TERROIR TECHNOPOLITICS: THE DYNAMICS OF GEOGRAPHICAL INDICATION LEGITIMIZATION IN THE GLOBAL SOUTH

by

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Abstract

In recent years, a primarily European 'macro-organization' of state and parastatal actors has deployed forms of hard and soft power internationally to strengthen recognition of European geographical indication (GI) rights, yet there has been relatively little attention to how such actors employ policy discourse and technical assistance to pursue this agenda. A GI identifies a good as originating in a particular territory where a given quality, reputation, or other characteristic of the good is essentially attributable to its geographical origin. As an intellectual property right, GI protects collective producer reputation based on *terroir* ('the taste of place'), a concept that characterizes a causal connection among environmental features of place, producer know-how, and traditional food character. In this dissertation, I apply concepts from sociological studies of development, science and technology, and agrofood systems to illuminate the strategies employed by stakeholders to legitimize GI as a development model, institutionalize the adoption of new food quality regulations, and acculturate *terroir* as a framework for the valorization of localized food heritage. I address this question through the techniques of multi-sited ethnography, which are applied to examine a case study of the implementation of GIs for a spectrum of commodity and specialty agrofood products in Ecuador.

In the first chapter, I apply the analytical framework of 'technopolitics' to address how actors legitimize development through the construction of networks that link the material, the discursive, and the social. Through analytical attention to how *terroir* is constructed as a socio-material hybrid category in GI implementation, I examine the how the production of knowledge about place and food character interactively reproduces unequal power relations in the world system. While the first chapter addresses interstate power relations, the second chapter examines the social construction of *terroir* through attention to interpersonal power relations. Drawing on the analytical framework of 'epistemic authority,' this chapter examines how structural inequalities of power shape the legitimacy and relevance of knowledge claims concerning *terroir*, and how stakeholders deploy such knowledge in turn to institutionalize preferential product standards. Finally, the third chapter addresses the role of *terroir* and territory as frameworks for understanding and valorizing the 'localness' of food products. Drawing on the analytical approach of the localized agrofood system, this chapter examine how stakeholders construct territorial factors relevant to the creation, registration, management, and commercialization of GI standards, and what the implications are for the territorial embeddedness of GI. Together, the chapters of this dissertation address gaps in sociological knowledge about how policy models, technical food standards, and frameworks for conceptualizing product quality are disseminated, integrated into state-directed development, and implemented in local contexts of agrofood production.

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ABBREVIATIONS

Labels of origin terminology

AOC	Controlled appellation of origin/*Appellation d'origine contrôlée*
COP	Conditions of production
DO	Denomination of origin/*Denominación de origen*
GI	Geographical indication
PDO	Protected Denomination of Origin
PGI	Protected Geographical Indication
SIC	System of internal control

Ecuadorian institutions and organizations

CGREG	Governing Council of the Special Regime of Galápagos
COPGALACAF	Cooperative of Coffee Production of the Galápagos Islands
MAG	Ministry of Agriculture
MIPRO	Ministry of Production, Foreign Trade, Investment, and Fisheries
SENADI	National Intellectual Property Rights Service

Global governance institutions

CBD	Convention on Biological Diversity
FAO	Food and Agricultural Organization of the United Nations
TRIPS	Agreement on Trade-Related Aspects of Intellectual Property Rights
WIPO	World Intellectual Property Organization
WTO	World Trade Organization

European institutions and organizations

CIRAD	Agricultural Research Center for International Development (France)
EU	European Union
INAO	National Institute of Origin and Quality (France)

Other terminology

AC	Andean Community of Nations
ANT	Actor-network theory
GVC	Global value chain
NGO	Non-governmental organization
RCT	Randomized controlled trial
SCAA	Specialty Coffee Association of America
STS	Science and technology studies
SYAL	Localized agrifood systems/*Systèmes agroalimentaires localisés*

DEDICATION

To Paola:

for her patience as the work dragged on;

for keeping a roof over my head;

for eagerly following me to France, Italy, and Ecuador;

for reassuring me in moments of doubt;

for explaining my research to me when I could not figure it out myself;

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CHAPTER ONE: INTRODUCTION

1. General statement of study purpose and research question

It was early July and the hot, dry Mediterranean summer was in full swing at the University of Montpellier in southern France. I had traveled by streetcar and then bus to the agricultural research complex known as Agropolis, located in the foothills above the narrow streets of medieval Montpellier and surrounded by a landscape of evergreen shrubs, succulents, and palm trees. Around the concrete, slightly brutalist building used for conferences and colloquia, the cracked pavement and gravel parking lots were overgrown with dry, brown grasses. Across the street, the Agropolis museum – a large, circular concrete slab of a building, angled towards the mid-morning sun like a solar panel – sat covered in graffiti, for all appearances abandoned. Yet inside the convention center, some of the world's most renowned scholars of agrofood systems, international law, and economic development were discussing the past and future of place-based food initiatives, the theme of the 2022 conference titled "Worldwide Perspectives on Geographical Indications." Indeed, despite the shabby appearance of the Agropolis campus, the conference host – France's Agricultural Research Center for International Development (CIRAD) – is a power in the realm of international food policymaking. As one panelist, an intellectual property lawyer from India, remarked on the first day of the conference, we were sitting in the "Mecca of geographical indications."

A geographical indication (GI) identifies a good as originating in a particular territory where a given quality, reputation, or other characteristic of the good is essentially attributable to its geographical origin. As an intellectual property right, GI protects collective producer reputation based on *terroir* ('the taste of place'), a concept that characterizes a causal connection among environmental features of place, producer know-how, and traditional food character

(Barham, 2003; Gade, 2004; Trubek, 2008). The use of GI was primarily confined to Europe until the 1990s, but today approximately one-third of all registered GIs come from countries of the global South (WIPO, 2019). The CIRAD – alongside public-private bodies such as France's National Institute of Origin and Quality (INAO) and inter-governmental agencies such as the Food and Agricultural Organization of the United Nations (FAO) – sits at the head of a 'macro-organization' of primarily European institutions that influence the global expansion of GI through forms of hard and soft power (Feuer, 2022, p. 677; Gangjee, 2017). The European Union (EU), for instance, has sought to strengthen global governance of GI, whether in multilateral forums such as the World Trade Organization (WTO) or in bilateral trade agreements with third countries (Barham & Sylvander, 2011; Curzi & Huysmans, 2022; Gervais, 2010). These efforts are complemented by programs of direct and indirect technical assistance, which serve to construct GI as a multi-faceted, market-friendly rural development strategy (see e.g., Chabrol, Mariani, & Sautier, 2017; Vandecandelaere et al., 2018), and to advocate for the adoption of laws and regulations that mirror those of the EU and its member states (see e.g., FAO, 2023). That such efforts exist primarily to strengthen recognition of European GI rights has been well explored (see e.g., Barham, 2003; Gangjee, 2012b; Kerr, 2006; Parrott, Wilson, & Murdoch, 2002), yet the actual operation of GI policy discourse and technical assistance in global South contexts has been granted less attention in the literature. Additionally, global South states and producers groups seeking to register their GIs in the EU – the premier market for such goods – are required to produce 'technical' and/or 'objective' evidence of *terroir* (G. E. Evans & Blakeney, 2006; Gangjee, 2017). However, most scholarship on GIs in the global South has taken *terroir* for granted, rather than interrogating how the production and validation of such

evidence interacts with global food politics, national economic development agendas, and local social systems.

In this dissertation, I address these gaps through the application of concepts from sociological studies of development, science and technology, and agrofood systems. I ask: **How is the legitimacy of GI as a development model reproduced and challenged through the production of knowledge of *terroir*?** I address this question through the application of the framework of 'co-production,' which conceptualizes the ordering of nature (through science and technology) and society (through laws, regulations, institutions, social movements, etc.) as mutually constitutive processes (Jasanoff, 2004). Appling this analytical framework, I draw out the technopolitical processes through which knowledge production practices and expertise are employed to define a product's essential and/or exclusive link to place, and through which actors from the European 'macro-organization' and global South stakeholders interactively legitimize GI as a framework for economic development, food quality regulation, and the valorization of local heritage.

This dissertation addresses this question through the techniques of multi-sited ethnography (Marcus, 1995), which are applied to examine a case study (Feagin, Orum, & Sjoberg, 1991; Walton, 1992) of the implementation of GI for a spectrum of commodity and specialty products in Ecuador. Ecuador is a middle-income country in South America with a historical dependence on primary commodity exports (Beckerman, 2002; Bromley, 1977; Whitaker, Colyer, & Alzamora, 1990). Starting around 2015, the government and producer groups began to receive direct technical assistance in the area of GI from various European organizations, most prominently the INAO. This case illuminates the dynamics of GI development in the global South for three key reasons. First, the timeframe explored in this case

study (2015-2024) illustrates the role of the European 'macro-organization' in reshaping policymaking and regulation in a novel context for GI. As recently as 2009, the Ecuadorian government adamantly opposed the expansive recognition of GI in multilateral forums such as the WTO, and state officials expressed skepticism of the promised benefits of mutual recognition with competitor countries and trade partners.[1] Yet recently, Ecuadorian policymakers have reconceptualized GI as a strategic tool for niche market creation and export revitalization in key agro-export sectors. Further, in line with advice and policy discourse disseminated by European organizations, Ecuador has reformed its intellectual property laws, reorganized the national body charged with regulating intellectual property rights, and formed an inter-ministerial commission to harmonize GI oversight among relevant agencies and promote the use of GI to producers across the country.[2] Second, the historical and cultural context of Ecuador offers the opportunity to examine the introduction of GI development discourse into a relative *terra nullius* for the concept. Many scholars have examined technical assistance offered by institutions such as the CIRAD and the INAO to France's former colonial possessions in West Africa and Southeast Asia, countries that, through the colonial and post-colonial language and cultural ties, have a more strongly developed and codified understanding of the concept of *terroir* on which GI protection is based (Bassett, Blanc-Pamard, & Boutrais, 2007). Yet there have been fewer scholarly efforts examining GI technical assistance outside the Francophone world. Third, Ecuador illustrates the persistent legitimacy of GI as a development model despite evidence

1. Although Ecuador has legally recognized GI as an intellectual property right since the adoption of Andean Community Decision 486 in 2000, it remains well behind its Andean neighbors in terms of GI adoption.

2. Such technical assistance in the area of intellectual property rights often comes with strings attached (Robinson & Gibson, 2011), as for example, Ecuador has recognized European GI in a free trade agreement with the EU and become more supportive of protection in WTO debates.

against its efficacy. The state has registered GIs for seven products since 2008, yet to date, these efforts have found little success in terms of social or economic returns for producer groups. While there are no data available on the extent of production or export using GI labels in Ecuador, my own observations and conversations with stakeholders during fieldwork suggest that few products are sold; the cooperatives created to manage many GIs exist on paper only; and producer buy-in is low. Indeed, GI has delivered almost none of the promised development benefits in terms of price premiums, collective empowerment, knowledge preservation, or regional economic spillovers (Barjolle, Quiñones-Ruiz, Bagal, & Comoé, 2017; Suh & MacPherson, 2007; Tashiro, Uchiyama, & Kohsaka, 2019; Teuber, 2010). Despite this, however, policy stakeholders and many producers describe the challenges of GI in Ecuador as short-term, while extoling the potential long-term benefits to society and the national economy.

I explore my research question across three chapters. In Chapter Two, I apply my analytical framework through attention to the 'technopolitics' of development (Mitchell, 2002). Departing from previous scholars who have explored the ideological justifications of development (Bunker & Ciccantell, 2005; Goldman, 2005), I ask: **How is *terroir* knowledge interactively co-produced with the politics of national identity, international trade, and development hegemony?** In this chapter, I focus my analysis on the process of *characterization* – a set of procedures, derived from the world of wine, for characterizing the sensory experience of a product (e.g., aroma, flavor, mouthfeel) in order to establish its typical character (typicality or *typicité*) as distinct from similar products. Through analysis of how characterization produces the distinction of Ecuadorian GI products, I demonstrate how the legitimacy of the GI development model emerges from the strategic application of *terroir* to reconstruct Ecuador as a country naturally endowed with diverse ecosystems and production traditions, which through the

application of GI, could be drawn on the overcome the country's less-than-promising outlook as an agro-exporter. Thus, through analytical attention to how *terroir* is constructed as a socio-material hybrid category in GI implementation, I examine the how the production of knowledge about place and food character interactively reproduces unequal power relations in the world system.

In Chapter Three, I turn from examination of interstate power relations to address the social construction of *terroir* through attention to interpersonal power relations. To do so, I focus on a single case study of GI implementation in Ecuador: Galápagos Islands coffee. I ask: **How do structural inequalities of power shape the legitimacy and relevance of knowledge claims concerning *terroir*, and how do actors deploy such knowledge in turn to institutionalize preferential product standards?** To address this question, I use the concept of 'epistemic authority' (Gieryn, 1999) – the power to make legitimate and relevant knowledge claims – to examine the production of two key documents: the *feasibility study*, through which knowledge of coffee's terroir was authorized; and the *code of practice*, through which regulations for coffee production were institutionalized. Using this case, I show how the practical accomplishment of epistemic authority in the implementation of this geographical indication allowed powerful stakeholders to shape the construction of *terroir* and GI regulations to suit their interests. Yet knowledge of coffee's *terroir*, once constituted as authoritative, provided a strategic resource for marginally powerful producers to reshape regulation.

Chapter Four is a paper co-authored with Rafael Villota, Professor of Hospitality, Culinary Arts, and Tourism at the Universidad San Francisco de Quito. In this chapter, we ask: **How do policy discourse and technical assistance shape how stakeholders apply *terroir* as a framework for food relocalization efforts?** We apply the analytical framework of the localized

agrofood system (Sanz-Cañada & Muchnik, 2016), to examine how stakeholders construct territorial factors relevant to the creation, registration, management, and commercialization of GI standards, and what the implications are for the territorial embeddedness of GI. This chapter also draws on the case of Galápagos Islands coffee but focuses on different objects for analysis. Using the framework provided by Mancini (2013b), we examine: (1) product distinction and qualification; (2) collective action and coordination; (3) resource management; and (4) knowledge. We argue that the localized agrofood system approach has been under-utilized by scholars to examine relocalization efforts for commodity goods in the global South, and we illustrate its applicability for the analysis of tropical goods, such as coffee, that are characterized by territorial disconnection.

Together, the chapters of this dissertation address gaps in sociological knowledge about how policy models, technical food standards, and frameworks for conceptualizing product quality are disseminated, integrated into state-directed development, and implemented in local contexts of agrofood production.

In the next section, I outline the relevant conceptual framework for my dissertation, drawing on agrofood studies of quality standards, social studies of 'co-production' of science and politics, and technopolitical approaches in development studies. I then explain the research design of this project, including my methodological approach, data collection strategies, and the validity of my analytical strategy. Finally, I conclude this introductory chapter with a brief overview of the significance of this project.

2. Conceptual framework

A. Geographical indication, terroir, and territory

GI is a state-protected product label that identifies a good as originating in a particular territory where a given quality, reputation, or other characteristic of the good is essentially attributable to its geographical origin. Examples of GI include the French *appellations d'origine contrôlée* (AOC) and the EU's Protected Denominations of Origin (PDO), both of which codify and protect the linkage between territorially based natural factors, cultural factors, and typical food character that is described by the French term *terroir.* At its essence, *terroir* – literally translated as 'terrain,' 'soil,' 'land,' 'ground,' or 'earth,' yet perhaps ultimately untranslatable[3] – describes how a product's region of origin influences its flavor (Parker, 2015). *Terroir* has been defined as:

> (1) A delimited geographical space, (2) in which a human community, (3) constructs over the course of its history a collective production know-how, (4) based on a system of interactions between a physical and biological environment, and a set of human factors, (5) in which the socio-technical histories involved, (6) reveal an originality, (7) confer a typicality,[4] (8) and engender a reputation, (9) for a good originating from this geographical space (Casabianca et al., 2006, p. 3).

This definition suggests that natural and human factors together determine distinctiveness, justify irreproducibility, and ensure that the benefits of protection are equitably and sustainably distributed (Bowen, 2010b; Demossier, 2018). Yet for many years, popular understandings and academic research favored an 'environmental determinism' (Warf, 2006) perspective to emphasize how natural endowments make certain places suitable for certain products

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3. The connotations of *terroir* can be difficult to capture because the term has become so deeply embedded in French cultural practices (Trubek, 2008). For example, the French may use terroir to explain regional variations not just in food, but also in dialect, customs, and character (Barham, 2003).

4. Typicality, from the French *typicité*, "Denotes a special quality of a food product…. It is the shared perception of how generations of people from a given place expect [a *terroir* product] to taste" (Vaudour, 2002, pp. 120-121).

(Dickenson, 1990; Gade, 2004) – a perspective that provided political justification for GI protection because the physical environment quite literally cannot be displaced (Gangjee, 2012a; Nizam & Tatari, 2022). More recently, however, proponents have stressed the application of human skill to transform the environment to suit production (Bérard & Marchenay, 2007),[5] which in turn provides an intellectual property rationale for protecting cultural heritage, knowledge traditions, and reputation (Gangjee, 2012a; Ibele, 2009).[6] These discursive and epistemic shifts illustrate that proponents of *terroir* and GI may emphasize physical factors, human factors, or a holistic combination of both, as suits particular socio-political circumstances (Demossier, 2011, 2018; Fourcade, 2012; Gade, 2004; Gangjee, 2012b).

Because GI ties food systems to territory, it has been conceptualized as a mechanism for protecting traditional agrofood products and practices from the vagaries of the contemporary 'placeless' food system (Ilbery & Kneafsey, 2000; Mancini, 2013a). Indeed, proponents argue that pursuing food system localization through GI can guarantee product quality and distinction for consumers while offering fair compensation to producers for maintaining traditional practices and agrofood character (Barham, 2003; Carimentrand et al., 2019). There are several claimed benefits for producers and rural regions stemming from the use of GI. First, economic analyses have suggested products marketed on origin may gain a price premium over industrially

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5. In this understanding, terroir emerges from the creative interpretation of what nature offers through collective and individual producer decisions such as which varieties to plant or which practices to apply (Dougherty, 2012; Teil, 2014), as well as the collectivity that possesses the know-how to evaluate and appreciate terroir products, which can include other stakeholders such as processors, retailers, marketers, regulatory boards, and consumers (Allaire, Casabianca, & Thévenod-Mottet, 2011; Demossier, 2018; Wallet, Barham, Sylvander, & Allaire, 2011).

6. This 'paradigm shift' has become especially prominent in France (Demossier, 2011, 2018; Dickenson, 1990; Gade, 2004; Gangjee, 2012a), which may represent a response to how its own successful promotion of terroir discourse across this globe has ironically undermined arguments that the French environment is specially endowed with factors that allow it to produce high-quality wines and foods (Moran, 1993; Trubek, 2008).

produced or mass-market products (Rueda & Lambin, 2013; Teuber, 2010). Second, because GI is a collective form of intellectual property, it can foster localized collective action and producer empowerment (Barjolle et al., 2017; Chabrol et al., 2017). Third, GI can facilitate the preservation and transfer of traditional knowledge and locally rooted agro-biodiversity (Marie-Vivien, 2008; Tashiro et al., 2019).[7] Fourth, the use of GI may induce positive spillover effects in the region of origin, including economic diversification and protection of rural cultures and environments (Barham & Sylvander, 2011; Suh & MacPherson, 2007; Thual & Lossy, 2011).

Drawing on these purported benefits, state policymakers increasingly view GI as a legal and discursive tool to support economic development, access global markets, and meet consumer demands for quality (Besky, 2013; Bowen, 2015). Studies examining the role of the state in GI implementation, regulation, and policymaking have primarily drawn from the traditions of legal studies and political economy. This empirical research has shown that GI can be aligned with diverse policy orientations, whether agro-industrial modernization (Durand & Fournier, 2017; Oledinma & Roper, 2021) or the valorization of artisanal practices and localized heritage (Coombe, Ives, & Huizenga, 2014b; Keahey, 2019). Empirical studies have shown that too little state involvement and variable support can limit GI development potential, sustainability, and market access (Chabrol et al., 2017; Ingram, Hansen, & Bosselmann, 2020; Niederle, Wilkinson, & Mascarenhas, 2020; Wilkinson, Cerdan, & Dorigon, 2017). GI schemes require upfront investment, which is often beyond the reach of marginal producer groups, in order to reach new markets and build reputation (Anders & Caswell, 2009; Bramley & Kirsten, 2007), yet policymakers often underestimate the lifetime costs of institutional investment, legal

7. Nonetheless, scholars have lately critiqued the role of GIs in reducing biodiversity and flattening tradition in the name of protecting both (Mariani, Cerdan, & Peri, 2021, 2022).

enforcement, and certification (Bramley & Kirsten, 2007; Kerr, 2006). Sustaining state investment in GI is challenging under the neoliberal political economy of austerity and state withdrawal (Bowen & Gaytán, 2012; Mancini, 2013b). Absent legal and policy frameworks that valorize *terroir*, link GI to rural development, and empower collective producer organizations (Barjolle et al., 2017; Bowen, 2010a, 2010b; Mancini, 2013a; Nizam & Tatari, 2022), domestic and transnational corporations may expropriate the reputation associated with 'traditional' producers while excluding the latter from the benefits of GI (Besky, 2013; Bowen, 2015; Bowen & Gaytán, 2012; Mancini, 2013b; Renard & Domínguez Arista, 2020). However, a 'top-down' approach in which the state takes charge of most aspects of GI creation and management can disincentivize producer engagement, limit the representativeness and inclusivity of initiatives, and result in GIs that exist on paper only (Garcia, Marie-Vivien, Kushalappa, Chengappa, & Nanaya, 2007; Marie-Vivien, 2020; Pick & Marie-Vivien, 2021). Thus, the question of *how* state policymakers view GI as a policy tool matters to the success of such schemes in terms of equitable and effective distribution of benefits.

