimed at recognizing and registering the IP, did not follow the legal procedure established by the INPI according to the LPI.

Comerford (2003) notes that the region lacked a long-standing tradition of peasant organizations. According to the author, some experiments in rural worker organization occurred in the 1960s but did not persist into the 1970s. However, a shift in the region's profile is evident, as the older surviving organizations joined with newer ones, such as SCAMG, and actively participated in the IP recognition process, as reported by one interviewee:

> [...] a gente fala que nós temos as cooperativas de crédito que normalmente não participam muito, mas aqui tivemos uma participação muito efetiva delas, junto os sindicatos, mas eu acho que isso aí foi construtivo, foi muito importante... (Entrevista realizada com um participante do processo de reconhecimento da IP em 01/09/2021).

In this context, even though cases of social organization among landowners or workers in the coffee sector of the region are scarce, those that do exist have played an important role in legitimizing the process. Thus, it can be stated that the economic action under study was not governed by the *homo economicus* rationale, as it was embedded within a network of social relations. Underlying the creation of the institutional framework that guided the process of recognition of the Geographical Indication (GI) was a network of social relationships that provided the opportunities and social capital necessary to structure economic action.

Therefore, the organization of the coffee value chain in Matas de Minas, although recent, has proven to be an important strategy to curb opportunistic behavior and the influence of intermediaries, as well as to promote the reconstruction of the region's reputation. However, a low level of trust among coffee growers is still evident. As described by Singulano (2016, p. 25), intermediaries—mainly middlemen and coffee brokers— "controlam os mecanismos de avaliação e produção da qualidade e com isso constroem regimes sociais específicos de coordenação das transações". Hence, the efforts of certain actors to create new bonds of trust among coffee producers and the institutions that support this new organizational form are crucial to limiting the actions of freeriders and opportunists.

4.2 The Social Network Organizing the Territory and the Processes of Rural Development

Table 1 presents the quantitative indicators of the social network, such as the number of connections, actors, and density. The network under study comprised a total of 24 nodes, meaning that each "node" could establish 23 potential "ties" or connections. The overall density obtained in the network analysis was 0.19, indicating a weakly cohesive structure. Out of the 552 possible connections, only about 19.0% were established within the network structure. With a low level of reciprocity, around 28.6%, the network demonstrated that of the 105 established ties, only 30 were reciprocal.

The low cohesion of the social network negatively affects information exchange, cooperation, and the flow of ideas, as well as the development of

mechanisms for problem-solving. Information exchange tends to be restricted to a small, closed group of actors, as observed during fieldwork.

Table 1 - Social Network Indicators: Matas de Minas Geographical Indication

Social Network – Matas de Minas GI	Indicators
Actors (nodes)	24,00
Overall density	0,19
Number of ties	105,00
Standard deviation	0,39
Average degree	4,38
Alpha	0,85

Source: Authors.

Cooperation is hindered because information fails to reach actors with cooperative potential, thereby reducing the level of social capital and, consequently, the existence of opportunities within the network. Similarly, the information flow is negatively affected, leading to the presence of both incomplete and redundant information, which diminishes the actors' problem-solving capacity.

Table 2, presented below, shows the degree of centrality of the actors within the network. Its analysis revealed a more active group characterized by reciprocal relationships, and a more peripheral group, in which relationships are less dense.

Tabela 2 – Centralidade de atores (*Outdegree-Indegree*).