Given the collective (rather than individual) nature of GI as an intellectual property right, a second set of studies has explored the role of collective action among supply chain actors in determining GI standards and shaping the distribution of costs and benefits. Most such scholarship analyzing the effectiveness of GI in the global South has drawn on the analytical framework of the global value chain (GVC), in order to address power relations among actors occupying different positions and to explore how product quality and heritage are defined and institutionalized (Belletti, Marescotti, & Touzard, 2017; Marescotti & Belletti, 2016; Nizam, 2017; Nizam & Tatari, 2022). Such work has suggested that GI standardization presents competitive opportunities for dominant actors, in alignment with the state, to appropriate

elements of collective cultural heritage and national identity (Bowen, 2015; Bowen & Gaytán, 2012). GI construction can favor capital over labor (Besky, 2013; Bowen, 2015) or facilitate the construction of harmonious, static 'social imaginaries' that reproduce and obscure inequalities within communities (Coombe et al., 2014b; Gaytán, 2018). In order for the benefits of GI to be widely shared, collective organizations must be empowered to enforce specifications on all supply chain actors (Mancini, Arfini, & Guareschi, 2019), maintain good relations with public authorities (Mariani et al., 2022), and communicate the value of terroir to all stakeholders (including consumers) (Castelló, 2021). Thus, while broadly signaling the importance of collective action, this set of studies suggests that producer organizations – especially in emerging commodity sectors in the global South – need state support and appropriate policy orientations to ensure GIs are participatory and equitably beneficial.

Despite these trenchant critiques, a persistent shortcoming of the GVC approach to study GI is the tendency to define 'local' in terms of systems of production, distribution, and consumption (Bowen & Mutersbaugh, 2014). Yet surprisingly, given the construction of GI as a mechanism of food relocalization (Ilbery & Kneafsey, 2000; Mancini, 2013a), there has been comparatively little scholarly attention to the role of *territory* – specifically *terroir* as a framework for understanding and valorizing the local – as the basis for understanding how GI are created and managed, and whether they are effective at meeting their stated goals. A few scholars have attempted a deeper engagement with *terroir* and territory through the application of the framework of Localized Agrifood Systems (SYAL, from the French *Systèmes agroalimentaires localisés*), which address territory not merely as the location within which food system activities take place, but as a factor in the construction of food quality and the organization of the actors involved (Bowen & Mutersbaugh, 2014; Mascarenhas & Touzard,

2018; Sanz-Cañada & Muchnik, 2016).[8] A SYAL is defined as: "Production and services organizations (units of agricultural production, agrifood enterprises, markets and stores, restaurants, services) linked by their characteristics and by their relationship to a specific territory" (Muchnik, Requier-Desjardins, Sautier, & Touzard, 2007, p. 1465). GI represents the institutionalized form of the SYAL approach to the development of local agricultural and related resources (Bowen & Mutersbaugh, 2014; Sanz-Cañada & Muchnik, 2016), yet there has been relatively little scholarship applying this framework to cases from the global South. This lacuna has limited the ability of scholars to assess the degree of territorial concentration and/or dispersion present in the application of GI to rural development (Boucher & Brun, 2010; Mancini et al., 2019); or to understand and potentially remediate inequality among food system actors engaged in 'alternative' strategies of food production, distribution, and consumption (Bowen & Mutersbaugh, 2014; Lamine, Garçon, & Brunori, 2019).

B. The co-production of science and politics

The field of science and technology studies (STS) draws attention to the "interplay of the cognitive, the material, the social and the normative" (Jasanoff, 2004, p. 38), in the construction of knowledge and cultural categories, institutions, and discourses through which power as disciplinary force is exercised. Co-production is an analytical framework to conceptualize the ordering of nature (through science and technology) and society (through laws, regulations, institutions, social movements, etc.) as mutually constitutive processes (Jasanoff, 2004). As an approach to the interaction of science and power, co-production signifies an analytical symmetry

8. For a full review of the distinctions between addressing alternative food networks and food localization using the Francophone SYAL approach or the Anglophone GVC approach, see Bowen and Mutersbaugh (2014)

in the treatment the ‘natural’ and the ‘social’ (Irwin, 2008; Jasanoff, 2004). While Jasanoff (2004) is recognized for defining co-production as a coherent analytical approach, it represents a restated insight from earlier core works of STS, such as Latour (1993), who argued that the quintessence of modernity is the ‘purification’ of hybrids into domains such as ‘science’ and ‘society’; or Shapin and Schaffer (1985), who neatly summarize: “Solutions to the problem of knowledge are embedded within practical solutions to the problem of social order” (p. 15). What co-production suggests is analytical attention to technoscience and power: the mutual constitution of authoritative knowledge and other forms of authority, whether vested in political institutions, cultural values, social norms, of economic organizations (Jasanoff, 2004).

STS scholarship has generally considered co-production through three analytical lenses: boundary-work, network stabilization, and institutionalization. Although these approaches overlap to a great degree in the literature, I distinguish them here in order to draw out viability of each approach, on its own or complemented by another, to explain instances of co-production. First, scholars draw on the concept of ‘boundary-work’ (Gieryn, 1983), which describes the rhetorical strategies through which actors contest the authority to make legitimate and relevant knowledge claims (Gieryn, 1999). Scientists and other credentialed experts, for instance, maintain such authority in disputed policy spheres (e.g., environmental risk, public health, economic policy) through the strategic, contingent, and flexible relegation of uncertainty to ‘non-scientific’ domains (Jasanoff, 1987, 1994; Kimura & Kinchy, 2016; Shackley & Wynne, 1995). In interactions with the public as well, experts deploy discourses of ‘risk’ and ‘public understanding of science’ to limit non-expert participation in scientific policymaking (Wynne, 1992, 1996, 2002, 2003). Yet ‘non-expert’ actors such as policymakers, activists, and organizations engage in boundary-work as well, whether to strategically employ scientific

credibility to bolster institutional authority (Bonneuil & Levidow, 2012), shift frames to appeal to different publics (Cook, Kesby, Fazey, & Spray, 2013), or adopt scientific discourse in order to make legal claims (Buchanan, 2017). These actors can breach rhetorical boundaries through strategic accrual of credibility, in the process reshaping scientific meaning and practice (Arancibia & Motta, 2019; Epstein, 1996; Rabeharisoa & Callon, 2004), or redrawing boundaries to both challenge and reaffirm the authority of science (Jasanoff, 1995; Levidow, Murphy, & Carr, 2007; Lynch, 2004). In general, however, the boundary-work approach ascribes greater agency to scientific actors than to 'non-experts' (Irwin, 2008). Further, while some scholars have empirically demonstrated how scientists draw from both 'science' and 'politics' during co-production (Epstein, 2021; Reardon, 2013), most assume that scientists either wish to obscure co-production or are wholly ignorant of their hand in it (e.g., Mager, 2017; Montgomery, 2012; Pape, 2021). As such, many scholars have been less attuned to instances when scientific actors explicitly frame their actions as 'political' or political actors frame their actions as 'scientific' (Epstein, 2021).

A second major tradition exploring co-production draws conceptually from actor-network theory (ANT). ANT scholars were among the first to argue that the production of knowledge co-occurs with the production of macro-social institutions, social interests, and social ties (Callon, 1984). In this approach, knowledge and the social order are effects of scientists building and maintaining networks of heterogeneous material, social, and discursive components (Law, 1992), the most famous example being Louis Pasteur's translation of diverse macro-social interests through his bacteriological framework (Latour, 1983). A more recent extension of this framework considers the 'performativity' of scientific practice, examining how diverse materials, discourses, and actors are brought together in knowledge- and world-making (Law & Mol, 2008;

Mol, 1999, 2002). In other words, the question of how to act on the world is also a question of how to enact the world, and by exploring the material, cultural, and historically situated practices actors bring to bear in co-production, scholars can trace the coordination of social and natural ordering (Law & Mol, 2011). In this reading, co-production occurs through the efforts of actors to join concepts, practices, and materials together to assemble and stabilize new ontological formations (Alatout, 2008; Boucquey, Fairbanks, Martin, Campbell, & McCay, 2016; Pape, 2021). This approach has been especially useful for considering the role of non-human actors in the enactment of scientific knowledge and its meaning for policy and politics (Brandt, 2014; Mather, 2014). However, especially for ANT, the agency of scientists is emphasized at the expense of other actors (Star & Griesemer, 1989), and there is less accounting for racial, gender-based, or post-colonial power relations (for exceptions, see Alatout, 2009; Barnes, 2012).

Third, scholars have emphasized how co-production is structured through institutionally legitimized epistemologies that define certain actors as more credible and authoritative than others. While boundary-work and network approaches tend to analytical emphasize the agency of experts, approaches grounded in the political sociology of science analyze the effects of relatively stable social, economic, and political structures in the production of knowledge (Frickel & Moore, 2006), including how factors such as government grants, industry funding, or procedural rules constrain individual agency (Epstein, 2006; Kleinman, 1998; Reardon, 2006). Such an approach would argue, for instance, that understanding boundary-work requires analysis of pre-existing discursive, organizational, legal, and regulatory structures within which the legitimacy and political valence of science is debated (Kleinman, 1998; Kleinman & Kinchy, 2003). Indeed, regulatory institutions of the state can present formalized accountability structures that allow scientists to do boundary-work (Guston, 1999; Winickoff & Bushey, 2010), or

authorize ‘scientific’ policy assessment in ways that limit non-experts actors’ ability to make claims (Buchanan, 2017; Halfon, 2010; Suryanarayanan & Kleinman, 2013). Such an approach is particularly relevant in the contemporary era of neoliberal globalization when scientific practice finds itself pulled between industry and the state on one side and social movements and civil society on the other (Moore, Kleinman, Hess, & Frickel, 2011). In the international realm, the technoscientific production of global-scale issues (e.g., climate change, conservation, atomic energy) is shaped by and reshapes international institutions, laws, and regulations (Epstein, 2021; Miller, 2004; Thompson, 2004; VanDeveer, 2004; Waterton & Wynne, 2004). The scientific construction of multi-scalar, multi-sectorial, complex, and nested problems has produced new configurations of epistemic jurisdiction among global actors (Winickoff & Mondou, 2017), within which different understandings of valid knowledge, credible expertise, and logical relations among facts are embedded (Jasanoff, 2008; Miller, 2007; Winickoff & Bushey, 2010). This approach suggests viewing global governance as emerging through and within processes of mutual legitimation across scales, institutions, and forms of authority. However, much scholarship in the political sociology of science fails to consider power outside of formalized political, legal, and regulatory arenas of authority.

In sum, co-production attunes scholars to the interaction and mutual constitution of scientific concepts, discourses, and classifications with variations in law, policy, social norms, social identity, and environments. In particular, scholars have explained co-production with reference to analytical categories bounded by the nation-state (e.g., political discourse, cultural values, state institutions) (e.g., Gu, 2022; Reardon, 2001; Swedlow, 2012), providing a fruitful lens on the relationship among technoscience, the state, and population (Jasanoff, 1994, 1995; Pape, 2021). Other scholars have used comparative-historical analysis of co-production (e.g.,

Kuo, 2011), such as Jasanoff (2005), who explains divergences in biotechnology policy between the United States and Europe in terms of institutionalized rules, tacit practices, and culturally affirmed means of legitimating knowledge and political decision-making. Beyond the boundaries of the nation-state, co-production scholarship has typically addressed the knowledge work and legal-political authority of international institutions, such as the WTO (e.g., Bonneuil & Levidow, 2012; Winickoff & Bushey, 2010; Winickoff & Mondou, 2017) or the World Health Organization (e.g., Epstein, 2021). These works demonstrate global governance as a process of harmonization among diverse political cultures through technical and political cooperation (Jasanoff, 2013), as international institutions co-produce new standards, regulatory discourses, normative orientations, and jurisdictional spaces (Miller, 2007). Finally, some scholars have tackled co-production across national borders, for instance, the dynamics of technical assistance as part of Cold War geopolitics (Sneddon, 2012) or colonial and post-colonial relations (Pritchard, 2012). Yet while co-production has been shown to occur at multiple scales of governance, very little scholarship has examined how co-production occurs across scales (for an exception, see Montgomery, 2012). This gap means that, largely due to methodological choices concerning the objects and scales of analysis, analysts have seldom taken the additional step of explaining how categories, concepts, and institutions co-produced as 'global' are then understood, adopted, and/or contested in national politics.

C. The technopolitics of development hegemony

While political economists of development have posited a global division of labor as the material basis for inequality between nation-states (T. K. Hopkins & Wallerstein, 1977; McMichael, 2008), scholars working within and against this tradition have pointed to the

ideological foundations that justify and perpetuate inequality (Bunker & Ciccantell, 2005; Goldman, 2005). In this framework, nation-states of the global South are induced to participate in the world system not just through the material power of hegemonic states and international institutions, but also through the production and dissemination of knowledge (Babb & Kentikelenis, 2021; Goldman, 2005). The political possibilities of development are defined through rhetorical and epistemological boundary-work (Gieryn, 1983), in which development practitioners casts themselves as disinterested, apolitical experts who produce rational, technical, and universal knowledge (Escobar, 2012 [1995]; Ferguson, 1990; Santos, 2014). Through the generation of ontological categories (e.g., Least Developed Countries) and socioeconomic indicators (e.g., corruption, per capita income) in development practice and discourse, hegemonic powers represent spatial and material inequality as a temporal stage along the trajectory towards modernity (Escobar, 2012 [1995]; Ferguson, 2006), rather than as continuities with the colonial era (Gupta, 2000). Likewise, underdevelopment or the lack of development are attributed to individualized deficiencies in the states or communities intervened upon rather than structural features of global capitalism, in order to facilitate further accumulation by elites (Ferguson, 1990; Goldman, 2005; Li, 2006).

States as well are defined in relation to what they can provide to global capital, as Goldman (2005) argues through the conceptual framework of ‘environmental states,’ defined as those that exist in order to categorize public natural resources as undervalued commodities and to manage their extraction to facilitate capital accumulation. In particular, narratives of ‘natural resource’ wealth are constructed and employed to convince peripheral nation-states that participation in the global trade in primary commodities will produce prosperity and development (Bunker & Ciccantell, 2005). Through the production and deployment of

knowledge, 'nature' is constructed as a category for understanding and explaining the relative positions and roles of core and peripheral nations in the world system (Bunker & Ciccantell, 2005; Coronil, 1997). Concepts such as 'comparative advantage' (Bunker & Ciccantell, 2005) and 'underutilized resources' (Goldman, 2005) constitute aspects of this hegemonic ideology that, while contested, serves the productive needs of the Western core, perpetuates unequal exchange, and produces underdevelopment in the periphery (Bunker, 1984; Bunker & Ciccantell, 2005; Edwards, 2017; T. Hopkins, Wallerstein, Kasaba, Martin, & Philips, 1987). Scholars have recognized the exogenous and endogenous sources of these narratives, whether reproduced through development discourse and direct aid (Bunker & Ciccantell, 2005; Goldman, 2005), or through national origin myths and the construction of national identity (Coronil, 1997; Karl, 1997).

Other scholars, working within the framework of 'technopolitics' (Mitchell, 2002) or 'co-production' (Jasanoff, 2004), have addressed politics and expertise as mutually constituted within efforts directed towards, and broadly framed as, 'development' (Sneddon, 2012). Arguably a precursor to this approach, James Scott (1998) argued for seeing state authority as enacted through the application (and misapplication) of science and technology in pursuit of developmentalist ideologies, yet his framework[9] for explaining failed state schemes divides social from material causes.[10] In contrast, 'technopolitics' analytically highlights how political actors must contend with the materiality of science and technology – the weight of water behind a dam, the pliability of nuclear reactor control rods, the mutation rate of agricultural pests – as

9. His framework includes four necessary elements: (1) administrative capacity, (2) ideology, (3) the will of the state to act, and (4) civil society.

10. Other works in this vein have typically neglected to consider knowledge as mutually constituted through the politics of state formation (e.g., Mathews, 2011).

they conceive and pursue their objectives (Hecht, 2009, p. 15; Wengle, 2022). In the seminal work on the topic of science, technology, and state-directed economic development, Timothy Mitchell (2002) argues that science and technology should not be conceived of as inputs to the enactment of state power, but as equally produced through and transformed by the socio-politics of development. Equally critical to such analysis is attention to the efforts by diverse actors to link the material, the discursive, and the social in networks, in order to construct social and political divisions that legitimize development (Mitchell, 2002). As an analytical framework, technopolitics reveals how scientific and technical expertise support the ideological justification of 'development' in discourse and practice, even for interventions that are ultimately never carried out (Sneddon, 2012). In this way, it is productive to think of development as a 'technopolitical regime': a network of actors, materials, facts and artifacts, political goals, and ideologies that are produced through, and enact together, social and technoscientific transformations (Hecht, 2009, p. 16; Wengle, 2022).[11] Others have applied a technopolitical framework to explain the mutual constitution of technoscientific expertise, unequal power relations, and the ideologies of settler colonialism, imperialism, or capitalist expansion (Alatout, 2008, 2009; Braverman, 2023; Pritchard, 2012; Sneddon, 2012; Yacobi, Misgav, & Sharon, 2020).[12] Yet a persistent shortcoming in this body of work is that scholars typically address the development of large-scale infrastructure projects, such as water management systems (Christian Wells et al., 2019; Larner & Laurie, 2010; Pritchard, 2012; Sneddon, 2012; Sneddon & Fox, 2011), transportation (Gopakumar, 2020; Lesutis, 2022), and telecommunications (Larner &

11. Both Wengle (2022) and Hecht (2009) employ the concept of 'technopolitical regimes' in their historical analyses of, respectively, Russian agricultural development and French nuclear technology development. My use of this term synthesizes their definitions.

12. For instance, Alatout (2008, 2009) argues that such networks in Palestine were organized to mutually constitute facts about the region's water resources and the nation-state of Israel.

Laurie, 2010).[13] This scholarship could be extended through exploration of the technopolitical entanglement of quotidian, perishable, and mobile objects in development.

3. Research design

A. Research design and methods

In this section, I begin by explaining the research design for this project, before turning to the data collection techniques I used, and finally concluding with the analytical strategies I employed to validate my findings. Previous critical studies of GI have primarily employed methods such as single case studies (e.g., Gaytán, 2018; Tashiro et al., 2019; Tregear, Török, & Gorton, 2016), comparative case analysis (e.g., Biénabe & Marie-Vivien, 2017; Bowen, 2010b; Nizam & Tatari, 2022), and ethnography (e.g., Besky, 2013; Bowen, 2015). In contrast, this dissertation offers a novel strategy, integrating the techniques of multi-sited ethnography (Marcus, 1995) and case study design (Feagin et al., 1991; Walton, 1992) to develop empirical and conceptual analysis. Case study research design offers in-depth examination of the unique context, setting, history, and nature of a case, in order to illustrate how it converges and diverges from the class of social phenomena to which it belongs (Feagin et al., 1991; Stake, 1994; Walton, 1992). Further, an ethnographic case study marries theory-testing analysis with inductive data collection, through which theory and contextually rich data are iteratively brought together to conceptualize the meaning participants attach to social processes and to refine the analyst's frameworks (Agar, 1986; Burawoy, 1998). I conceptualized this project as multi-sited (Boccagni, 2019; Marcus, 1995) because I theorized the legitimation of GI policy occurring at multiple scales and across spatial contexts, with scientific and political struggles embedded in local social

13. Yet for counter-examples, see Fejerskov (2017) on the use of social experiments in philantrocapitalism, and Kopper (2020) on large data sets in the conceptualization of inequality in Brazil.

relations, national policymaking frameworks, and transnational power structures. Thus, I traced this phenomenon by inserting myself into important nodes where it comes into contact with locally embedded social processes, purposefully sampling moments of conflict, contestation, and negotiation (Collins, 2003; Marcus, 1995). At each node, I employed the data collection techniques of participant observation (Adler & Adler, 1994; Atkinson & Hammersley, 1994), in-depth ethnographic interviews (Spradley, 2016; Webber & Byrd, 2010), and archival research to gather primary documents (Prior, 2019; Tuchman, 1994) and secondary documents.

B. Data collection

From 2017-2019, I conducted a total of 5 months of preliminary fieldwork in Ecuador to test the feasibility of my research project. I used this time to build a network of potential participants, starting from four seed interviews whom I had contacted by email. From 2022-2023, I conducted a further 9 months of fieldwork in Ecuador, during which time I gathered interview and documentary data at national ministries in the capital city of Quito. I also ethnographically embedded myself in communities with producers of GI products, including avocado producers outside of Quito, dragon fruit producers in the Amazonian region of Palora, coffee producers on the Galápagos Islands, and agave producers in the highland areas surrounding Quito and Cuenca. Additionally, from 2022-2024, I conducted 4 months of fieldwork in France (Paris, Lyon, and Montpellier) and Italy (Rome) to gather archival and interview data from organizations supporting the development of GI projects throughout the global South. In total, this project represents 18 months of immersive data collection across 2 continents.

Prior to and throughout fieldwork for this project, I examined English-language secondary sources about *terroir* and GI laws and regulations. Examples of these sources include academic articles and books on France's culinary history, the techniques of food science and sensory characterization, the evolution of GI regulatory and research institutions, and the place of GI in agricultural policymaking. While in Paris, I complemented these with Francophone books and publications available for in-person consultation at the National Library of France. I used these materials to conceptualize the historical evolution of the *terroir* concept and GI legal frameworks in France, and their role in European integration and agricultural policy, international trade negotiations, and recent sustainable development agendas. I also reviewed English-language sources on Ecuadorian history, politics, and development, with specific attention to agricultural production and policymaking. While in Quito, I consulted the library at the University San Francisco de Quito for additional Spanish-language works on the topics. I used these materials to develop a historical narrative of the role of agricultural production and exports in Ecuador's political economy from the time of Spanish colonization to the contemporary period.

In France, I consulted several repositories to examine and digitize primary documents from the INAO and the CIRAD: in Paris, the National Archives and National Library of France; in Montpellier, the Lavalette Library at the CIRAD campus. These documents included three categories of material relevant to understanding GI development in the global South. First, I gathered research materials, including graduate theses, academic publications, and proceedings and papers from conferences, seminars, and symposia. Second, I gathered policy materials aimed at governments and producer groups, including training manuals and best practices, policy papers, annual reports, and case studies. Third, I gathered implementation materials, including

application files from French producer groups, extension bulletins, technical committee meeting minutes, and reports from technical assistance trips to countries in Southeast Asia, Africa, Latin America, and France's overseas possessions. I complemented these with digital documents from other organizations involved in global GI development, including intergovernmental agencies (e.g., FAO, UNCTAD), EU-supported research centers and projects (e.g., SINER-GI), and non-governmental organizations (e.g., oriGIn). In all, I used these materials to examine how this actors from this 'macro-organization' (Feuer, 2022, p. 677) develop and put into practice a shared set of norms and discourses concerning the development potential of GI and the regulatory landscape necessary to realize this potential. Additionally, in Ecuador, I digitized the registration files for all seven of Ecuador's declared GIs from the National Intellectual Property Rights Service (SENADI). These materials allowed me to examine how Ecuadorian institutions hew to and diverge from global standards in GI implementation.

As part of my fieldwork, I participated in a CIRAD- and FAO-sponsored conference called "Worldwide Perspectives on Geographical Indications," held in Montpellier. This conference brought together GI researchers and practitioners from around the world for presentations, plenary sessions, and field visits to local cooperatives, providing the opportunity for participant observation of the 'organizational nexus' in action. As an attendee, I wrote contemporaneous field notes on my observations and experiences, which I supplemented with documents from the conference, such as presentation slide decks, papers in the proceedings, and other materials distributed to participants. Likewise, during my fieldwork in Ecuador, I embedded myself for participant observation in communities where GI products are produced. At these field sites, I made careful observations of marketing efforts and materials highlighting product origin, such as shops, restaurants, and tours focused on specialty and artisanal goods. I

also participated in the activities of producers and cooperatives, including visits to farms and processing centers and participation, both virtually and in-person, in member meetings.

Finally, I conducted semi-structured interviews with 70 individuals in 73 interviews sessions, which include mostly one-on-one interviews, but also several interviews with pairs of people and follow-up conversations with participants previously interviewed. Of these interviews, 10 were conducted virtually using Zoom; the remainder were conducted face-to-face. All interviews were conducted in the speaker's native language (French, English, or Spanish) unless the participant preferred English; recorded; and transcribed with software assistance (Sonix.ai). All translations of interview quotes and documentary materials are my own. Interview participants can be broadly categorized according to their position relative to GI goods: as determining *policy* relevant to GI; or participating in the *production* of potential and actual GI goods. First, among policy actors, I interviewed a total of 28 participants, which include 18 policymakers, lawyers, and technicians from Ecuadorian government ministries at the national and provincial level; 5 researchers and technicians from the 'organizational nexus' of global GI institutions; and 5 consultants and researchers from Ecuadorian universities and civil society groups. With these participants, I discussed topics such as educational and professional background, decision-making about potential products to be certified, technical assistance programs, product characterization techniques, institutional decision-making and evaluation, and harmonization with international GI norms and legal frameworks. Second, among production actors, I interviewed a total of 42 participants involved in the farming, processing, or trading of GI products in Ecuador. For these interviews, I focused mainly on Galápagos Islands coffee and the agave spirit known as *miske*. I interviewed 26 producers, roasters, traders/exporters, and coffee shop owners on the Galápagos islands of Santa Cruz and San Cristóbal. I interviewed nine

growers, distillers, and distributors of *miske* in Ecuador's highland provinces of Imbabura, Pichincha, Cañar, and Azuay. Further, I conducted a focus group with five *miske* producers during a meeting of the national producer cooperative. For context and comparison, I also interviewed three producers of Amazonian dragon fruit and four producers of Andean avocado. Interview topics with these participants included experiences of GI development, motivations for using or not using the standard, participation in cooperative activities, perceptions of expertise, and changes to production practices in response to GI development.

C. Analysis and validity

I analyzed interview transcripts, field notes, and documentary data in an iterative process concurrently with data collection. After preparing and organizing the data collected, I used MaxQDA software to code interview transcripts and field notes using a constructivist grounded theory approach (Charmaz, 2000, 2006).[14] I proceeded through several rounds of coding, examining these data descriptively (Miles & Huberman, 1994; Saldaña, 2009), holistically (Dey, 1993; Saldaña, 2009), and finally through focus coding (Charmaz, 2006), to develop categories, conceive of the relations among categories, and ultimately suggest the theoretical contributions of this case study. I also conducted content analysis of documents collected during fieldwork (Gee, 2014; Hodder, 1994; Johnstone, 2008; Schreier, 2019), considering how these documents embody social relations and effectuate the power to regulate social activity (D. E. Smith, 2005).

14. This approach to grounded theory focuses the analyst's attention on the construction of social reality that emerges from the researcher's interaction with participants and data, acknowledging that no researcher enters the field entirely free of theory or personal experiences that shape how data are collected and analyzed (Charmaz, 2000, 2006).

During analysis, I paid attention to theoretically important themes, while also allowing for new themes, categories, and dimensions to arise by putting theory into contact with the data.

To support the descriptive validity of my findings and provide a more complete picture of the case, I collected rich data (Maxwell, 1996), including recording and transcriptions of interviews and detailed, contemporaneous field notes for participant observation. To corroborate the validity of my interpretations (Fielding & Fielding, 1986; Maxwell, 1996), I pursued several strategies. First, I employed interactive member checks with research participants (Fielding & Fielding, 1986). Second, because I relied on a small set of initial seeds to build a network of interview participants, I purposively selected participants for heterogeneity, seeking discrepant cases to avoid bias and challenge my interpretations (Barbour, 2019; H. S. Becker, 1998; Duneier, 2011). For instance, for Galápagos coffee, I sampled participants from different segments of the supply chain (producers, roasters/transformers, traders/exporters, and consumer-facing actors); on different islands (Santa Cruz and San Cristóbal); and with differing degrees of buy-in to specialty coffee production. Third, I triangulated both data sources and types of data collected to provide a fuller picture of meaning, process, and context. To summarize, I validated my analysis through the integration of distinct evidentiary sources (interviews, observations, documents), divergent participant perspectives (official policy, producer experiences), and complementary analytical approaches (grounded theory, content analysis).

D. Significance of the study

This dissertation makes three contributions to theoretical approaches in development studies, agrofood studies, and science and technology studies. First, I develop the concept of *terroir technopolitics*: the simultaneously technoscientific and political process through which

particular socio-spatial configurations are imbued with natural and cultural distinctiveness tied to agrofoods, and through which notions of value, structures of international exchange, regimes of territorial control, and expressions of social identity are reproduced and reconfigured. For scholars of development, this approach contributes to explaining the reproduction of hegemonic development ideas through heightened attention to both the *material* and the *social* in producing knowledge about and for development. Further, scholarship on the technopolitics of development has almost exclusively addressed large-scale infrastructure projects (e.g., Gopakumar, 2020; Larner & Laurie, 2010; Sneddon & Fox, 2011). My analytical focus on the implementation of a technical food standard extends this body of theory, highlighting the technopolitical entanglement of quotidian, perishable, and mobile objects in development.

Second, I articulate the social construction of *terroir* as a process through which actors employ their economic, political, and cultural authority to accomplish *epistemic authority* (i.e., the power to make legitimate and relevant knowledge claims); and through which authorized knowledge is enrolled to legitimize, reproduce, and challenge other forms of authority in the regulation of GI. For scholars of food and agriculture, this analytical attention to the structured and structuring effects of epistemic authority reveals the politics through which 'alternative' qualities are attributed to food and deployed in niche marketing, regulation, and development policy. I suggest that structures of social, economic, and epistemic inequality, rather than the nature of 'alternative' food networks or quality schemes themselves, may determine their success in terms of producer empowerment, livelihood enhancement, or regional rural development.

Third, with my co-author Rafael Villota, we address a gap in agrofood scholarship by drawing attention to the role of territory in the creation, registration, management, and commercialization of GI standards in the global South. Most scholars have used the GVC

approach to investigate such GI systems, which highlights *coordination* aspects at nodes where value is added and *governance* aspects concerning the overall distribution of benefits along the chain, but which conceives of 'relocalization' as a process detached from territory. Our application of the SYAL approach to study a coffee GI offers an empirical extension of previous studies, which is especially relevant given the importance of coffee income for millions of smallholder farmers and the challenges of relocalizing coffee production systems given the obdurate structures of the global market. Our study of a coffee GI refines the SYAL approach as theory and method through attention to the particular challenges and opportunities of food relocalization efforts in sectors defined by territorial disconnection.

CHAPTER TWO: A TASTE FOR TERROIR: THE SCIENCE AND POLITICS OF THE EU'S GLOBAL GEOGRAPHICAL INDICATION DEVELOPMENT AGENDA

1. Introduction

Geographical indications (GIs) are state-protected standards that tie product quality to named geographical origins (e.g., Champagne). As GIs have become increasingly wrapped up in global trade disputes, development aid, and discourses of 'alternative' food systems, so has sociological interest in these standards grown (see e.g., Feuer, 2022; Gaytán, 2018; Nizam, 2017). Such attention is especially welcome because, over the last two decades, a largely European-dominated network of state organizations, research centers, and multilateral institutions has driven astounding growth in the recognition of GIs in the global South (Feuer, 2022). In policy manuals and direct technical assistance, this network has advocated the direct replication of European GI laws and regulations as a means to achieve economic diversification, rural revitalization, knowledge preservation, and heritage valorization (see e.g., FAO, 2023; Vandecandelaere et al., 2018). As a result, GI has arguably become a hegemonic model for protecting and marketing place-based food traditions, leaving little social or political space for alternatives (Feuer, 2022). Further, this development agenda has engendered numerous critiques: for reinforcing the value chain power inequalities that GIs are meant to address (Bowen, 2015; Mancini, 2013a; Neilson, Wright, & Aklimawati, 2018; Rangnekar, 2011); and for reproducing trade patterns, production systems, cultural chauvinism, and social exclusion typical of the period of European colonization (Besky, 2014; Feuer, 2022; Jung, 2014; Keahey, 2019). Yet to date, despite amply scholarly attention to GI value chains, state policymaking, and institutional capacity (e.g., Bowen, 2015; Bowen & Gaytán, 2012; Mancini, 2013a; Neilson et al., 2018; Rangnekar, 2011), sociological studies attempting to explain how GI development becomes

socially acceptable (Bowen, 2010a) and even hegemonic (Feuer, 2022) have been limited. There is a need for scholarship addressing the application of policy discourse and technical assistance in global South contexts to legitimize GI as a development model, to institutionalize regulations that mirror those of found in Europe, and to acculturate producers and consumers to the appreciation of *terroir*.

In this chapter, I address aspects of interstate power relations evident in the development of GI in the global South. Given the context outlined above, it would seemingly make sense to approach this policy agenda through a political economic emphasis on material power in international relations (T. K. Hopkins & Wallerstein, 1977; McMichael, 2008). However, as scholars working within and against this tradition have highlighted, such an approach fails to consider nature, rather than labor, as the source of the global South's comparative advantage in commodity extraction (Bunker & Ciccantell, 2005; Coronil, 1997; Karl, 1997). Other scholars have also emphasized the role of knowledge production in shoring of the ideological foundations of the world system (Babb & Kentikelenis, 2021; Escobar, 2012 [1995]; Goldman, 2005). Yet even these approaches, while highlighting to role of science and technology in development, fail consider how political actors must contend with the *materiality* of science and technology as they pursue development agendas (Hecht, 2009; Wengle, 2022). A complete analysis of how Europe's technical assistance and policy discourse serve to legitimize GI development requires grappling with the concept of *terroir* ('the taste of place') – the co-construction of product distinction through emplaced environmental (nature) and human (culture) agency. To attend to the role of this socio-material hybrid in GI development, I apply the analytical framework of technopolitics (Mitchell, 2002) to address how actors legitimize development through the construction of networks that link the material, the discursive, and the social. This chapter thus develops the

concept of *terroir technopolitics*: the simultaneously technoscientific and political process through which particular socio-spatial configurations are imbued with natural and cultural distinctiveness tied to agrofoods, and through which notions of value, structures of international exchange, regimes of territorial control, and expressions of social identity are reproduced and reconfigured. This approach contributes to explaining the reproduction of hegemonic development ideas through heightened attention to both the *material* and the *social* in producing knowledge about and for development. Further, scholarship on the technopolitics of development has almost exclusively addressed large-scale infrastructure projects (e.g., Gopakumar, 2020; Larner & Laurie, 2010; Sneddon & Fox, 2011). My analytical focus on the implementation of a technical food standard extends this body of theory, highlighting the technopolitical entanglement of quotidian, perishable, and mobile objects in development.

I apply this framework to the case of GI development in Ecuador, a middle-income Andean country with a long history of dependence on primary commodity exports. During the post-2008 period marked by state-directed development and rhetorical rejection of 'modernity' in policy discourse, the government began to pursue GI as part of a multi-pronged strategy to move away from commodity dependence. Starting in 2015, Ecuadorian national ministries and producer groups began receiving direct technical assistance from France's GI regulatory body, the National Institution of Origin and Quality (INAO). While receiving this development aid, Ecuador reformed its intellectual property laws, created a high-level inter-ministerial commission to streamline GI regulation, and continued to implement GIs for new products while revising prior declarations. In this chapter, I use this case to illustrate *terroir technopolitics* by focusing on the interactive co-production of agrofood policy orientations, narratives of national heritage and identity, and technical evidence of the distinction of Ecuador's potential GI products.

I argue that policy-level actors opened policy space for GI by framing Ecuador as a country with structural and geographical competitive disadvantages vis-à-vis its regional competitors in the same agrofood sectors. In the same policy space, the state reified prominent domestic and international narratives of Ecuador as a 'mega-diverse' country – one naturally blessed with biological and cultural diversity. Recognizing the high barriers to entry for the most lucrative niche markets, policymakers relied on the INAO's technical advising to make Ecuadorian products visible and legitimate for European regulators and consumers. The main avenue to visibility and legitimacy was to furnish credible evidence of *terroir*, which was done through the procedures of *characterization* (sensory assessment) to identify the environmental and human sources of product distinction. Through rhetorical and epistemological boundary-work (Gieryn, 1983), the INAO aligned *terroir* characterization with the 'gold standard' of science – the randomized controlled trial (RCT). This production of distinction was key to making Ecuador's GI project politically viable, by providing a technoscientific framework to validate Ecuador's dual politics of agro-export competitiveness and national identity. It linked competitive advantage in specialty agrofood markets to emerging discourses of comparative advantage in diversity, which would be reproduced through and reproductive of the *terroir* of Ecuador's GI products. Through *terroir technopolitics*, natural geography – arguably one of the main barriers to agro-export competitive advantage vis-à-vis Ecuador's neighbors – was reconstructed as comparative advantage for specialty agrofood markets.

In the next section, I give an overview of the relevant conceptual and theoretical background to my analytical framework of *terroir technopolitics*. I then provide context on Ecuador's development policy, its trade relations with Europe, and the laws and institutions relevant to GI implementation. In the findings, I first examine how policymakers framed

Ecuador as competitively disadvantaged, before addressing the technopolitics of *terroir* characterization and the reproduction of diversity as a national identity signifier. In the last section, I offer some concluding points about the significance of this study for understanding development theory.

2. Analytical framework

A. Geographical indication, terroir, and development

A geographical indication (GI) identifies a good as originating in a particular territory where a given quality, reputation, or other characteristic of the good is essentially attributable to its geographical origin.[15] In the European *sui generis* notion of GI, this intellectual property right is grounded in the notion of *terroir*, which is defined as:

> (1) A delimited geographical space, (2) in which a human community, (3) constructs over the course of its history a collective production know-how, (4) based on a system of interactions between a physical and biological environment, and a set of human factors, (5) in which the socio-technical histories involved, (6) reveal an originality, (7) confer a typicality, (8) and engender a reputation, (9) for a good originating from this geographical space (Casabianca et al., 2006, p. 3).

This definition suggests that natural and human factors together determine distinctiveness, justify irreproducibility, and ensure that the benefits of protection are equitably and sustainably distributed (Bowen, 2010b; Demossier, 2018), yet for many years, popular understandings and academic research favored an 'environmental determinism' (Warf, 2006) perspective to emphasize how natural endowments make certain places suitable for certain products (Dickenson, 1990; Gade, 2004). This perspective provided political justification for GI protection because the physical environment quite literally cannot be displaced (Gangjee, 2012a;

15. This definition, drawn from the TRIPS agreement, is generally accepted as an umbrella term for origin labels used in the marketing of agricultural products, agro-foods, and artisanal products.

Nizam & Tatari, 2022). Yet more recently, proponents have stressed the application of human skill to transform the environment to suit production (Bérard & Marchenay, 2007). This emphasis on the creativity of human actors, rather than the creativity of nature, provides an intellectual property rationale for protecting cultural heritage, knowledge traditions, and reputation (Gangjee, 2012a; Ibele, 2009). These discursive and epistemic shifts illustrate that proponents of *terroir* may emphasize physical factors, human factors, or a holistic combination of both, as suits particular socio-political circumstances (Demossier, 2011, 2018; Fourcade, 2012; Gade, 2004; Gangjee, 2012b).

Given the collective (rather than individual) nature of GI as an intellectual property right, many studies have explored how protection facilitates and is facilitated by collective action among supply chain and regional actors. Using the GI supply chain[16] as analytical object, these studies have primarily explored the private governance of economic sectors and market segments to explain how GI schemes define and institutionalize product quality and localized identity (e.g., Bowen, 2010b; Mancini, 2013a, 2013b; Nizam, 2017). Ensuring collective benefits seems to require a strong collective organization with power to enforce specifications on supply chain actors (Mancini et al., 2019); to communicate the value of terroir to all stakeholders (including consumers) (Castelló, 2021); and to maintain good relations with public authorities (Mariani et al., 2022). Yet GI specification also presents competitive opportunities for dominant actors, in alignment with the state, to appropriate elements of collective cultural heritage and national

16. I generalize these studies under the rubric of supply chains, although it should be pointed out that different scholars have applied different analytical frameworks to the study of GI, and further, used GI to elucidate the benefits and limitations of different approaches. Examples of these approaches have included: global commodity chains (Bowen, 2010b; Bowen & Gaytán, 2012; Nizam, 2017); global value chains (Belletti et al., 2017; Ingram et al., 2020; Mancini, 2013a; Marescotti & Belletti, 2016); global production networks (Neilson et al., 2018); and localized agrofood systems (Fournier, 2008; Mancini, 2013b). For a review of some of the major approaches, see Bowen and Mutersbaugh (2014).

identity (Bowen, 2015; Bowen & Gaytán, 2012). Indeed, empirical studies have demonstrated that GI construction can favor capital over labor (Besky, 2013; Bowen, 2015) or facilitate the construction of harmonious, static 'social imaginaries' that reproduce and obscures inequalities within communities (Coombe et al., 2014b; Gaytán, 2018). These studies broadly point to the importance of collective action but suggest that GI producer organizations – especially in emerging commodity sectors in the global South – need state support and appropriate policy orientations to ensure GIs are participatory and equitably beneficial.