Actor	*Outdegree*	*Indegree*	*nOutdegree*	*nIndegree*
Actor 01	3,000	12,000	130	522
Actor 02	13,000	6,000	565	261
Actor 03	10,000	4,000	435	174
Actor 04	16,000	10,000	696	435
Actor 05	6,000	4,000	261	174
Actor 06	2,000	2,000	87	87
Actor 07	12,000	0,000	522	0
Actor 08	7,000	6,000	304	261
Actor 09	0,000	4,000	0	174
Actor 10	0,000	7,000	0	304
Actor 11	3,000	7,000	130	304
Actor 12	8,000	7,000	348	304
Actor 13	0,000	7,000	0	304
Actor 14	7,000	4,000	304	174
Actor 15	0,000	6,000	0	261
Actor 16	0,000	1,000	0	43
Actor 17	0,000	1,000	0	43
Actor 18	1,000	0,000	43	0
Actor 19	12,000	3,000	522	130
Actor 20	0,000	3,000	0	130
Actor 21	0,000	1,000	0	43
Actor 22	0,000	2,000	0	87
Actor 23	0,000	6,000	0	261
Actor 24	5,000	2,000	217	87

Source: Authors.

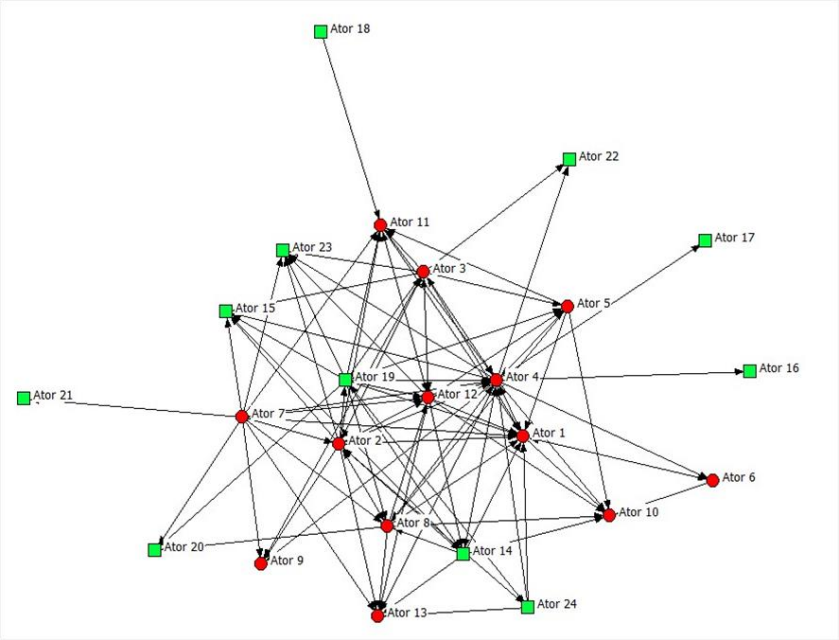
From the analysis, it was observed that the nodes (Actor 4, Actor 2, Actor 7, and Actor 19) exhibited the highest outdegree, meaning they were the ones who mentioned other actors the most. This indicates that they possess greater connectivity or are more active within the network. Conversely, the actors with the highest indegree were Actor 4 and Actor 1—that is, those most frequently mentioned in interviews and questionnaires.

Indegree represents the number of times a given actor is remembered or referred to by others within the network. Thus, Actor 1 presented the highest indegree (12.000), highlighting their strong ability to establish relationships with other actors. In contrast, Actor 7 displayed an indegree of 0.000 and a high outdegree (12.000), indicating active participation but low recognition from others. This pattern

was corroborated by the interview analysis, which revealed a similar dynamic: the most active and influential actors—those mentioned more frequently—were also the ones most cited in the interviews.