In this vein, a second set of studies, drawing mostly from legal studies and political economy, have addressed the role of the state in GI implementation, regulation, and policymaking. State policymakers increasingly view GI as a legal and discursive tool to support economic development, access global markets, and meet consumer demands for quality (Besky, 2013; Bowen, 2015). Much empirical research has shown that GI can be aligned with diverse policy orientations, whether agro-industrial modernization (Durand & Fournier, 2017; Oledinma & Roper, 2021) or the valorization of artisanal practices and localized heritage (Coombe et al., 2014b; Keahey, 2019). Absent legal and policy frameworks that valorize *terroir*, link GI to rural development, and empower collective producer organizations (Barjolle et al., 2017; Bowen, 2010a, 2010b; Mancini, 2013a; Nizam & Tatari, 2022), domestic and transnational corporations may expropriate reputations associated with 'traditional' producers while excluding the latter from the benefits of GI (Besky, 2013; Bowen, 2015; Bowen & Gaytán, 2012; Mancini, 2013b; Renard & Domínguez Arista, 2020). Empirical studies have shown that too little state involvement and variable support can limit GI development potential, sustainability, and market access (Chabrol et al., 2017; Ingram et al., 2020; Niederle et al., 2020; Wilkinson et al., 2017), as GI schemes require upfront investments beyond the reach of producer groups in order to reach

new markets and build reputation (Anders & Caswell, 2009; Bramley & Kirsten, 2007). Even so, policymakers often underestimate the lifetime costs of institutional investment, legal enforcement, and certification (Bramley & Kirsten, 2007; Kerr, 2006). Sustaining state investment in GI is challenging under the neoliberal political economy of austerity and state withdrawal (Bowen & Gaytán, 2012; Mancini, 2013b). However, a 'top-down' approach in which the state takes charge of most aspects of GI creation and management can disincentivize producer engagement, limit the representativeness and inclusivity of initiatives, and producer GIs that exist on paper only (Garcia et al., 2007; Marie-Vivien, 2020; Pick & Marie-Vivien, 2021). Thus, the question of *how* state policymakers view GI as a policy tool matters to the success of such schemes in terms of equitable and effective distribution of benefits.

B. The European Union's global GI agenda

Terroir and GI have expanded geographically to shape food policy in a wider scope of countries and at higher scales of governance, as France and other southern European countries have pushed for more recognition of GI rights through rural development policymaking in the European Union (EU) (Barham, 2003; Parrott et al., 2002), and trade negotiations internationally (Gangjee, 2012b). In order to strengthen recognition of its member states' GI rights, the EU has pursued negotiations in successive WTO rounds to install stronger global governance and create a mandatory registry of GIs (Barham & Sylvander, 2011), although these negotiations have stalled in recent years. Absent a strong global framework, European proponents have sought to enforce their rights in alternative multilateral forums, such as the World Intellectual Property Organization (WIPO), or pursued piecemeal protection through bilateral trade agreements with third countries (Curzi & Huysmans, 2022; Gervais, 2010; Huysmans, 2022; Leufkens, 2017). In

addition, the EU has promoted the adoption of its model (and mutual recognition of declared GIs) through technical assistance programs (Feuer, 2022; Morin, 2020; Morin & Cartwright, 2020). This direct technical assistance has been supplemented by the work of non-governmental organizations (NGOs), research centers, and universities, which have provided discursive and material support for the implementation of new GI systems or efforts to bring existing domestic schemes up to international standards (Biénabe & Marie-Vivien, 2017; Chabrol et al., 2017; Coombe, Ives, & Huizenga, 2014a; Gangjee, 2017; Wilkinson et al., 2017). Proponents of GI argue for numerous benefits for producers and states: price premiums over industrial or mass-market products; producer empowerment through collective action; preservation and transfer of traditional and locally rooted knowledge; biodiversity conservation; and regional economic diversification (Barjolle et al., 2017; Bérard & Marchenay, 2004; Bowen, 2010a; Chabrol et al., 2017; Tashiro et al., 2019; Teuber, 2010). In large part due to the discursive production of GI as 'development' and its enactment through technical assistance from public and private sector actors, this European model of food heritage valorization and protection has arguably become hegemonic globally, leaving little social or political space for the consideration of alternative and/or indigenous mechanisms (Feuer, 2022).

In response, this development agenda has been subject to critiques from scholars examining GIs inside and outside of Europe. First, many of the potential GI products under consideration in the global South are characterized by production systems (e.g., plantations) and trade patterns that replicate historical relations between Europe and its colonies (Besky, 2014; Feuer, 2022). Second, many of the organizations that promote GI are often either rooted in colonial histories of agricultural advising (e.g., CIRAD) or the post-colonial, U.S.-led multilateral development consensus (e.g., FAO) (Feuer, 2022; Ribi Forclaz, 2019). Third, in

many colonial and post-colonial contexts, the definition of the social and geographic boundaries of *terroir* can reproduce exclusion based on racial, ethnic, and/or political categories (Keahey, 2019; Monterescu, 2017; Monterescu & Handel, 2020). Fourth, in localities less privileged with historical reputation, access to global markets can be mediated by professionals who discern *terroir* through command of sensory expertise and standardized assessments (Jung, 2014). Fifth, GI systems are susceptible to capture by transnational corporations in alignment with neoliberal states, leading to the potential expropriation of knowledge, reputation, and heritage (Bonanno, 2020; Bowen & Gaytán, 2012; Gaytán, 2018). In light of these critiques of the potential of GI development to reproduce colonial and neoliberal dynamics that threaten to undermine their valorization of local identity, collective empowerment, and alternative food system governance, more analysis is needed to explain the processes and discourses through which GI policy is made socially acceptable (Bowen, 2010a) and even 'hegemonic' (Feuer, 2022) for developing states and producers.

C. Development ideology and knowledge production

While political economists of development have posited a global division of labor as the material basis for inequality between nation-states (T. K. Hopkins & Wallerstein, 1977; McMichael, 2008), scholars working within and against this tradition have pointed to the ideological foundations that justify and perpetuate inequality (Bunker & Ciccantell, 2005; Goldman, 2005). In this framework, nation-states of the global South are induced to participate in the world system not just through the material power of hegemonic states and international institutions, but also through the production and dissemination of knowledge (Babb & Kentikelenis, 2021; Goldman, 2005). The political possibilities of development are defined

through rhetorical and epistemological boundary-work (Gieryn, 1983), in which development practitioners casts themselves as disinterested, apolitical experts who produce rational, technical, and universal knowledge (Escobar, 2012 [1995]; Ferguson, 1990; Santos, 2014). Through the generation of ontological categories (e.g., Least Developed Countries) and socioeconomic indicators (e.g., corruption, per capita income) in development practice and discourse, hegemonic powers represent spatial and material inequality as a temporal stage along the trajectory towards modernity (Escobar, 2012 [1995]; Ferguson, 2006), rather than as continuities with the colonial era (Gupta, 2000). Likewise, underdevelopment or the lack of development are attributed to individualized deficiencies in the states or communities intervened upon rather than structural features of global capitalism, in order to facilitate further accumulation by elites (Ferguson, 1990; Goldman, 2005; Li, 2006).

States as well are defined in relation to what they can provide to global capital, as Goldman (2005) argues through the conceptual framework of 'environmental states,' defined as those that exist in order to categorize public natural resources as undervalued commodities and to manage their extraction to facilitate capital accumulation. In particular, narratives of 'natural resource' wealth are constructed and employed to convince peripheral nation-states that participation in the global trade in primary commodities will produce prosperity and development (Bunker & Ciccantell, 2005). Through the production and deployment of knowledge, 'nature' is constructed as a category for understanding and explaining the relative positions and roles of core and peripheral nations in the world system (Bunker & Ciccantell, 2005; Coronil, 1997). Concepts such as 'comparative advantage' (Bunker & Ciccantell, 2005) and 'underutilized resources' (Goldman, 2005) constitute aspects of this hegemonic ideology that, while contested, serves the productive needs of the Western core, perpetuates unequal

exchange, and produces underdevelopment in the periphery (Bunker, 1984; Bunker & Ciccantell, 2005; Edwards, 2017; T. Hopkins et al., 1987). Scholars have recognized the exogenous and endogenous sources of these narratives, whether reproduced through development discourse and direct aid (Bunker & Ciccantell, 2005; Goldman, 2005), or through national origin myths and the construction of national identity (Coronil, 1997; Karl, 1997).

Other scholars, working within the framework of 'technopolitics' (Mitchell, 2002) or 'co-production' (Jasanoff, 2004), have addressed politics and expertise as mutually constituted within efforts directed towards, and broadly framed as, 'development' (Sneddon, 2012). Arguably a precursor to this approach, James Scott (1998) argued for seeing state authority as enacted through the application (and misapplication) of science and technology in pursuit of developmentalist ideologies, yet his framework for explaining failed state schemes divides social from material causes. In contrast, 'technopolitics' analytically highlights how political actors must contend with the materiality of science and technology – the weight of water behind a dam, the pliability of nuclear reactor control rods, the mutation rate of agricultural pests – as they conceive and pursue their objectives (Hecht, 2009, p. 15; Wengle, 2022). In the seminal work on the topic of science, technology, and state-directed economic development, Timothy Mitchell (2002) argues that science and technology should not be conceived of as inputs to the enactment of state power, but as equally produced through and transformed by the socio-politics of development. Equally critical to such analysis is attention to the efforts by diverse actors to link the material, the discursive, and the social in networks, in order to construct social and political divisions that legitimize development (Mitchell, 2002). As an analytical framework, technopolitics reveals how scientific and technical expertise support the ideological justification of 'development' in discourse and practice, even for interventions that are ultimately never

carried out (Sneddon, 2012). In this way, it is productive to think of development as a 'technopolitical regime': a network of actors, materials, facts and artifacts, political goals, and ideologies that are produced through, and enact together, social and technoscientific transformations (Hecht, 2009, p. 16; Wengle, 2022). Others have applied a technopolitical framework to explain the mutual constitution of technoscientific expertise, unequal power relations, and the ideologies of settler colonialism, imperialism, or capitalist expansion (Alatout, 2008, 2009; Braverman, 2023; Pritchard, 2012; Sneddon, 2012; Yacobi et al., 2020). Yet a persistent shortcoming in this body of work is that scholars typically address the development of large-scale infrastructure projects, such as water management systems (Christian Wells et al., 2019; Larner & Laurie, 2010; Pritchard, 2012; Sneddon, 2012; Sneddon & Fox, 2011), transportation (Gopakumar, 2020; Lesutis, 2022), and telecommunications (Larner & Laurie, 2010). This scholarship could be extended through exploration of the technopolitical entanglement of quotidian, perishable, and mobile objects in development.

3. Case context: development ideology and free trade in Ecuador

A. Correanismo (2006-2017) and the development ideology of Buen Vivir

Ecuador was at the forefront of Latin America's 'left turn' or 'pink tide' in the early 2000s (Castañeda, 2006; Riofrancos, 2020) – a sharp populist rebuke to more than two decades of neoliberal development policies under the 'Washington Consensus' (Escobar, 2010; Roberts, 2006, 2007).[17] Neoliberal governments were swept from office across the region and new political coalitions were empowered to implement economic and political reforms (Silva,

17. The package of policies that had been adopted by Latin American governments became the basis for the formation of the Consensus (Escobar, 2010; Williamson, 2002).

2009),[18] with particular emphasis on a strong central state to guide economic development towards social welfare ends (Leiva, 2008).[19] In Ecuador, much of the impetus for political change came from indigenous movements that challenged existing models of social organizations premised on the achievement of Western-style 'modernity' (M. Becker, 2011; Silva, 2009). Indigenous groups were joined in mobilization by rural peasants, environmental groups, urban laborers, the unemployed, pensioners, trade unions, and neighborhood associations, who sought to undo neoliberal policies such as social security privatization, free trade deals, and the dollarization of the economy (Giunta, 2014; Silva, 2009). Into this populist opportunity structure stepped Rafael Correa, a Western-trained economist and political novice who rode the wave of popular mobilization to the presidency in 2006, based on the strength of his political movement, *Alianza País*, and the promise of a 'citizens' revolution' to implement anti-neoliberal political and economic reforms (Clark, 2016; Escobar, 2010).[20] Soon after Correa's election, the electorate overwhelming approved a proposal to rewrite Ecuador's constitution; the *Alianza País* won nearly three-quarters of the seats on the Constitutional Assembly, empowering Correa to implement his political project (M. Becker, 2011; Escobar, 2010).

18. Among the countries that elected leftist or left-leaning governments during this period are Venezuela (1998), Brazil (2002), Argentina (2003), Uruguay (2004), Bolivia (2005), Chile (2006), Nicaragua (2006), Ecuador (2006), and Paraguay (2009) (Coronil, 2011).

19. Much of this social spending was made possible by a decade-long period of high global prices for commodities such as oil, minerals, and primary agricultural products (Svampa, 2019).

20. At the beginning, *Alianza País* was not a political party, but a coalition of technocrats, academics, and civil society and social movement actors (M. Becker, 2011).

The guiding principle of Ecuador's 2008 Constitution was the indigenous concept of *sumak kawsay*[21] ("living well" or "the good life") (M. Becker, 2011). As a political discourse, *sumak kawsay* emphasized harmonious (rather than exploitative) socio-natural relations,[22] including recognition of the plurinational and intercultural character of the state (M. Becker, 2011; Ramírez-Cendrero, García, & Santillán, 2017).[23] The discourse was enshrined in the Constitution's recognition of indigenous sovereignty, collective well-being, democratic political empowerment, and cultural survival.[24] Under the Constitution, the state would have a duty to ensure 'the good life' for all members of the polity.[25] This would be achieved in part through conservation of, and collectively controlled access to, features defined as being part of Ecuador's 'national patrimony' – a concept which encompassed soil, water, and air; subsoil mineral and petroleum resources; and natural heritage sites such as the Galápagos Islands and Yasuní National Park. Likewise, the Constitution addressed the role of knowledge in the 'good life,' including the preservation of cultural heritage and ancestral knowledge, and the development of a national system to produce new scientific knowledge and use technological innovations to

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21. While often cited as deeply rooted in indigenous cosmovisions, the term is not recorded in either Kichwa/Quechua or Aymara before 2000, and likely emerged as a discourse of indigenous political activism (Riofrancos, 2020; Svampa, 2019).

22. It is regarded as the first Constitution in the world to recognize the rights of nature (Kauffman & Martin, 2017).

23. Ecuador's 1998 constitution had adopted language defining the state as 'pluricultural and multiethnic,' but not 'plurinational' (M. Becker, 2011).

24. Despite centering indigenous political discourse and emerging from an indigenous-led social movement, the proposed Constitution was disappointing to indigenous activists in many respects (M. Becker, 2011; Martínez Novo, 2021). Crucially, the final draft did not include provisions to put indigenous languages and language education on equal footing with Spanish, now did it make prior consent a binding requirement for mineral extraction projects. Nevertheless, indigenous leaders ultimately encouraged their members to consider the text a step in the right direction and to vote in favor of the Constitution (M. Becker, 2011; Martínez Novo, 2021).

25. The Constitution also gave the president enormous power to shape Ecuador's economy and pursue state-driven nationalist economic development (Escobar, 2010; Silva, 2009).

enhance productivity and quality of life. To implement the principles of the constitution, Correa's government instituted a development model called *Buen Vivir* (the Spanish translation of *sumak kawsay*), which was framed as an explicit rejection of the values of Western capitalist modernity, in particular the pursuit of economic growth as the ultimate aim of development (Chassagne, 2019; Escobar, 2010). Correa, inspired by the example of East Asian 'developmental states' (P. Evans, 1995), advocated for a program called the Transformation of the Productive Matrix, which would use natural resource income over the short-term to fund a transition to a 'knowledge economy' in the long-term (Chassagne, 2019; Purcell, Fernandez, & Martinez, 2017).[26] During this time, Correa's regime also pursued selective import substitution and sought to reorient Ecuador's foreign policy away from the U.S., instead strengthening relations with its Latin American neighbors and with China (Martínez Novo, 2021).

Despite the rhetorical commitments of the 2008 constitution to move 'beyond development,' the economic policies implemented under Correa's presidency were undergirded by mainstream development ideas, especially the notion that social and productive progress could only occur once economic growth and modernization generated the revenue to fund them (Bebbington, Bebbington Humphreys, Hinojosa, Burneo, & Bury, 2013; Escobar, 2010). Indeed, Correa's 2007 national development plan had emphasized using oil revenue from the commodity boom to finance development projects such as infrastructure, universal healthcare and education, and industrializing industries (Martínez Novo, 2021; Silva, 2009),[27] which would overcome

26. In a play on the 'East Asian Tigers, Correa even promoted the notion of Ecuador as a 'Latin American Jaguar' (Purcell et al., 2017).

27. While in prior periods, Ecuador's mineral and petroleum wealth had been captured and exported by multinational corporations, now the state would exert greater control over natural resource wealth and funnel it towards national development goals. Hence, this model has been term 'neo-extractive' to emphasize a break with prior periods of resource extraction (Chassagne, 2019; Gudynas, 2009).

Ecuador's historical dependence on natural resources extraction for government revenues and foreign exchange, its low resource productivity, and its high rate of labor informality (Purcell et al., 2017). During Correa's regime, extraction revenues funded programs that reduced poverty rates and improved social indicators, yet this largely came at the expense of economic diversification, structural transformation, indigenous rights, and environmental protection (Martínez Novo, 2021; Riofrancos, 2020).[28] Further, the dependence on oil revenue left Ecuador vulnerable when world commodity prices began to fall around 2014. For a time, the state made up shortfalls by turning to China for loans and direct investment, but by 2016 the country was plunging into economic crisis, leading to rounds of public layoffs, privatization of state-owned enterprises, and partial return to neoliberal orthodoxy, shattering the regime's political legitimacy (Martínez Novo, 2021; Riofrancos, 2020). In Ecuador's 2017 elections, Correa's hand-picked successor and former vice president, Lenín Moreno, emerged victorious primarily by repudiating of his predecessor's policies.[29] For all the ambitious political rhetoric, a decade of *Correanismo* and *Buen Vivir* largely left in place the political, economic, and social structures that have defined Ecuador for five centuries.

28. Like other resource-dependent states (Coronil, 1997), Ecuador's reliance on oil wealth rewarded investment in exploration and discovery of natural sources, not in the development of labor productivity, which limited industrialization, distorted the economy towards commerce, services, and real estate, and made its exports less competitive.

29. For instance, in 2019, Moreno reached an agreement with the International Monetary Fund for debt relief in exchange for a new round of austerity measures, including cuts to fuel subsidies (Riofrancos, 2020).

B. Ecuador's entry into a free trade agreement with the European Union

Dynamics of unequal exchange can be seen in the saga of Ecuador's accession to a Free Trade Agreement with the EU. In 2007, the Andean Community of Nations (AC)[30] and the EU began negotiations for what was to be a region-to-region Association Agreement concerning political dialogue, cooperation, and trade (Norman-López, Basta, Perez Gibaja, & Antimiani, 2016).[31] However, Rafael Correa had recently come to power in Ecuador on a wave of anti-neoliberal sentiment. In trade policy, his government staked out opposition to free trade agreements in favor of the *Buen Vivir* developmental state approach (Preusser, 2024). Likewise, in foreign policy, Ecuador sought to bolster regional alliances with other anti-neoliberal governments rather than with Western powers (Schade, 2016). By 2009, Ecuador (and Bolivia) had left the negotiating table, though talks among the remaining parties continued for what was now to be a Multi-Party Free Trade Agreement between the EU, Peru, and Colombia (Norman-López et al., 2016). Negotiations concluded to following year and the agreement came into effect in 2013.

That same year, however, Ecuador expressed interest in rejoining the agreement. Negotiations to this effect began early in 2014 and concluded six months later with Ecuador's accession. This radical policy swing can be explained by Ecuador's shifting economic fortunes in the intervening years. First, the government previously had seen little benefit in joining a free trade agreement as long as it enjoyed preferential tariff rates through the EU's Generalized Scheme of Preferences (GSP+) (Schade, 2016). However, Ecuador's 2011 reclassification as a High Middle-Income Country by the World Bank meant that it would graduate into higher tariff

30. Comprising Ecuador, Colombia, Peru, and Bolivia.

31. In 2004, at a summit in Guadalajara, the parties had committed to begin assessing the possibilities for such an agreement.

rates (Schade, 2016), which the European Commission estimated would cost Ecuador more than € 200 million per year (European Commission, 2016; Norman-López et al., 2016). Second, Ecuador's exports to the EU would be less competitive than those of its neighbors Colombia and Peru, which participate in similar export sectors (produce, cut flowers, seafood) but would benefit from lower tariffs under the Free Trade Agreement (Preusser, 2024; Schade, 2016). Third, the government's export-driven revenues were already threatened by the fall of world commodity prices beginning in 2012 (Preusser, 2024). These factors – and the domestic influence of economic elites (Preusser, 2024) – put both coercive and competitive pressure on the government to reconsider its anti-neoliberal trade policy.

After Ecuador's accession, the European Commission touted the agreement as a 'win-win' that would be asymmetrically beneficial to Ecuador as a developing economy (European Commission, 2016; Norman-López et al., 2016). Yet even documents produced by the EU lay out the dynamics of unequal exchange that characterize this relationship, highlighting how Ecuadorian producers stand to benefit from market access for low-value-added goods such as seafood, bananas, cut flowers, cocoa, coffee, fruits, and nuts; while the benefits to the EU are in shoring up Ecuador as a market for cars, machinery, processed agrofood products (e.g., cheese), wine, beer, and spirits (European Commission, 2016; Norman-López et al., 2016).[32] Certainly, reduced tariffs under the Free Trade Agreement benefit key export sectors such as bananas, which comprise nearly one-third of Ecuador's exports to the EU (Norman-López et al., 2016). Further, while the EU almost fully liberalized its trade relations with Ecuador immediately, Ecuador would enjoy gradual liberalization for many key product sectors (European

32. A post-trade-deal analysis by the U.S Department of Agriculture shows that the EU's agricultural exports to Ecuador increased by one-fifth as a result of the agreement (FAS, 2018).

Commission, 2016). Yet the overall picture is clouded. Ecuador came into negotiations from a weakened position, with the EU largely able to dictate the terms of Ecuador's accession because of its market power (Schade, 2016). Further, Ecuador's flexibility was limited due to an accession clause stipulating that negotiations must be done on the terms of the already concluded agreement with Colombia and Peru (Olivet & Novo, 2011).[33] The EU has benefitted from relatively larger tariff cuts from Ecuador (since Ecuador's initial tariff rates were higher) (Olivet & Novo, 2011), and enjoys built-in advantages in sectors such as spirits, dairy, and automotives (European Commission, 2016; FAS, 2018).

4. Case context: GI laws, regulation, and technical assistance in Ecuador

A. Legal frameworks for GI relevant to Ecuador

Ecuador's national legal framework for GI is nested within international agreements, mostly notable the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS, 1994) and AC Decision 486 (2000). First, as a member of the World Trade Organization (WTO) since 1996, Ecuador must adhere to global baseline standard of protection set out in TRIPS. As defined in Articles 22-24 of TRIPS, GIs are "indications which identify a good as originating in the territory of a [WTO] 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." Notably, under TRIPS, producers who consider that their rights to have been infringed must positively demonstrate consumer harm; an exception is made for wines and spirits, which are protected regardless of consumer harm.

33. Even so, binding clauses in Ecuador's 2008 Constitution did force the EU to make some concessions in areas such as seed patents, public procurement, and food sovereignty (Preusser, 2024).

Second, as part of the AC, Ecuador is bound by Decision 486, which established a common intellectual property regime for the bloc. The definition included in Decision 486 is distinct from TRIPS in its application of the logic of *terroir*, resulting in three important language changes: (1) protection is afforded to *denominaciones de origen*, which is a translation of the term *appellations d'origine* from French; (2) the link to origin is considered to be *essential* or *exclusive*; (3) the basis for distinction draws on natural and human factors. These three factors more closely align this conception of GI with the *sui generis* model favored by the EU, rather than the trademark model favored by the U.S. However, unlike European legal regimes, Decision 486 also established a limited 10-year term for GI declarations, after which they would have to be renewed.

At the national level, it is important to note that Ecuador has established GI under two different legal codes. From 2006 to 2016, the relevant legislation was the Law of Intellectual Property, under which Ecuador declared as GIs Cacao Arriba (2008), Sombrero de Montecristi (2009), Café de Galápagos (2015), and Maní de Transkutukú (2016). In 2016, however, Ecuador adopted the Organic Code of the Social Economy of Knowledge, Creativity, and Innovation, under which Ecuador declared as GIs Pitahaya de Palora (2018), Café Lojano (2019), and Miske (2022). Both codes draw extensively on Decision 486, but with important changes that have impacted how GIs are regulated. First, the 2006 law considered a more active state role, including *ex oficio* declaration and direct management by a government agency. In the revised law, GIs are to be privately managed by natural or juridical persons. Second, the earlier law regarded GI claims as superseding all commercial marks and brands referencing geographical

origin, even those made in good faith. In the revised law, such marks are not automatically superseded by GI claims.[34]

Finally, it is important to note as well the role of the Multi-Party Free Trade Agreement between the EU, Peru, Colombia, and Ecuador, which, while not resulting in changes to Ecuador's GI laws, has reshaped regulations. The agreement includes clauses regarding the restructuring of labeling norms, which will require Ecuadorian authorities to ensure domestic producers do not violate the rights accorded to some 117 European GIs (European Commission, 2016; FAS, 2018), including many product names that have been used as generic terms in Ecuador for decades, such as Scotch Whisky, Parmigiano Reggiano, and Mortadella Bologna. In exchange, the EU recognized the two Ecuadorian GIs in existence at the time of accession (Cacao Arriba and Sombrero de Montecristi), but notably these products are not granted automatic inclusion in the EU's registry. It is important to note, as well, that the agreement does not specify how each party must recognize and regulate GIs, only that they must be registered by the state before other parties must respect their use.

B. Ecuadorian institutions involved in GI

Prior to 2019, the only Ecuadorian state institution with a legal mandate relating to GI was the National Intellectual Rights Service (SENADI).[35] As the national body charged with regulation of intellectual property rights, including brands and commercial marks, SENADI has

34. As an example of this distinction, when Café de Galápagos was declared in 2015 under older law, several coffee exporters had their nationally registered brand names nullified. However, when a producer organization tried to register Café de Loja as a GI in 2019, under the revised law, the petition had to be revised to the designation Café Lojano de Origen because a coffee company had a registered commercial mark using the proposed name.

35. Prior to 2018, SENADI was called the Ecuadorian Institute of Intellectual Property (IEPI), although for clarity I will refer to the institution as SENADI regardless of the timeframe under discussion.

legal authority over determining GI regulations, processing applications for recognition, evaluating documentation to declare GIs, authorizing qualified users, and managing reciprocal recognition of third-country GIs. Additionally, SENADI has legal authority to inspect certified GI users for compliance, yet as a practical matter it lacks the human and financial resources necessary to carry out this responsibility. The institution is poorly funded, and among its staff of 160 technicians and administrators, only 2 are involved in GI. For this reason, implementation of GI before 2019 involved ad hoc coordination between SENADI and other institutions.

In particular, starting in 2017, SENADI came to rely on the Ministry of Agriculture (MAG) to fulfill many of its functions regarding GI, and even granted MAG some of its authority through inter-ministerial agreements. As MAG had more personnel around the country who worked closely on a daily basis with producers, it was reasoned to be better positioned to provide technical assistance and training, create producer associations to oversee GIs, collect data on production conditions and methods to create feasibility studies and production specifications, and inspect producers post-declaration to monitor compliance.[36]

This ad hoc system was given legal force by 2019 by presidential decree, which established what was called the Inter-Institutional System for the Development and Protection of National Denominations of Origin and Geographical Indications. The goal of this system has been to formalize what had been a rather informal coordination of institutional activities, in order to extend GI protection, identify potential products, evaluate the impacts of GI policy, and monitor the traceability of protected products. In addition to granting MAG official purview over the functions it had been executing on SENADI's behalf, the decree integrated two other

36. In some cases, such as for Café de Galápagos, MAG has even served as a communication channel through which producers petition SENADI for authorization to use GI.

institutions that were seen as having a stake in GI.[37] Among these was the Ministry of Production, Foreign Trade, Investment, and Fisheries (MIPRO),[38] which in addition to its mandate to promote and facilitate the export of GI products, was granted leadership of the Inter-Institutional System. The other was the National Secretary of Higher Education, Science, Technology, and Innovation, which has a minor role in the administration of GI but was included because of its purview over the development of knowledge resources and human capital.[39]

C. French technical assistance to Ecuador concerning GI

Another crucial actor in Ecuador's GI implementation was the INAO. INAO's first consultation mission in Ecuador occurred in early 2015 and had two specific objectives. First, working with MAG technicians, the consultant visited the Galápagos Islands to assess MAG's work preparing a feasibility study for the declaration of the Café de Galápagos GI. Among other activities, the consultant organized a two-day tasting program to produce a characterization of the coffee's *terroir*. Second, in meetings with policymakers from MAG and SENADI, the consultant laid the groundwork to establish a permanent technical assistance program to support GI implementation in Ecuador. This proposed program would include legal and juridical guidance for SENADI on how to carry out its regulatory mission; training for technicians on how to implement indications, including specific training focused on sensory analysis as a component

37. While these are defined as the primary governance institutions for GI in Ecuador, the decree leaves open the possibility that other institutions will be involved depending on the nature of a GI product. For instance, products that may not be successfully exported but may be valuable for tourism promotion would necessitate the involvement of the Ministry of Tourism.

38. This institution used to be called the Ministry of Production before administrative reorganization granted it several other functions. For brevity, I will refer to it by its original acronym.

39. Formally, its mandate is to incentivize and develop programs and projects that focus on the creation and transmission of science, technology, and innovation.

of product characterization; and research trips to France to observe producer cooperatives and the administrative work of the INAO. In mid-2015, the INAO and Ecuador's MAG signed a memorandum of understanding to this effect.[40] Under the aegis of this memorandum, INAO's consultant made five more visits to Ecuador between 2015 and 2019, before the Covid-19 pandemic foreclosed further travel (see Table 1 for a timeline).

Table 1. Timeline of INAO activities in Ecuador. Source: The author.

2015 (Jan.)	First INAO mission: implementation of Café de Galápagos GI
2015 (July)	INAO and MAG sign memorandum of understanding for technical exchange concerning geographical indication
2016 (Apr.-May)	Second INAO mission: revision of Cacao Arriba GI; sensory analysis of potential Café de Pichincha GI; technical assessment of potential Pitahaya de Palora GI; follow-up with Café de Galápagos producers; training of MAG technicians
2017 (May)	Third INAO mission: analysis of potential of Café de Loja GI; sensory analysis for Pitahaya de Palora GI; presentations to policymakers about French GI system
2017 (Oct.-Nov.)	Fourth INAO mission: sensory analysis for Café de Loja GI; technical assessment of potential Quinoa de Chimborazo GI; high-level ministerial meetings; meetings on Galápagos with coffee regulatory council
2019 (Feb.)	Ecuador forms Inter-Ministerial Commission for the Promotion and Protection of Denominations of Origin and Geographical Indications of Ecuador
2019 (Mar.)	Ecuador holds national seminar on management of GIs under the Lisbon System, organized by SENADI and WIPO
2019 (July)	EU International Technical Assistance (ATI) grant awarded to support development of Manabí cocoa GI as part of post-earthquake recovery
2019 (Sept.)	Fifth INAO mission, under aegis of ATI grant: field visits to Calceta region of Manabí affected by earthquake to assess cocoa GI; meetings in Loja concerning coffee GI implementation; ministerial meetings in Quito; sensory analysis of potential Andean Avocado GI

40. At the same time, the French and Ecuadorian agricultural ministries signed another memorandum of understanding for technical cooperation on agriculture and forestry. In addition to supporting a variety of quality food signs, this program included topics such as animal health, post-harvest management, agro-industry, family farming, agroecology, and climate change.

The memorandum was formulated as a 'knowledge exchange,' although in effect it was one-sided, as Ecuadorian actors had scant knowledge of GI that would be useful for France. Further, France's technical assistance required little in the way of material costs for Ecuador, as each party to the agreement agreed to cover the overseas travel expenses of its own technicians. However, there were political costs, because one condition of French technical assistance would be Ecuador's vote in support of the European position on GI expansion in any future WTO negotiations.[41] The INAO is open about offering technical assistance as a tactic to garner global political support for GI, and especially, to maintain France's economically dominant position as the premier producer of *terroir* goods. As one official stressed in the French media, countries receiving assistance "more easily become [France's] allies when it comes to defending [GI] within the framework of international trade treaties" (Kindermans, 2015). Neutralized as 'knowledge exchange,' INAO's technical assistance supported an explicitly political agenda: to replicate France's *sui generis* legal model for GI in the global South and get buy-in to its agricultural trade agenda.

5. Findings: terroir technopolitics in Ecuador's GI implementation

A. Introduction

Geographical indications were a key feature of Ecuador's re-evaluation of its agro-export potential during the Correa administration and after. Agricultural policymaking at this time emphasized Ecuador's troubling outlook in terms of competitive advantage for agrofood commodity exports. The structural conditions that hampered competitive advantage – a dollarized economy, small production base, and (in some regions) unfavorable geography – were

41. This agreement was negotiated by the French Ambassador to Ecuador, who met with high-level Ecuadorian policymakers as a proxy for the INAO.

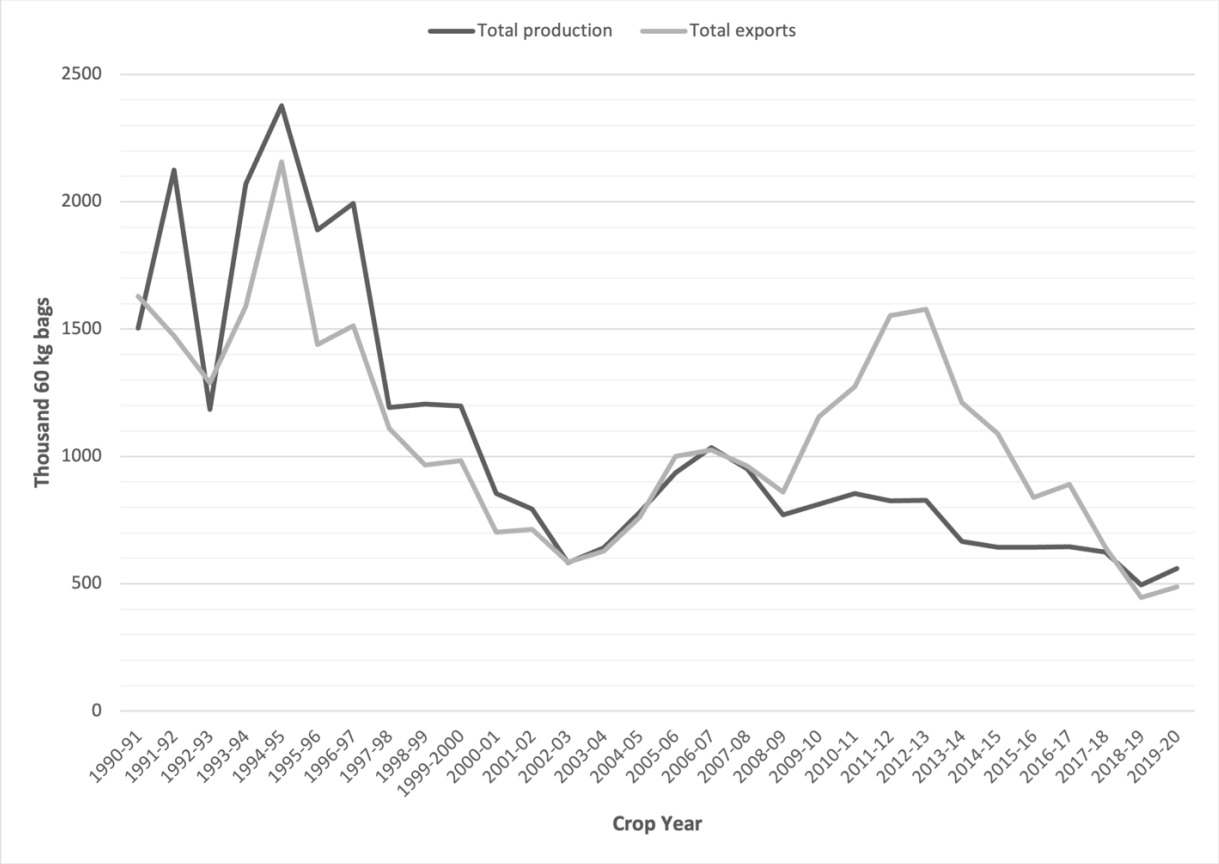
seen as largely insurmountable. As such, agricultural policy discourse emphasized specialty niche markets as an avenue where Ecuador could rediscover competitive advantage. In this same policymaking space, the administration celebrated the idea of Ecuador as a country naturally blessed with biological and cultural diversity – a 'mega-diverse' country – which, coupled with the emphasize on niche agrofood markets, made geographical indication an attractive strategy for highlighting small-scale, local, and distinctive food and beverages. Through the technopolitical production of *terroir* evidence, as well, Ecuador's national identity as a country of diversity was reaffirmed, and its claims to geographically specific food character were made credible and legible for European regulators and, ultimately, consumers.

B. Constructing Ecuador's competitive advantage in GI

Throughout the period during which the government was implementing geographical indications and receiving technical assistance, it was also, in public discourse and policy documents, positioning these efforts within a broader rhetorical shift to *distinction* as a competitive orientation. Like many other countries in the region, Ecuador is a primary commodity exporter. As part of the *Buen Vivir* development model, however, this traditional export orientation was criticized for producing a situation of declining terms of trade, vulnerability to swings in world commodity prices, and import dependency in staple goods (MAG, 2016a; Quevado Ramírez, 2013). For the agriculture sector in particular, the Correa administration criticized past neoliberal policy models that had favored large landholders and agro-industry, leaving small and medium producers behind in terms of modernization and capitalization (MAG, 2016a; Quevado Ramírez, 2013). As such, the government's development plans emphasized a 'transformation' away from commodity commercialization and towards value-added activities (Clark, 2017). Yet the administration also relied on these key export

sectors for revenue to fund its 'transformation of the productive matrix,' making addressing declining agro-export competitiveness a key policy focus. The situation of coffee production illustrates these trends. Ecuador had been the 9th-largest exporter in the world as recently as 1995, but since that peak, its production and export volume have trended downward (see Figure 1), falling to around 500,000 *quintales* (60 kg bags) in the most recent crop year (International Coffee Organization, 2020). Much of this trend can be attributed to the global deregulation of coffee markets following the collapse of the International Coffee Agreement (Talbot, 2004).

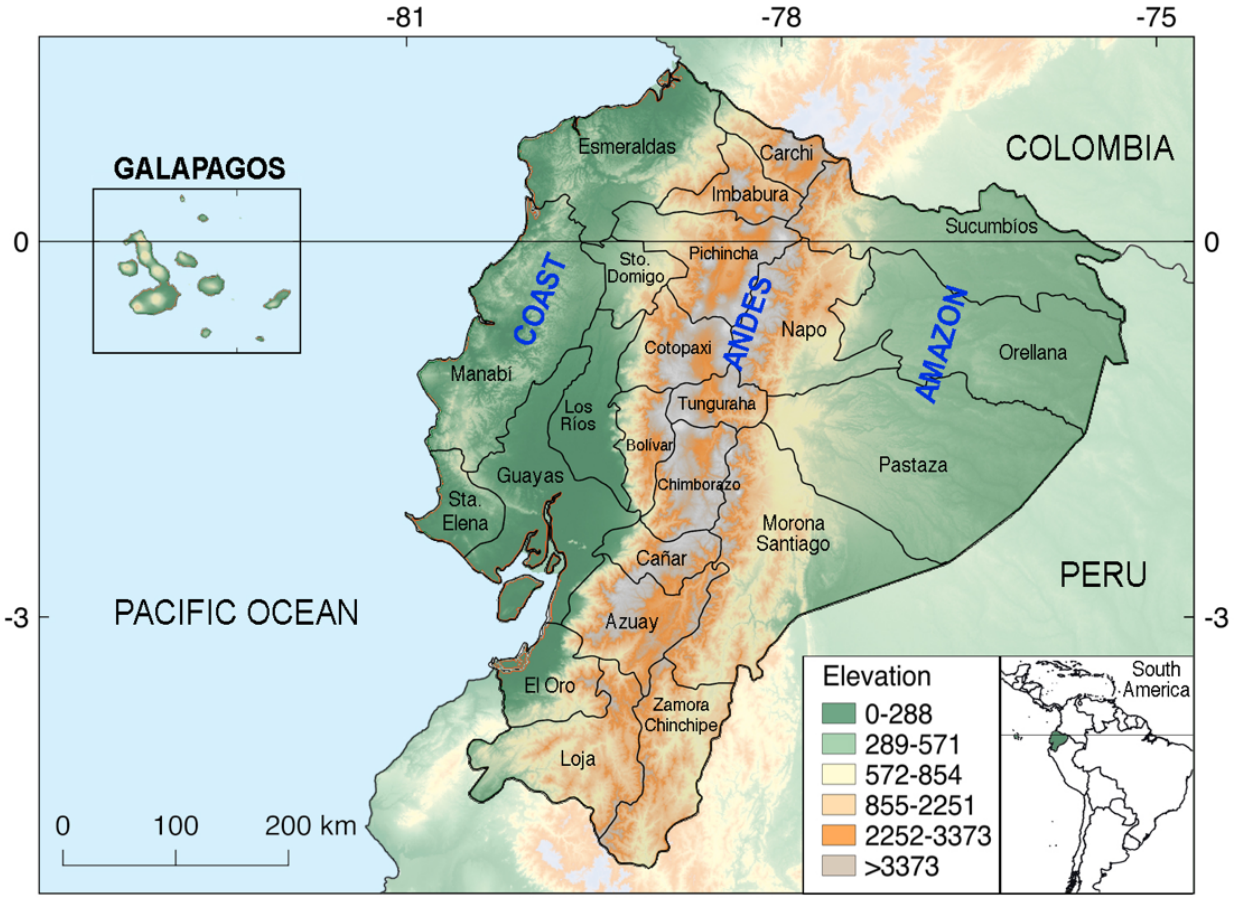
Figure 1. Ecuador coffee production and exports, 1990-2020. Source: International Coffee Organization (2020).