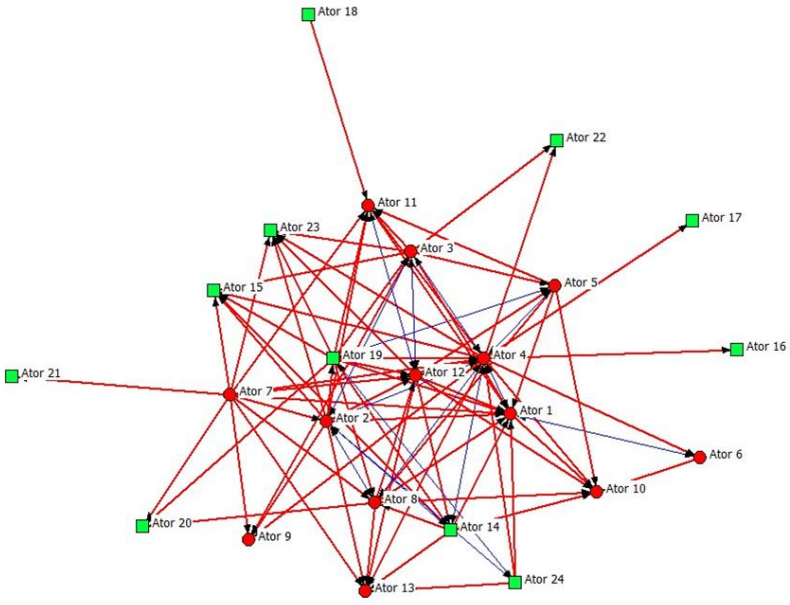
Figure 2 presents the graph of the studied social network, showing that it is relatively small considering the large number of coffee producers located in the region (between 35,000 and 40,000) and its wide geographical extent. Nevertheless, there exists a considerable number of actors and organizations that communicate through the various processes involved in the recognition of Geographical Indications (GIs) across Brazil.

Figure 2 – Social Network of the Matas de Minas Geographical Indication (GI)



Source: Authors.

Figure 3 – Reciprocity Among Actors in the Matas de Minas Geographical Indication (GI) Social Network



Source: Authors.

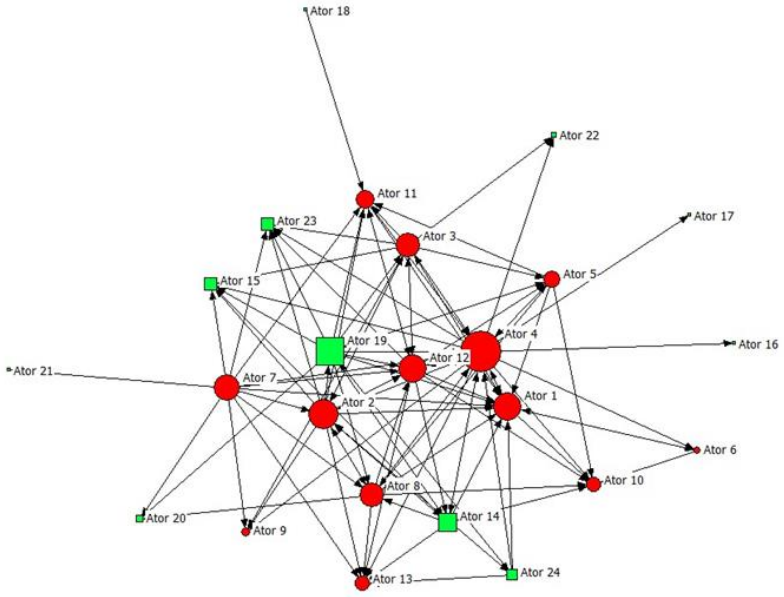
Based on Table 2 and the graph in Figure 3 below, the network's low degree of reciprocity becomes evident. Actor 7, for example, shows an outdegree of 12.000 and an indegree of 0.000—meaning this actor cites twelve others but is not cited by any. Consequently, this actor displays a low level of prestige, as suggested by Higgins and Ribeiro (2018). Actor 7 thus presents a high degree of initiative but low prestige and popularity, recognizing many other actors but being recognized by few or none, as is the case here. This represents an actor who joined the process later and requested entry rather than participating from the beginning.

As shown in a closer examination of the graph in Figure 3, the network exhibits a low level of reciprocal connections, meaning that one actor connects to another, but the connection is not reciprocated. Therefore, this network can be characterized as fragile, as there are few actors with a strong capacity to establish reciprocal relations. Furthermore, the small number of actors capable of creating such relationships reduces the group's overall opportunities.