Regional competition has also played a significant role, as many of Ecuador's closest neighbors (Peru, Colombia, Brazil) are also direct competitors in the same agro-export sectors. This trend towards increased competition and falling prices has been ascribed even to non-traditional exports where Ecuador has been an innovator, such as yellow dragon fruit. As one provincial agricultural technician related: "Recently the country's [yellow] dragon fruit has become a superstar product that is commercialized globally. But the problem with this growth is that not only Ecuador cultivates dragon fruit. Colombia does. Peru does. Guatemala does…. So this has meant that during the production period, the prices drop." While giving Ecuador credit for popularizing the yellow dragon fruit variety, this respondent also reflects concerns that the success of new export commodities will only engender increased competition and a 'race to the bottom' in terms of price. At the same time, respondents framed this competitive atmosphere as structurally disadvantageous to the country. Ecuador's regional competitors benefit from larger populations and the ability to use currency devaluation to control labor costs and boost export competitiveness, which Ecuador cannot do as a dollarized economy (Purcell et al., 2017). In an interview, an undersecretary of agriculture summed up Ecuador's situation: "We see that the issue of commodity exports is no longer profitable for Ecuador. It has happened with many products that have been left behind. Coffee, I believe, is an example. Coffee production has fallen severely in the last few years, and only specialty coffees are left." What this policymaker suggests is that many producers who have tried to compete in commodity commercialization streams have dropped out, leaving behind only those who have sought niche markets. In this framing, because its neighbors can draw on their larger production bases to dominate commodity sectors, Ecuador would be better off reorienting its agricultural policies towards markets where quality, not volume, are prized. One provincial official who worked closely with coffee growers

expressed this viewpoint with a comparison between Ecuador and Brazil: “Brazil is the world’s largest producer of coffee, but in volume. So we don’t want volume. We want quality.” This suggests how the administration envisioned building on Ecuador’s commodity production base, not moving away from products which have historical roots in the country, but rather reorienting policies towards the capture of added value through innovations in production, processing, and marketing (MAG, 2016a). In such specialty niches, Ecuador’s higher export costs would in theory not put it at a competitive disadvantage. Despite the administration’s rhetorical rejection of ‘development as normal,’ in agricultural policy, it largely continued to hew towards economic orthodoxies of pursuing competitive advantage.

Figure 2. A map of Ecuador showing elevation, provinces, and the three geographical regions of the country (in blue text), as defined by similar climate, topography, and ecology. Source: (Calvopiña et al., 2022).



While political economic structures challenged Ecuador's competitive position, much of the policy framing suggested that it was 'nature' and geography, not politics or economics, that limited the country's potential for large-scale, high-volume, industrialized agriculture. Ecuador's geography consists of three zones running parallel from North to South (see Figure 2): (1) *La Costa* (coast), a broad, flat coastal zone where plantation production and export agriculture (of cocoa and later, bananas) has been the norm since the 19th century (Clark, 2017); (2) *La Sierra* (Andes), the central Andean cordillera that is the source of many staple goods for the domestic market (corn, potatoes, dairy); (3) *El Oriente* (Amazon), the sparsely populated, flat Amazonian region, where swidden agriculture is widely practiced. In policy documents and interviews, policy actors expressed an environmental deterministic (Warf, 2006) view of Ecuador's potential for export agriculture. One agricultural consultant working for the MAG described the challenges of trying to build a highland avocado sector: "The Andean area has very uneven terrains, with very little possibility of mechanization. They are small farms. The biggest might reach 30 or 40 hectares, but in Peru, they are thousands of hectares! Everything flat in the desert, with irrigation, almost everything mechanized." In this framing, the uneven topography of the *Sierra* necessitates farming on small scales, which limits the ability of farmers to mechanize, reduce labor costs, and achieve economies of scale. This framing was present in official policy as well, such as a 2020 territorial analysis produced by MAG, which offers this summary of Ecuador's dilemma: "Due to the *natural conditions* of the country, large-scale production is not so easy to achieve, for which reason the development opportunities of the [agricultural] sector depend largely on the capacity for added value and to appeal to differentiation of what is offered" (MAG, 2020, p. 136). In this rhetoric, the natural geography of Ecuador was constructed as an

impediment to competitiveness from economies of scale, especially for rural peasants and small- and medium-scale producers who were typical of *Sierra* agriculture.[42] Natural geography limited farmers' ability to reduce labor costs through modernization, increasing the difficulty of competing with producers from neighboring commodity-producing countries where the geography favored expansive agriculture and mechanization.

In particular, internationally recognized standards and certifications, such as Fair Trade, GLOBALG.A.P., organic, and geographical indication, were viewed as opportunities to capture market niches. Much of the discussion of where Ecuador could pursue such markets focused on the EU, which, following the pattern of many countries in the region, was already Ecuador's second-most-important trade partner (Castillo, 2020). While Ecuador's petroleum exports are primarily destined for the U.S. and other countries in Latin America, the EU is the market for about 30% of Ecuador's non-petroleum exports (Van Steen & Saurenbach, 2017) – one-third of which are bananas (Norman-López et al., 2016). Policymakers recognized the high compliance costs of adhering to the standards demanded by European consumers and regulators, in particular for phytosanitary regulation on agrofood goods. As an undersecretary of agriculture told me: "For the agricultural sector, the principal market is the European Union. It is a demanding market, always asking for more, the regulations, the same market trends, they ask for more certifications, more quality. So if we aren't looking that way, we can lose our principal market." This respondent reflected Ecuador's lack of negotiating power vis-à-vis Europe in terms of import requirements and its need to maintain favorable terms of access to the Common Market. Yet European advisors I spoke with downplayed the idea that knowing origin was a uniquely

42. In contrast, the plantation agriculture typically found in the coastal region had already achieved economies of scale, although these sectors faced challenges due to Ecuador's higher labor costs, as discussed above.

European concern, suggesting rather that consumers around the world have become increasingly suspicious of food and more sophisticated about recognizing signs of quality. As a French intellectual property lawyer related: “These traceability and [food] safety goals… are today shared by most of the consumers all over the world. You can live in Canada, you know, in Australia and China and Russia, in France, you always want traceability, that the food you eat, for you and your children, is good and safe.” This respondent went on to reference food safety scandals and the ‘sanitary crisis’ of recent decades, reflecting fears that have been especially prevalent in Europe since the ‘mad cow’ scare of the 1990s. It this reckoning, GI certification in Europe functions as a means of traceability that is highly relevant in a context of increased consumer distrust in food and concerns over the safety, health, and ethics of food systems.

Ecuadorian policymakers conceived of the ideal ‘European consumer’ as someone concerned with the quality and origin of agrofood products; and, crucially, willing and able to pay higher prices in exchange for traceability. This was an important concern given the financial and organizational costs associated with meeting global food quality standards (Mutersbaugh, 2002, 2005). In the framing of this specialty market orientation, it was vital then that the selectivity of the imagined European consumer produce financial recompense for producers and the state. As a trade representative related: “We know that the European consumer is disposed to pay a higher price for a product that has a protected geographical indication…. If Ecuadorian products are recognized at the international level for their quality… and the attribution of these qualities of origin, [Ecuador] will be recognized in international markets and will be better known. Reflected monetarily, right?” In this sense, GI would function as one potential mechanism for Ecuador to open niches in European markets, with the high upfront costs in terms of human and financial capital remunerated by higher revenues. Similarly, European advisors

suggested that the burden of GI certification would be compensated by reducing the outlays for marketing in the EU. In this framing, meeting the high standards of European regulators, especially concerning EU-level certifications such as Protected Denominations of Origin (PDO) and Protected Geographical Indications (PGI), is a way for producers in countries such as Ecuador to substitute trust in the EU regulators for direct relations of trust with consumers, with whom they have no means of direct contact. As a French technical advisor reported: "The interest of developing countries is to be able to market their products in Europe. Because they lack the means of doing marketing, the fact of putting the [PDO or PGI] logo, which is known in Europe, allows the consumer to buy a product with confidence. And it is not necessary to do much, to put a lot of money into marketing." In sum, Ecuadorian policymakers and European advisors framed the high standards of EU regulators and consumers as ultimately beneficial to exporting countries and producers because of increased product visibility and consumer trust. These actors reflect an understanding of Ecuador's future prospects as an agricultural producer: simultaneously dependent on affluent consumer markets in the Global North, but also increasingly pressed to pursue distinction through certifications of quality and origin.

Through its technical assistance program, the INAO stressed to Ecuadorian policymakers the importance of replicating the French system of *appellations d'origine contrôlée* (AOC) to the extent possible. AOC is widely regarded as the archetypical model of successful application of GI (Barham, 2003), and France is associated with the most renowned products (e.g., Champagne) and a consumer market disposed to original signals, regional cuisine, and quality food (Trubek, Guy, & Bowen, 2010). It was argued that replicating key procedures of the AOC model would facilitate Ecuador's eventually registration of its GI products in the European PDO/PGI system. Two processes are important to note in this model. First, through a process of

specification, a product's *terroir* is characterized in order to distinguish it as inimitable and unique. In this process, actors seek to specify the interaction among natural factors of place (climate, topography, soil chemistry), human factors of place (production practices, historical reputation, know-how), and the typical, traditional character of the product, with frequent reference to 'objective' and 'technical' studies to substantiate such claims (Teil, 2010; Trubek, 2008). Second, in the process of *qualification*, *terroir* is drawn on to establish a code of practice and a multi-level system to verify producer compliance (Barham, 2003; Marie-Vivien, Bérard, Boutonnet, & Casabianca, 2017).

However, respondents emphasized that the process of registering Ecuador's GI products in the EU was far from straightforward. In fact, some policymakers seemed to suggest that EU negotiators had misled the Ecuadorian government, perhaps unintentionally, about the process of mutual recognition of GI under the framework of Ecuador's accession to the Multi-Party Free Trade Agreement. An undersecretary of trade explained the situation in this way: "Through the agreement with the European Union, we have one recognized denomination of origin, which is Cacao Arriba.[43] For the others, under the framework of our committee, we have put in the requests. In spite of the [trade] agreement that we have, that there is a process – I request, and you recognize – the European Union has asked us for a range of information that has been very complicated to gather." The agreement, in this sense, gave Ecuador a foot in the door to the EU registry of GI products, but full entry would require meeting the evidentiary and regulatory standards of European regulators. As for evidentiary standards, the information required concerned demonstrating a link between place and product. The same respondent continued:

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43. In fact, the particulars of Ecuador's accession included clauses recognizing an additional GI for the Sombrero de Montecristi. However, at the time of this interview, the EU's legal framework for GI only considered agrofood products, not artisanal products.

"One of the most difficult things is when we come to those questions about factors of identification. 'What is the differentiating element? Explain to me better the link with the geographical territory.'… Collecting this information has taken us one year for the four geographical indications that are under consideration." What proved most challenging was the necessity to furnish technically complex, scientifically valid evidence of *terroir* – the notion that different places produce goods with different flavors. *Terroir* is the basis for granting an intellectual property right to place names, and as such, producing evidence of *terroir* is key to the legal declaration of a GI and the specification of the inimitable, place-based character of GI goods. A French technical advisor explained the importance of providing an evidentiary link between place and product in a report on the INAO's intervention in the Galápagos coffee case:

> Link to the geographical area. This is the heart of the specifications (*cahier des charges*)…. These arguments are based on: - the special features of the area regarding the natural factors (climate, geography, soils…), and human [factors] (history, analysis of the supply chain, of production…) - the special features of the product (characteristics, precedence, renown…) - the causal link between the geographical area and the product.

Thus, through the production of evidence concerning the specific and distinct natural factors, human factors, and product quality and renown, an argument could be made for a 'causal link' that would establish the merit of a product to be designated as a GI. This was a point of emphasis in the INAO's cooperative missions in Ecuador, and one that was absorbed and reiterated to me by Ecuadorian actors involved in GI projects. As one told me, concerning the efforts to construct the specifications for Galápagos coffee: "We were concerned with generating a technical foundation, a forceful argument, that shows that the characteristics are unusual and merit having this designation [as GI]." Another described the process of producing specifications in similar terms: "All of rest [of the implementation process] was studies, soil analysis, chemical analysis, results from tastings by tasters certified internationally. So that was argued scientifically." Both

technicians reflected the idea that GI required scientific, technical documentation that would make a convincing argument in favor of distinction, and therefore, protection. Furnishing proof of *terroir* would lend credibility to Ecuador's GIs in the eyes of the European regulators who controlled access to the EU market; and for the European consumers, on whose judgement, ultimately, the financial viability of Ecuador's GI project would depend.

In addition to meeting these evidentiary standards, there were also regulatory standards that Ecuador would have to meet in order for its GI to be regarded as legitimate. These in particular concerned to development of Systems of Internal Control (SIC), which would be put in place to verify compliance with the production and processing practices in the Conditions of Production (COP). This traceability mechanism, modeled on the French system for AOC, would include four levels of verification:

> 1) producer self-monitoring through record-keeping (agronomic management practices applied, pre-declaration of anticipated yield);
> 2) collective oversight through inspections conducted by a regulatory body of the producer organization (corroboration of producer records, flag inadequacies, impost sanctions);
> 3) third-party inspections from an external certifier (independent audit);[44]
> 4) systemic oversight provided by Ecuador's intellectual property service.

As described above, numerous institutional and organizational inadequacies had prevented this system from functioning as intended. In 2019, at the behest of then-President Lenín Moreno, an agreement was signed among the MAG, SENADI, MIPRO, and the National Secretary of Higher Education, Science, Technology, and Innovation. This agreement created what was called the Inter-Institutional System for the Development and Protection of National DOs and GIs, with a mandate to clarify the rights and obligations of producer groups concerning these certifications and to improve coordination among the government agencies involved. While, as discussed

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44. No such entity has been designated before or since the GI was officially declared.

above, the agencies involved in this system did make efforts to streamline the process of GI declaration for producer groups, its more important impact was to signal the legitimacy of Ecuador's GIs to international and domestic audiences. The preamble to the agreement references both AC Decision 486 and the Multi-party Trade Agreement with the European Union, indicating to Ecuador's trade partners and regional peers its alignment with international legal standards for these intellectual property rights. Taking things to the level of presidential decree also demonstrated to technical assistance providers such as the INAO that the government had absorbed their advice and critiques, with systemic reforms intended to ultimately get Ecuador's GI included in the EU registry.

In sum, policy-level actors involved in the implementation of geographical indications in Ecuador emphasized the role of these food standards in enhancing the country's agro-export competitiveness. In framing Ecuador as structurally and geographically disadvantaged vis-à-vis its neighbors – large countries with the ability to set their own monetary policy – these actors opened political space for the viability of geographical indications as a value-added strategy. Yet these actors also recognized the high barriers to entry for the most lucrative markets for such products, with particular emphasis on the EU. To get geographically indicated products recognized as legitimate by European regulators and consumers would require regulatory and institutional reforms. Even so, the most important avenue to legitimacy and visibility for these products was to furnish credible evidence of *terroir*. As discussed in the next section, much of this work of providing proof of place was carried out through direct technical assistance from the INAO.

C. Boundary-work and the production of terroir distinction

In this section, I address the role of the INAO in producing 'technical' and 'objective' evidence as part of the specification process. This process involved the application of what is known as *dégustation* in French – a set of procedures, derived from the world of wine, for characterizing the sensory experience of a product (e.g., aroma, flavor, mouthfeel) in order to establish its typical character (*typicité*) as distinct from similar products (Tourmeau & Charnay, 2006). *Dégustation* is variously translated as 'tasting,' 'organoleptic characterization,' and 'sensory analysis' (see e.g., Shapin, 2012; B. C. Smith, 2007; Teil, 2010). For brevity, in the remainder of this chapter, I will refer to it by the term 'characterization' to emphasize its purpose in the technical assistance offered to Ecuador – to *characterize* potential GI products as distinctive in order to facilitate their declaration as intellectual property. I argue that, in order to validate characterization as a requirement for the establishment of any GI in Ecuador, the INAO engaged in rhetorical and epistemological boundary-work (Gieryn, 1983). This involved two key moves. In the first move, the INAO technical advisor rhetorically aligned characterization with the 'gold standard' of scientific evidence – the randomized controlled trial (RCT) – in order to construct the 'factness' of Ecuadorian *terroirs*. Simultaneous with this first move, the advisor framed a different procedure for determining food quality – commercial grading – as non-scientific, due to its procedural inadequacies and the economic motives behind its application.

Characterization was constructed as 'technical' and 'scientific' by aligning it with three crucial aspects of RCT: random sampling of cases, blinding of participants, and large sample size (see Table 2). To clarify, I do not argue here that the respondents claimed that characterization was equivalent to an RCT; rather, that they framed certain procedures as essentially replicating aspects of the experimental method in order to argue that characterization could transform the

highly subjective experience of individual tasting into the objective fact of *typicité*. Throughout, respondents explained what they were doing and why with reference both to the 'scientific' standards of the RCT and in contrast to the 'non-scientific' procedures of commercial grading. In what follows, I draw on descriptions of the characterization work done for two coffee GIs in Ecuador: Café de Galápagos and Lojano Café de Origen.

Table 2. Comparison of prominent framings of randomized controlled trial, *terroir* characterization, and commercial quality in Ecuadorian GI implementation. Source: The author.

Randomized controlled trial (RCT)	**Terroir characterization**	**Commercial quality grading**
Random sampling and group assignment	Homogeneous samples	Heterogeneous samples
Single- or double-blinded	Blind tasting	Non-blinded tasting
Avoid interviewer effects	Description based on aromatic families	Description based on checklist of flavors
Large-N	Repeated tastings over multiple trials	Abbreviated timeframe
Aggregation	Collective agreement	Idiosyncratic
Causal analysis	Correlational analysis	Numerical score (presence of flavors, absence of defects)

In an RCT, researchers employ the procedures of random sampling and/or random assignment to experimental and control groups in order to reduce variation between the cases that receive treatment and those that do not. In Ecuador, no such claims were made that characterization approached this level of scientific rigor, as doing so would likely require a years-long trial in which coffee seeds (in this example) would be randomly assigned to and cultivated in the area of *terroir* and a 'control' area. One respondent, an Ecuadorian undersecretary of trade, illustrated the practical unfeasibility of such an approach with a *reductio*

ad absurdum example: “No one has taken the Champagne grape and planted it in each kind of soil in the world to show that it is really unique.” Rather, efforts were made in the characterization of Ecuador’s coffee GIs to use homogeneous samples, which would mimic the random sampling and group assignment of the experimental method by reducing between-case variance in terms of quality. For coffee, an important indicator of quality is bean size and density. For this reason, to characterize Galápagos coffee, technicians collected dry, unroasted coffee from different islands and altitude zones, as well as reference samples from the mainland, which were then carefully sorted by size and density to maintain a consistent quality baseline. Another principal factor in coffee quality is harvest and post-harvest processing, for which reason samples were brought to a central location in order to undergo homogeneous procedures. Overall, technicians worked to eliminate any variance in quality that could be induced by using heterogeneous beans sizes or processing methods, theoretically producing a sample for characterization that would isolate the variance due to origin. The example of Loja coffee, in contrast, illustrates what can happen when a homogeneous sample is not used. Prior to receiving technical assistance from the INAO, the Loja coffee producers’ board (*mesa del café*) had made their own attempt to characterize the coffee produced by different associations in the province. Yet, as later pointed out by the INAO consultant, the samples used were drawn from mixed coffees, without regard for the heterogeneous collection and processing methods used – in other words, samples with high degrees of variance in quality. As a result of this and what were regarded by the advisor as other inadequacies (to be discussed below), this attempt could not discern variations in quality from variations in origin. In essence, such an effort would be akin to investigating a new lung cancer medicine by assigning all smokers to the treatment group and all non-smokers to the control group.

Another important aspect of the RCT that the INAO suggested was reproduced in characterization was the inclusion of mechanism to reduce bias due to the placebo effect and interviewer effects. The placebo effect comes into play when human subjects and/or researchers who interact with human subjects know which participants receive treatment and which do not. In human subject research such as clinical trials, this effect is countered through blinding (of participants) or double blinding (of participants and researchers they interact with). In characterization, this aspect of the 'gold standard' of science was replicated in the blinding of coffee samples, which would avoid biasing tasters based on the perceived reputation of different coffee sources. Samples to be assessed were numbered, and through different rounds of tasting, the order of samples was switched to likewise avoid effects due to taster fatigue or recency (discussed in detail below). Respondents compared this method to what they viewed as the more biased approach of commercial grading. One technician related the behavior of an experienced coffee buyer and commercial grader involved in the Galápagos characterization: "When one looks at the data, the differences between tasters are rather large…. They don't know the farms, don't know the producers, because the samples are numbered, but it is obvious [that some] intend to find out who is the producer or to figure out how to take advantage." In this respondent's perspective, some tasters sought to use their participation in the characterization to downgrade high-quality coffee in order to later buy it at a discount, but these efforts were largely thwarted by the blinding of samples. In this framing, promoted by both the INAO and actors from Ecuadorian institutions, characterization facilitated a more transparent process of quality assessment, which like the RCT adjusted for the bias of human participants.

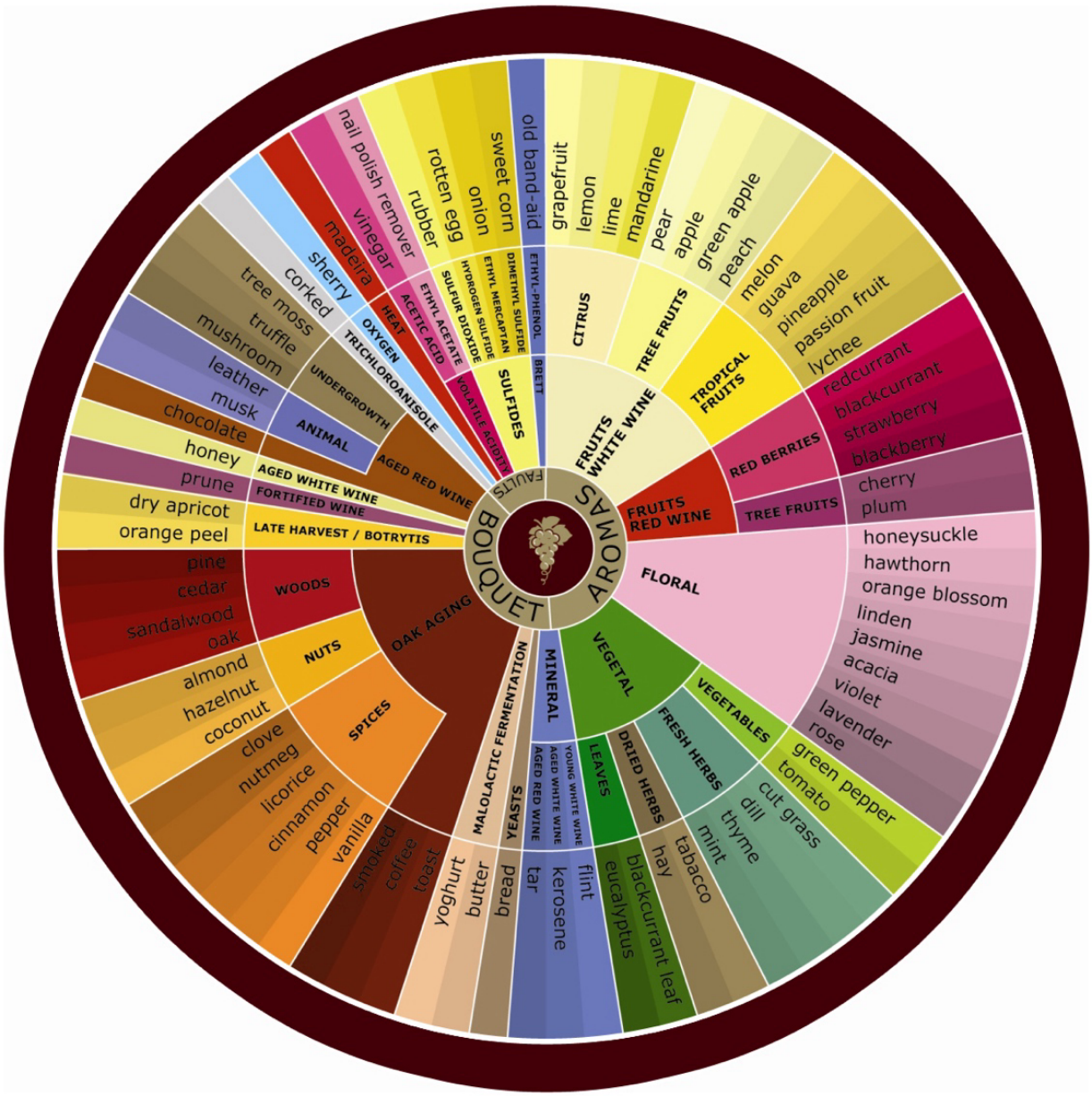
Similarly, interviewer effects, common to survey research, introduce bias through language that prompts participants to report certain responses. As argued by the INAO, an

important distinction between commercial grading and characterization was that the latter would not bias the taster to discern certain flavors with prompts. An example of this boundary-work can be found in a May 2017 INAO report, in which the advisor relates his critiques of the prior efforts of the Loja producers' board to characterize their coffee's *terroir* using commercial procedures:

> The organoleptic analysis of these samples was done with well-known tasters, assisted by the use of the traditional [Specialty Coffee Association] commercial form supplemented by an inventory sheet listing a number of aromas…. [Characterization] avoids a rather natural fault in the tasting organized with the assistance of a list of aromas where one merely ticks the box (without references to intensity). In effect, [using the commercial method] the taster must reflect on each of the aromas listed on the form, yet thinking of an aroma is to see an image and often unintentionally the odor of that 'image.' For example, *to read 'orange' is to see the fruit… and to feel that flavor in the mouth*. (emphasis added)

The checklist used in the commercial grading suggests flavors to be perceived or not, which could activate tasters' sensory memory, and thereby prompt novice or even seasoned tasters to experience aromas or flavors that were not actually present in the sample. In contrast, characterization would work from 'aromatic families' (see Figure 3) found in tasting wheels, rather than a pre-determined list, resulting in a method where tasters were freer to focus on their actual sensory experiences. Asking tasters to *identify* the flavors they experienced, rather than report *whether or not* they experience a flavor, would avoid biasing their gustatory and olfactory perception and produce a more scientifically valid result.

Figure 3. An example of a wine aroma wheel illustrating ‘families’ of aromas and flavors. Source: Aromaster, via Wikimedia Commons (CC BY-SA 3.0).



A final aspect of the RCT that was argued to be reproduced in the procedures used to characterize Ecuadorian GI products was the use of large sample sizes. In the example of characterization, the ‘cases’ sampled and tested are not human subjects, but rather a cup of coffee, a piece of fruit, or a glass of wine. The testing of a large number of cases would, in this

framing, diminish the impact of an individual samples that were outliers in terms of quality – whether due to the variation of the underlying product used or the variation in the sensory experiences of individual tasters. For example, in the characterization of Galápagos coffee, tasters were given six coffees to assess at a time, with each sample repeated three times to demonstrate consistency. In addition to repeating samples, the order was changed every time to account for the influence of prior samples on the sample to follow. Further, the amount of tasting that could be performed each day was limited, because of the potential for human fatigue to reduce the accuracy of the assessment. As the INAO advisor explained, the practice of changing the order and giving tasters breaks is common in wine *dégustation*: "This type of analytical tasting is interesting, but it is tiring. We taste five, six wines, no more, in an hour or hour and a half. So, we taste, we come back, we change the order of the wines. What we have tasted before pollutes what follows." In all, the Galápagos characterization involved 46 coffee samples which were tasted over the course of 2 days. The process could be extended further depending on the nature of the product tested, with the example of cocoa being illustrative. In a report on the work of revising the Cacao Arriba specification, the INAO advisor wrote: "It is very difficult to taste cocoa. Pure, it is almost impossible because of the bitterness. Diluted, if we find the aromatic variants better, we lose the appreciation of the consistency…. What's more, one cannot taste more than a few samples at a time… [and] there are thousands of samples available." The description of these procedures illustrates the efforts to produce a boundary between characterization and commercial grading. While both might use repeated and reordered tasting in order to account for outliers and fatigue, the latter, because of its economic motivations, will by necessity be abbreviated. Commercial procedures are designed to be done quickly and efficiently, in order to conclude a market transaction. In the framing of *terroir* characterization in

Ecuador, however, the deliberate pace and effort put into tasting are important to producing the idea of this work as scientific, and its results as factual.

In addition, the INAO advisor argued that the results of tasting would undergo forms of statistical analysis to aggregate individual findings and identify the relationship among the components of *typicité*. First, the advisor linked characterization to the experimental method through the language of the confidence interval – an analytical method for determining the statistical significance of results. As related in an interview, the advisor reported: "We do panels of tasters. Statistically, there must be 95% who find these characteristics." Referring back to the panels of tasters and their multiple assays of the same cases, the advisor suggests that statistical analysis will be used to smooth over the idiosyncrasies of tasters, the variation in any individual tasting experience, and any potential quality outliers, in order to produce a 'statistically significant' result. In this way, characterization was claimed as producing a scientific fact, because the final description would not emerge from any one sample or one taster, but from the collective, socially constructed definition.

Second, the advisor suggested that the characterization results were more scientifically valid that commercial grading because it focused on a holistic description of character, rather than noting the presence or absence of individual elements. In an interview, he described how this was applied to coffee characterization, again with reference to wine *dégustation*: "Rather than saying, a coffee, does it have acidity, does it have a good quality, is it aromatic? That's not enough. It must be a little like wine tasting, searching for all the elements. What family of aromas did it have? What intensity of flavor? What are the dominant elements? Is there a balance between sweetness, acidity, bitterness, and so on?" The advisor described how these procedures were new even for the experienced coffee tasters who participated in the Galápagos coffee

characterization, because their reference points were to commercial grading and the scoring through specialty coffee protocols: “For these two tasters [who participated], it was new, because they had always tasted coffee and never wine. So I applied a little of the wine to this. And that let us find the elements that characterized the coffee.” In this framing, only through the application of wine procedures could tasters, working collectively, produce a holistic description of coffee *typicité*. The advisor provided further detail on this perspective in a May 2017 report about the failed attempts to produce a *typicité* for Loja coffee:

> This assisted tasting table (do you find: cherry, plum, strawberry… if yes, tick the box), but without measuring the *intensity* of the ticked aroma, does not allow for the creation of clear *correlations*. In effect, with this kind of table, a strong intensity comes out the same as one that is barely perceptible. (Emphasis added)

As the advisor notes, the commercial form merely required tasters to report the presence or absence of a flavor or aroma, without considering the intensity of the experience or the relationship among different variables of flavor. Rather than producing a *typicité* that could distinguish this coffee from others and thus justify a GI declaration, the only firm result of producers’ initial effort was to identify notes of red fruit among the high-altitude coffees of Loja. In this reckoning, there was no way to create a holistic, complete description of the *character* of Loja coffee because the relationship between flavors, and the balance between their intensities, could not be described using the commercial grading procedures. The initial description can be compared to the final one, produced through the technical advice of the INAO: “Balanced coffees, fruit aromas, with sweet flavors of red fruit and cinnamon, citric acid, medium body, creamy, clean and lasting aftertaste” (p. 74).[45]

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45. Following the INAO’s recommendation, the Loja producers’ board opted to conduct a new characterization, which took the better part of a year to complete. The description of this process, from selecting farms to sample, harvesting and preparing the sampled coffee, and the tasting procedures themselves, takes up 30 pages in the 87-page feasibility study (excluding annexes).

In sum, through rhetorical and epistemological boundary-work, the INAO aligned its procedures for the characterization of *terroir* with the scientific 'gold standard' of the RCT. Doing so framed characterization as a technoscientific process, and in turn relegated the commercial methods typically employed to assess product quality to the realm of politics. This granted the INAO and its agents credibility and authority to determine which aspects of place would be relevant for the emergent property of *terroir*, and further, for the GI standard-setting process. The production of distinction – a necessary justification for the declaration of the intellectual property rights associated with *terroir* – was key to making Ecuador's GI implementation project politically viable. It provided the scientific framework to validate Ecuador's dual politics of agro-export competitiveness and national identity – linking competitive advantage in specialty agrofood markets to an emerging discourse of comparative advantage in biological and cultural diversity. It is this latter discourse that the next section addresses.

D. Reconstituting 'diversity' as comparative advantage

Efforts to construct GI in Ecuador and identify its particular *terroirs* both reflected and reshaped narratives of biological and cultural diversity, in particular the idea of Ecuador as 'mega-diverse.' Diversity was constructed as a resource to be drawn on to pursue comparative advantage and market distinction, with biological and cultural diversity both reproduced through and reproductive of the socially constructed *terroir* of Ecuador's agrofood products. Through and with the technopolitics of *terroir*, natural geography – arguably one of the main barriers to agro-export competitive advantage vis-à-vis Ecuador's neighbors – was reconstructed as comparative advantage for specialty agrofood markets.

International law, national law, and political discourse are key sites for the social construction of Ecuador as a biologically diverse (biodiverse) country. In the international realm, for example, the Convention on Biological Diversity (CBD) lists Ecuador as a 'megadiverse' country, one of only 17 countries designated as such in the world (CBD Secretariat, n.d.). Further, according to the CBD, Ecuador is also home to one-third of the world's biodiversity 'hot spots' in its tropical forests and mountain ranges.[46] At the national level, biodiversity is a foundational concept in Ecuadorian law and politics. Ecuador's 2008 Constitution foregrounds biodiversity as an issue of national concern and public policy under the framework of *Buen Vivir*: "Environmental conservation, the protection of ecosystems, biodiversity and the integrity of the country's genetic assets, the prevention of environmental damage, and the recovery of degraded natural spaces are declared matters of public interest" (Article 14). The Constitution also arrogates jurisdiction over biodiversity to the national government, placing it on the same plane as important natural resources such as minerals, petroleum, water, and forests (Article 261) that are defined as 'strategic sectors' (Article 313).[47] Among the relevant components of biodiversity listed in the Constitution are agriculture, wildlife, and genetics (Article 400). The centrality of biodiversity to state formation, development, and national identity are further emphasized in the national development policies produced by the Correa administration to enact the commitments of the Constitution. For instance, the 2009 National Plan for Buen Vivir conceptualized biodiversity as key to Ecuador's comparative advantage, which could be transformed into

46. This definition excludes the Galápagos Islands, which are recognized not for the diversity of species present there, but for their high rates of biological endemism – the presence of many species that are found nowhere else.

47. The text states: "The following are considered strategic sectors: energy in all its forms, telecommunications, nonrenewable natural resources, oil and gas transport and refining, biodiversity and genetic heritage, the radio spectrum, water and others as established by law."

competitive advantage through the development of conservation, biotechnology, and nanotechnology knowledge (Purcell et al., 2017). The legal and policy texts illustrate the importance of biodiversity as an organizing concept for politics and an emerging aspect of Ecuador's national identity.

Another discourse emerged in parallel to this notion of exceptional biodiversity as foundational to Ecuador's national identity and agro-export comparative advantage: that of Ecuador as a territorial space and populace defined by cultural diversity. The indigenous groups that mobilized against neoliberal governments in the early 2000s sought increased rights, in terms of political autonomy, collective land rights, cultural preservation, and wider efforts towards participatory democracy and economic reforms (M. Becker, 2011; Silva, 2009). A key aspect of these demands, as well, was the official recognition of Ecuador as 'plurinational' (M. Becker, 2011; Silva, 2009) – a state not tied to a single national identity, but one encompassing multiple indigenous and *mestizo* nationalities within the same geographical territory. The power of these movements and this national identity discourse was reflected in the character of the 2008 Constitution, which did indeed enshrine the notion of Ecuador's core identity as "plurinational, pluricultural, and multiethnic" (Article 380). The Constitution also reflected the state's aspirational commitment to the principle of respect for cultural diversity, on the basis of which the state is charged to protect and preserve the diverse cultural traditions that constitute Ecuadorian identity, through programs such as intercultural education (Article 57), healthcare (Article 358), preservation of biodiversity and ecosystems (Article 395), and participation in region integration efforts (Article 423). Yet while Constitutional recognition of multiple nationalities within the state of Ecuador could be read as a leap forward for the rights of indigenous groups, as Martínez Novo (2021) argues, it came short of granting meaningful

political autonomy to these nations.[48] This did not diminish the power of this 'plurinational' discourse, however, as a framework for understanding Ecuador's potential as a specialty agrofood producer and exporter.

These discourses of Ecuador as a 'mega-diverse' country in human and non-human terms was reflected in how policymakers sought to reconstruct comparative advantage in agriculture. In particular, documents defining Ecuador's agricultural policy orientation flagged diversity as an asset for food sovereignty. For instance, a 2016 Ministry of Agriculture document outlining the institution's 10-year policy framework notes: "Ecuadorian agriculture is very diverse, with more than 120 cultivated products, 58 of which are permanent and 70 transitory. [Agriculture] is an activity with little external dependency" (MAG, 2016a, p. 342). Indeed, to visit an Ecuadorian market or supermarket is to be astounded by the variety of fruits and vegetables on display; products commonly known outside of the region (potatoes, corn, bananas) are available in dozens of varieties, and there are many products that would be completely unfamiliar to a foreigner (such as *chochos*, *tomates de árbol*, and *uvillas*). What this policy document suggests as well is that the diversity and productivity of Ecuadorian agriculture can reduce the country's dependence on imported goods and thereby ensure national food sovereignty. This point is made explicit later in the same document: "Ecuador's *natural gifts* permit it to be a self-sufficient country in the internal food supply (with exception for wheat and soy)" (MAG, 2016a, p. 399) (emphasis added). In this framework, agricultural potential is linked to biodiversity discourses through the notion that Ecuador is naturally blessed, both in terms of the diversity of products

48. Rather, the government's neo-extractive development model (Gudynas, 2009), which depended on the exploitation of mineral resources that were often under indigenous territories, came into conflict with these rhetorical commitments and often undermined cultural and territorial integrity (Martínez Novo, 2021).

available and the productivity provided by its soils and climate. A territorial analysis produced by the ministry in 2020 hits this same theme, reflecting the durability of this diversity discourse even after the end of the Correa administration and its anti-neoliberal, anti-globalization rhetoric. It notes: "One of the strengths found is the diversity of products offered that Ecuador maintains and this contributes to food sovereignty and national economic and social indicators" (MAG, 2020, p. 136). What the documents suggest is the notion of Ecuador as country naturally endowed with diversity – in its landscapes, in its food products, and in the production traditions behind them – which offers the potential for greater food sovereignty.

Agricultural policy discourse also highlighted natural diversity and productivity as assets for agro-export competitiveness. In the same decennial policy document, the Ministry of Agriculture outlined a vision for sustainable development premised on exploiting Ecuador's natural advantages in agricultural diversity and productivity:

> The productive capacity of Ecuador's agriculture is exceptional, due to its biophysical condition…. Employing all of this agricultural potential, in combination with the generation of added value and its competitive advantages in the markets (national and international), are a solid base to achieve a reduction in rural poverty and bring sustainable development to the country. (MAG, 2016a, p. 27)[49]

Through these discursive shifts, Ecuador's geography was produced not an impediment to agro-export competitiveness, but as a comparative advantage to construct new marketing niches. This notion is prevalent among both ministry officials and producers involved in the emerging sector of highland avocado production. As one technical advisor from MAG described, Ecuador was

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49. It is relevant to note that this policy document – a two-part tome with policy analysis at the national and provincial levels – draws much of its framing of the future trajectory of agriculture globally and regionally from studies produced by international development organizations, such as FAO, the Economic Commission for Latin American and the Caribbean, and Inter-American Institute for Cooperation on Agriculture. In essence, MAG takes as given the trends in global agriculture identified by these organizations, with this policy document intended to articulate how Ecuador can best taken advantage.

primed to capture a temporal niche that would allow it to compete with larger avocado-exporting countries: “Ecuador has a production advantage that is precisely complementary to that of Peru and Mexico. The Andean avocado from this area comes out roughly between January and May, which is the period when there is not avocado in Peru or Mexico.” Crucially, in this framing, the natural environment is determinative of Ecuador’s comparative advantage, as its climate and geography would allow it to meet global demand during fallow periods in the production cycles of its larger and more mechanized regional competitors. Natural geography was also seen as endowing Ecuador with the potential to compete on quality in addition to seasonality for avocado, for which reason GI was an attractive marketing tool for producers. As one avocado grower expressed: “Because of the geographical location [Ecuador] has, the products are more palatable. Banana, for example, cocoa, also the color of the roses, the maturation and everything is quicker and better. The colors [of the flowers] set more.” In this producer’s framing, Ecuador is naturally disposed to produce higher quality, more flavorful agrofood products because of its equatorial location, which provides ample direct sunlight year-round. It is important to note, as well, the role of sensory analysis in providing producers with the language to describe these natural returns to flavor, as well as the technical evidence of product character to present to potential buyers. While there is a large gap between recognizing agro-export potential and acting on it, what is firm at least is the widely shared conception of Ecuador’s position in the global political economy: naturally endowed with a comparative advantage in the production of primary agricultural goods of exceptional quality, and with the potential to exploit this for competitive advantage in markets for specialty and differentiated goods.

Geographical indications emerged as an important strategy for building on this natural comparative advantage – a means of reconstructing competitive advantage by increasing the

visibility and credibility of Ecuador's diversity discourses. For instance, a video produced by MIPRO explicitly links GI to Ecuador's evolving strategy of seeking niche markets and to the conceptualization of Ecuador as exceptionally and naturally endowed with diversity. The short video begins by panning over images of dragon fruit, cocoa, coffee, straw hats, and indigenous dancers, while a narrator intones: "Ecuador is one of the most mega-diverse countries on the planet, and for that reason the products that are born in the territory of the 'middle of the world'[50] are unique." The video goes on to suggest that GI can support efforts by producers and the state to distinguish Ecuador's products: "We are telling a new story in Ecuador, and our products with [GI] speak as well of the people, of the natural marvels, and of a country of opportunities which offers the best to the world." This promotional video makes plain the connection between the discourse of 'mega-diversity,' the unique agrofood products that result from this natural and cultural diversity, and the role of GI in making these claims legible and credible to foreign consumers. Many actors I spoke with at MAG employed this rhetoric as well, suggesting that developing GI made sense given Ecuador's many productive niches. As one agronomist related: "Even in the same area are found diverse soils, diverse climates, diverse precipitations [and] humidity." This respondent suggests that Ecuador has a remarkable diversity of agro-ecosystems concentrated within a small geographical area. Another agronomist also reflected this idea: "Despite being a country with a small territory, the biodiversity [Ecuador] has, plus the peoples and nationalities that live in this biodiversity, [it] is a hotbed of [GI]." These respondents together reflect the conceptualization of GI as a means of overcoming the structural limitations imposed by Ecuador's small national territory and population in comparison with regional competitors.