In the graph presented in Figure 4, which depicts the degree of prestige, Actor 4 stands out as having the highest level of prestige, followed by Actor 19.

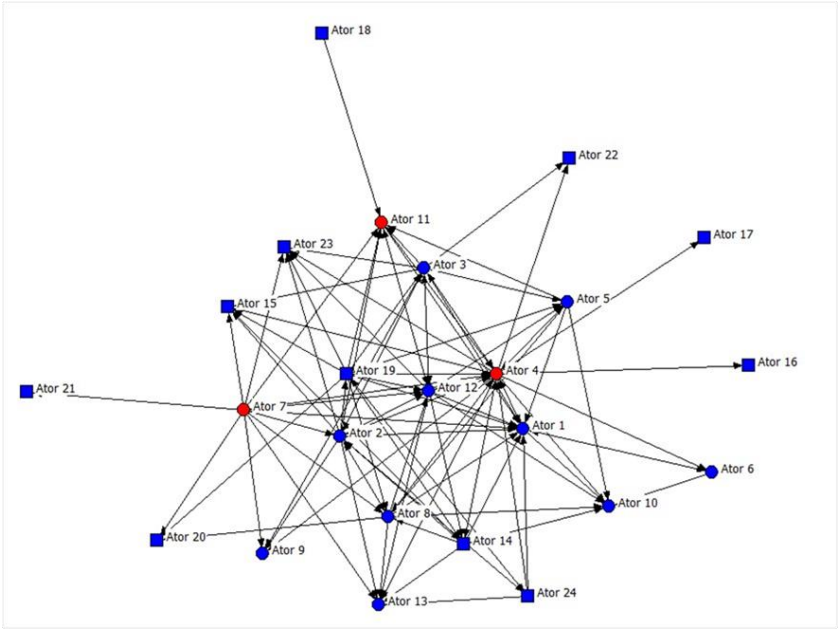
As can be observed in the behavior of the nodes represented in Figures 2, 3, and 4, Actor 4 plays a fundamental role, making them an influential actor within the network, as illustrated in Figure 5. The general analysis demonstrates that the network is centralized around a few actors—namely, Actor 1, Actor 2, Actor 4, Actor 12, and Actor 19. Moreover, as shown in Figure 5, even with low prestige, Actor 7 acts as a cutpoint—a node capable of dividing the structure (Higgins & Ribeiro, 2018).

Figure 4 – Degree of Prestige of the Actors in the Matas de Minas GI Network



Source: Authors.

Figure 5 – Formation of Cutpoints or Brokers in the Matas de Minas GI Network



Source: Authors.

In the examined social network, represented in the graphs, few actors stand out in terms of connectivity and their capacity to act as cutpoints or brokers (Higgins & Ribeiro, 2018). The existence of such nodes, according to the authors, indicates the potential for fragmenting a weakly connected structure. Thus, the limited number of actors able to serve as cutpoints or brokers reflects a cohesive network structure. However, a network with low cohesion is susceptible to rupture if any key actor withdraws (Brand, 2015), which is not the case here. Based on interviews and questionnaires, even after the GI's official registration, the network remained structurally intact.

The centrality measure defining power within a structure does not necessarily represent real power within the network. Therefore, the graph in Figure 4 offers a comparative view of power, reflecting the degree to which actors are recognized by others or recognize others themselves. As observed, Actor 4, despite their prestige and central role, actually holds limited power.

Conversely, few "bridge" ties were observed among nodes with low connectivity. According to Wasserman and Faust (1994), such ties are the most critical within a network structure, as their removal can lead to fragmentation. Moreover, the network was mainly composed of strong ties and closed relationships. Higgins and Ribeiro (2018, p. 100) note that this condition degenerates the information circulating within the network, making it repetitive, whereas "*weak ties*" help reduce redundancy and increase actors' opportunities (Granovetter, 1973).

5 Conclusion

The literature analyzed on the Matas de Minas region and the organization of its coffee sector confirms the existence of a low level of social, political, and

economic organization. Nevertheless, coffee production in the region is significant; despite limited technological investment and the predominance of traditional farmers, the sector has achieved promising results. Within this context, New Economic Sociology (NES) proves effective in explaining how the economic action of coffee production is embedded within local social relations, even when economically inefficient according to mainstream economics.

The literature also clarifies how changing consumer preferences—driven by the demand for more sustainable production systems—have positioned the region as a source of specialty coffees. Documental analysis confirmed the involvement of both public and private sectors, as well as social and productive organizations, in the GI recognition process. The public sector in Minas Gerais, represented by EMATER, EPAMIG, and IMA, initiated the process as part of the state's coffee policy. SEBRAE-MG emerged as a key leader, promoting partnerships to create coordination systems and strengthen the regional coffee value chain alongside the Coffee Excellence Center (CEC) and the Federal University of Viçosa (UFV). The SCAMG embodied producers' collective interests, amplifying the social and economic impacts of coffee production in the Matas de Minas region.

Through the collaboration of these entities, the Centro de Excelência das Matas de Minas (CECMM), the collective brand "Região das Matas de Minas," and the Indicação de Procedência (IP) Matas de Minas were established.

Interviewees reported that their engagement was guided by a commitment to contribute to both the coffee sector and local society. Beyond economic motivations, participants aimed to improve coffee quality and reshape the region's image, moving away from its former association with low-quality coffee to recognition for its unique territorial identity.

Social network analysis helped to identify each actor's position and relationships throughout the GI recognition process. While some actors were more active than others, all perceived themselves as part of the network. The network remains relatively small and nascent compared to the region's size and number of coffee producers, but the analysis shows that GI recognition can effectively foster the formation of a social network that strengthens territorial governance. Thus, a well-structured social network has significant potential to support rural development.

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Gustavo Bastos Braga. Doutor. Universidade Federal de Viçosa (UFV). Professor. Universidade Federal de Viçosa. Edifício Edson Potsch Magalhães - R. Purdue, s/n Campus Universitário, CEP-36570900 - Viçosa, MG - Brasil. gustavo.braga@ufv.br

Gonimar Venancio Teixeira Marques. Doutorando. Universidade Federal de Viçosa (UFV). Estudante. Universidade Federal de Viçosa. Edifício Edson Potsch Magalhães - R. Purdue, s/n Campus Universitário, CEP-36570900 - Viçosa, MG - Brasil. gonimar.marques@ufv.br

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CONTRIBUIÇÃO DE CADA AUTOR

Conceituação (Conceptualization): Gustavo Bastos Braga; Gonimar Venancio Teixeira Marques
Curadoria de Dados (Data curation): Gustavo Bastos Braga
Análise Formal (Formal analysis): Gustavo Bastos Braga

Investigação/Pesquisa (Investigation): Gonimar Venancio Teixeira Marques
Obtenção de Financiamento (Funding acquisition): Gustavo Bastos Braga
Metodologia (Methodology): Gustavo Bastos Braga; Gonimar Venancio Teixeira Marques
Administração do Projeto (Project administration): Gustavo Bastos Braga
Recursos (Resources): Gustavo Bastos Braga
Software: Gustavo Bastos Braga; Gonimar Venancio Teixeira Marques
Supervisão/orientação (Supervision): Gustavo Bastos Braga
Validação (Validation): Gustavo Bastos Braga
Visualização (Visualization): Gustavo Bastos Braga; Gonimar Venancio Teixeira Marques
Escrita – Primeira Redação (Writing – original draft): Gustavo Bastos Braga; Gonimar Venancio Teixeira Marques
Escrita – Revisão e Edição (Writing – review & editing): Gustavo Bastos Braga; Gonimar Venancio Teixeira Marques

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