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50. A reference to Ecuador's touristic slogan (*mitad del mundo*) and its connection to the scientific history behind the determination of the Earth's equator, which is also the source of the country's name in Spanish (*el ecuador*).

What they suggest, in fact, is that this competitive disadvantage is actually comparative advantage – a natural disposition to diversity in terms of ecosystems, non-human life, and human cultural practices and production traditions. Ecuador's unique environmental features have produced ecological niches that predispose it to differentiated *terroirs*, which can be made legible and credible through the technical and scientific work of characterization that is part of the institutionalization of GI.

A prominent understanding of the relationship between the environment, diversity, and *terroir* reflected in these policy discussions is what human geographers have described as *environmental determinism* (Warf, 2006). This perspective on human-nature relations, which has fallen out of favor in the field of geography because of its denial of human agency, suggests environmental conditions as determinative of culture and social structure (Warf, 2006). Likewise, in the conceptualization of *terroir*, environmentally deterministic explanations have declined in relevance in favor of recognizing *terroir* as a socio-natural hybrid production (Gade, 2004). Yet popular explanations for the diversity of human cultures in Ecuador are commonly linked to natural geography. Further, these ideas reflect the construction of Ecuador's plurinational character and cultural diversity as emerging 'naturally' from the same niches that produce biodiversity. As part of my fieldwork, for instance, I visited the Pumapungo Museum in Cuenca, in Ecuador's southern highlands, which highlights the diverse indigenous cultural traditions to be found in Ecuador. Exhibits in this museum suggest how, even from one mountain valley to the next, indigenous language, clothing, gastronomy, and production traditions could be completely distinct, having evolved in near isolation due to the imposing mountains separating communities.

An environmental determinism framework was further suggested in how actors described the impact of the natural environment on various agrofood products. As expressed by many

actors involved in GI, the sensory analysis of products demonstrated the environment's causal determination of product quality. An intellectual property rights administrator reflected this idea with reference to the territorial embeddedness of yellow dragon fruit: "If I harvest a dragon fruit in Palora [the designated origin], tomorrow I want to bring it to Quito, obviously in Quito I'm not going to get the same results because the climate of Quito is distinct, the sun is different, the geographical area as such will never be the same. But in Palora, it gives those essential characteristics that make it appealing and different from other products. Palora, it has been shown, is the specific area where dragon fruit really has a distinct flavor." As this actor frames things, the influence of environment is shown through the sensory qualities of the product. This is particularly relevant for dragon fruit, as the production practices associated with this product do not vary from region to region; as such, distinction is attributed to environmental differences. This notion extends even to artisanal products, such as the Montecristi straw hat (the misnomered 'Panama hat'), in which traditional production practices are seen as important to quality. An intellectual property lawyer expressed the idea in this way: "If a weaver takes the Montecristi hat from the area where the [GI] is established, just 30 minutes away, even still in the coastal [region], and starts to weave, it's not the same texture. The straw tears and breaks and the hat is different." As this actor describes it, climate conditions such as ambient humidity enable producers in the designated area of origin to produce the delicate weaves characteristic of the finest straw hats. What these respondents express is the idea that 'nature' determines the quality of Ecuadorian agricultural products directly, through environmental influences on quality; and indirectly, through human adaptation to environmental constraints. It is in this sense that 'nature decides' the appropriate production practices, to be institutionalized in GI codes of practice that regulate the terms of producer participation in quality niche markets.

Likewise, in interviews, participants explicitly linked food, cuisine, and cultural diversity to the different *terroirs* of Ecuador. For instance, in a session with two local experts in wine and spirits, I heard the following exchange. One respondent, in reference to the Ecuadorian agave spirit called *miske*, noted regional variations in quality: "There's a difference between *miskes*. I've tried one from Cuenca, and I say… it's not that it was bad, just different." The other respondent jumped in with an ironic response: "Just hearing a *Cuencano* talk, how are the same [products] not going to taste different?" This joke, playing on the peculiar accent and dialect of Cuenca residents, suggests an underlying conception of Ecuador's cultural diversity as the product of environmental determinism. This 'natural' production of diversity influenced how actors conceived of Ecuador's potential for GI in terms of *terroir* – a hybrid social-natural production of a biologically and culturally diverse national territory and national identity. These territorial and cultural constructions of 'diversity' both shaped and were reshaped by efforts by the state, transnational technical advisors, and producer groups to construct a scientific basis which could legibly and legitimately transmit the *terroirs* of Ecuador to global consumers.

6. Conclusion

In this chapter, I have examined the place of GI in shifting policy agendas for Ecuador's agro-export development. Facing a host of competitive disadvantages in traditional commodity sectors – variously attributed to global political economy and national geography – policymakers envisioned a radical reorientation to value-added agricultural exports. The government seized on the notion of diversity, in terms of ecosystems and human culture, as the source of Ecuador's agro-export comparative advantage. In this policy space, GI emerged as an avenue through which the government could strengthen the legitimacy and visibility of its claims to 'mega-

diverse' agrofood offerings. With technical assistance from the INAO, Ecuadorian policymakers set out to produce 'technical' and 'objective' evidence of distinction and diversity in agrofood. This was done through the procedures of *characterization*, a process that was rhetorically aligned with the scientific' gold standard' of the randomized controlled trial. Producing *terroir* evidence in this way provided a technoscientific framework to validate Ecuador's politics of diversity for agro-export competitiveness and national identity.

I use this case to illustrate the operation of *terroir technopolitics*: the simultaneously technoscientific and political process through which particular socio-spatial configurations are imbued with natural and cultural distinctiveness tied to agrofoods, and through which notions of value, structures of international exchange, regimes of territorial control, and expressions of social identity are reproduced and reconfigured. I argue that this approach, which brings heightened attention to the *material* and the *social* in producing knowledge about and for development, can illustrate how, in the case of GI, a European 'macro-organization' (Feuer, 2022, p. 677) acts in the global South to legitimize GI development, institutionalize Europe's preferred intellectual property laws and regulations, and acculturate producers and consumers to consider agrofood through the lens of *terroir*. Technical assistance providers found fertile ground for GI in Ecuador through the 'scientific' construction of Ecuador as a land of diverse agricultural goods. Through this technopolitical process, Ecuador has adopted the EU's favored rhetoric and regulations for *terroir*, despite lacking the institutional capacity and financial resources to replicate the success of European GIs.

CHAPTER THREE: AUTHORIZING THE 'TASTE OF PLACE' FOR GALÁPAGOS ISLANDS COFFEE: SCIENTIFIC KNOWLEDGE, DEVELOPMENT POLITICS, AND POWER IN GEOGRAPHICAL INDICATION IMPLEMENTATION[51]

1. Introduction: Knowledge and power in place-based food networks

In recent decades, scholarship on the 'quality turn' associated with 'alternative food networks' has analyzed the social construction of quality and its global and local effects on food system reorganization (Goodman, 2003; Goodman, DuPuis, & Goodman, 2012; Sarmiento, 2017). An example of this phenomenon is the protection of geographical indications (GIs), which identify and convey the essential role of territorial origin to a product's quality, reputation, or other characteristics. GIs are grounded in the French notion of *terroir* ('the taste of place'), which encompasses the interaction of physical (soil, climate, and topography) and cultural (traditional practices, *savoir-faire*) factors of place from which a product's typical character emerges (Bowen, 2010b; Castelló, 2021; Parker, 2015; Teil, 2012, 2014).[52] Previous scholarship has addressed how standards, certification procedures, and social and geographical boundaries emerge through the social construction of *terroir*, as actors use their authority to define product quality and link it to 'essential' factors of place (Bowen, 2015; Coombe et al., 2014b; Gade, 2004; Gaytán, 2018; Rippon, 2014). Such works have considered structural forms of authority, whether hierarchies of economic power (e.g., value chain governance, interstate trade), political

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51. First published in *Agriculture and Human Values, 40*(2), 581-597, 2023, by Springer Nature. Reproduced with permission from Springer Nature.

52. *Terroir* translates in French as 'terrain,' 'soil,' 'land,' 'ground,' or 'earth,' but its precise meaning to food is challenging to disentangle from French culture and history (Trubek, 2008). Since the early 1900s, GIs have been used in France to protect prestigious wines such as Champagne (Guy, 2003). Beyond France, the European Union (EU) market for GI products such as spirits, cheeses, oils, and meats has grown steadily in recent decades and generates €75 billion in annual sales (European Commission, 2019).

power (e.g., national legislation, international relations), or cultural power (e.g., hegemonic discourses) (Barjolle et al., 2017; Bowen, 2010b; Bowen & Gaytán, 2012; Mancini, 2013a; Marie-Vivien & Biénabe, 2017; Nizam, 2017). Yet in a context in which politics authorize and are authorized by the legitimacy and relevance of contested knowledges (Jasanoff, 2005; Knorr Cetina, 1999), a crucial but underexplored dimension of the social construction of *terroir* is the power to authorize knowledge claims.

In this chapter, I examine how proponents of GI employ technical assistance programs and policy discourse dissemination to institutionalize the adoption of food quality regulations inspired by those found in European contexts. In the prior chapter, I addressed interstate power relations in the propagation of GI as a developmental framework. I extend this approach in the current chapter, which examines interpersonal power relations in the social construction of *terroir* and institutionalization of one GI in Ecuador. In this chapter, I posit the social construction of *terroir* as a process through which actors employ their economic, political, and cultural authority to accomplish *epistemic authority* (i.e., the power to make legitimate and relevant knowledge claims) (Epstein, 1996; Gieryn, 1999; Jasanoff, 2004); and through which authorized knowledge is enrolled to legitimize, reproduce, and challenge other forms of authority in the regulation of GI. I explore this process through a case study of the 2013-2019 implementation of a GI for coffee grown on Ecuador's Galápagos Islands (*Café de Galápagos*), focusing in particular on the production of two key documents: the dossier (or feasibility study) that *authorized knowledge* concerning coffee's typical character and its link to essential factors of place; and the code of practice (*cahier des charges*) derived from the dossier, which *authorized regulation* of production practices, product standards, and certification procedures. This analytical approach allows me to examine how structural inequalities of power shape the

legitimacy and relevance of knowledge claims concerning *terroir*, and how actors deploy such knowledge in turn to institutionalize preferential product standards and food quality regulations.

Based on this case study, I make three arguments about epistemic authority and the social construction of *terroir.* First, actors' participation in the creation of the dossier and code was unequal and structured by their relative economic, political, and cultural authority, through which they attempted to construct *terroir* to suit their policy motivations (Besky, 2014; Bowen, 2015; Gade, 2004). As the national institution responsible for agricultural production, Ecuador's Ministry of Agriculture (MAG) led implementation of the coffee GI. Its efforts in this project authorized knowledge and regulation that aligned with national policy priorities to enhance agricultural productivity and increase exports; and local policy on Galápagos to support conservation efforts. Because MAG lacked experience with GI, it received support from France's National Institute of Origin and Quality (INAO), the institution that since 1935 has regulated the system of *appellations d'origine* on which international GI protection is based.[53] Through technical assistance, INAO dispersed frameworks for authorizing knowledge and regulation that would reproduce the authority of its GI system and protect its products and producers. This assistance shaped Galápagos coffee producers' belief that GI would enhance their control over commercialization channels, although they disagreed with experts and among themselves about how to manage the GI and ensure coffee quality.

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53. In Ecuador, origin products such as coffee are protected as "denominations of origin" (*denominación de origen* in Spanish), which both legally and linguistically borrows from the French protection of *appellations d'origine*. This suggests a stronger association with terroir than does "geographical indication" because all stages of production must take places within a named region of origin. However, the umbrella term "geographical indication" is used to describe this protection in trade agreements and multilateral forums such as the World Trade Organization (WTO), so in the remainder of this chapter I default to this latter term to avoid confusion.

Second, the dossier and code embodied yet obscured actors' economic, political, and cultural power through the accomplishment of epistemic authority (Epstein, 1996; Gieryn, 1999; Jasanoff, 2004). Despite having little justification in the socio-history of Galápagos coffee, the Ecuadorian state sought to inscribe a new production regime and mechanisms to enforce producer compliance. The political motives behind these changes were obscured through the construction of 'objective' knowledge that made changes 'essential' to the expression of coffee's 'typical' character. Yet when, soon after the official GI declaration in 2015, the producer cooperative petitioned to change the code, it drew on knowledge in the dossier concerning coffee's sensory character to challenge strict production stipulations and compliance inspections. Socio-economically powerful producers selectively leveraged the authority embodied in these documents to render disfavored knowledge and regulations epistemically illegitimate, obscuring their political interests in weakening regulation and eliminating inspections. Thus, they were not just takers of knowledge authorized by more structurally powerful actors (Ferguson, 1990; Scott, 1998), but actively participated in power struggles that produced authoritative knowledge and regulation.

Third, I argue that analytical attention to the structured and structuring effects of epistemic authority can reveal the politics through which 'alternative' qualities are attributed to food and deployed in niche marketing, regulation, and development policy. Power struggles among transnational consultants, representatives of the Ecuadorian government, and coffee producer groups authorized knowledge of coffee's quality and link to origin – knowledge that reshaped relations of power through the code that defined how quality would be regulated. Actors' appeals to epistemic authority empowered them to enact their policy preferences locally, while reflecting and reinforcing the authority of structurally dominant Western actors to say what

matters for food, quality, and development (Levidow et al., 2007; Winickoff & Bushey, 2010). This suggests that quality food initiatives that aim to empower producers and valorize traditional *savoir-faire* can reproduce conflicts over universalized and contextualized knowledge claims present in agro-industrial systems (Flachs, 2019; Kloppenburg Jr., 1988). Further, this case challenges claims that GIs preserve knowledge, culture, and biodiversity (Bérard & Marchenay, 2006; Tashiro et al., 2019), especially for countries in the global South that adopt origin marketing of tropical commodities as a rural development tool.[54] Indeed, structures of social, economic, and epistemic inequality, rather than the nature of 'alternative' food networks or quality schemes themselves, may determine their success in terms of producer empowerment, livelihood enhancement, or regional rural development.

In the following section, I position my argument in relation to social scientific explorations of the social construction of *terroir*, the politics of food quality, and the co-production of science and policy. In section 3, I draw on socio-geographies of the Galápagos Islands to situate this case study in historical and contemporary dynamics of coffee production and producer livelihoods. In section 4, based on textual and interview data, I outline the policy motivations of the primary actors involved in the coffee GI project. In the fifth section, I first analyze how the production of the dossier was authorized through and authorized knowledge and politics, before turning in the sixth section to analyze the production of the code of practice and the authorization of GI regulation. Finally, in section 7, I conclude by suggesting analytical

54. As an example, in recent years, countries such as Colombia, Honduras, Indonesia, Vietnam, Guinea, Kenya, and Ethiopia have implemented GIs for coffee (Barjolle et al., 2017; Chabrol et al., 2017; Durand & Fournier, 2017; Neilson et al., 2018; Schüssler, 2009; Teuber, 2009). Further, GI is increasingly deployed for the development of marginal agricultural areas of Latin America (Barjolle et al., 2017; Bowen & Gaytán, 2012; Mancini, 2013a).

attention to dimensions of epistemic authority as a fruitful research agenda for exploring the discursive and practical enactment of *terroir* in developing contexts.

2. The social construction of terroir, DO regulation, and epistemic authority

In international institutions and trade agreements, actors deploy the notion of an irreproducible *terroir* to justify intellectual property rights to GI (Barham, 2003; Coombe et al., 2014a; Demossier, 2018). The social construction of physical and/or cultural features as 'essential' shapes the social and geographical boundaries of GI,[55] often reproducing powerful actors' cultural distinction, economic power, or territorial control (Demossier, 2018; Gade, 2004; Guy, 2011; Rippon, 2014).[56] Indeed, empirical studies demonstrate how developing world GI projects favor capital over labor (Besky, 2014; Bowen, 2015), or facilitate the construction of harmonious, static 'social imaginaries' that reproduce and obscures inequalities within communities (Coombe et al., 2014b; Gaytán, 2018). Likewise, inequalities between communities are maintained through strategic capture of the distinction associated with *terroir* (Gade, 2004; Patterson & Buechsenstein, 2018; Paxson, 2010).[57]

Claims for the irreproducible distinction of *terroir* were historically legitimized through heritage discourses (Trubek, 2008), but with the advent of sophisticated food science disciplines

55. Some scholars (e.g., Gade, 2004) contest this dichotomy as distorting the meaning of terroir and origin products.

56. For instance, Guy (2011) argues that terroir marketing in France obscures the contribution of migrant workers and other laborers, 'naturalizing' terroir to benefit landowners and capital.

57. As an example, terroir has always been intertwined with French nationalism and imperialism. Scholars have argued that 'Old World' French winemakers adopted terroir to distinguish their wines from 'New World' competitors in countries such as the United States (Guy, 2003; Parker, 2015), and from colonial and post-colonial producers in countries such as Algeria (Guy, 2010).

and techniques,[58] scientifically framed critiques that there is 'no such thing as *terroir*' have been lodged by opponents of GI regulation (Josling, 2006; Teil, 2010, 2012).[59] These complaints have power in a context in which scientific evidence concerning food quality is increasingly produced at the intersection of food standards, trade regulation and dispute resolution, and the authority of international institutions such as the World Trade Organization (WTO) and Codex Alimentarius (Bonneuil & Levidow, 2012; Halfon, 2010; Jasanoff, 2004; Levidow et al., 2007; Winickoff & Bushey, 2010). In this climate, GI proponents have sought to 'objectively' establish *terroir* through scientific research from fields such as molecular chemistry, geospatial analysis, meteorology, and gastronomy (Barjolle et al., 2017; Biénabe & Marie-Vivien, 2017; Bowen, 2015; Oberthür et al., 2011; Teil, 2010; Trubek, 2008).[60] Yet this process of 'rationalization,' which emphasizes measurable, quantifiable aspects and 'objective' quality criteria, may favor physical factors to the exclusion of considerations of local know-how or culture and undermine producers vis-à-vis powerful transnational corporations and state institutions (Barham, 2003; Bowen, 2010b, 2015; Bowen & Gaytán, 2012; Castelló, 2021; Durand & Fournier, 2017; Nizam & Tatari, 2022). In response, structurally marginal actors may adopt scientific explanations to

58. This includes rationalized techniques to identify chemical compounds in food (e.g., gas-liquid chromatography, spectrophotometry) and to account for the subjectivity of individual tastes (e.g., blind tasting, aroma wheels, statistical analysis) (Phillips, 2016; Shapin, 2016).

59. The U.S. and allied countries such as Australia prefer to subsume GI under trademark regulation and claim that it amounts to anti-competitive rent-seeking (Josling, 2006). Ironically, despite challenging the ontology of terroir, Western opponents do acknowledge the influence of place in delimiting wine-producing regions and use scientific evidence of physical geography to make regulatory determinations (Gangjee, 2012b).

60. In France, the judgement of GI quality has always relied on experts, but the recognition of valid expertise has shifted. From the inception of the appellations d'origine contrôlée law in 1935, producers themselves were considered the relevant experts. By the 1990s, INAO was demanding domain experts in soil science, geography, geology, anthropology, food science, plant science, history, sociology, and sensory discernment; and employing scientific laboratories to produce evidence (Barham, 2003; Teil, 2010; Trubek, 2008).

advance their own quality claims (Nizam & Tatari, 2022), contributing to the legitimation of science as arbiter of policymaking and the employment of scientific evidence and discourse to govern place, food, and markets (Barham, 2003; Skinner, 2020).

Despite the importance of science to contemporary politics and governance (Irwin, 2008; Kimura & Kinchy, 2016; Winickoff & Mondou, 2017), there have been few attempts to empirically investigate the co-production of scientific knowledge and epistemic authority in the social construction of *terroir* (for an exception, see Teil, 2012). The field of science and technology studies offers a critical perspective on power, scientific rhetoric, and the mutual ordering of nature and society (Jasanoff, 2005, 2004; Wynne, 1996). This scholarship explores how scientists and other experts accomplish epistemic authority through rhetorical claims to produce 'objective' facts: abstracted from their socio-cultural contexts of production, the facts simply 'speak for themselves' (Epstein, 1996; Gieryn, 1999; Latour, 1993). Yet scientists constitute discursive claims to objectivity, rationality, and value-neutrality to suit social, political, and cultural contexts, and reconstitute these contexts to suit scientific authority (Alatout, 2008, 2009; Jasanoff, 2004). Thus, artifacts such food sensory assessments, organoleptic profiles, and *terroir* can be analyzed as embodiments of structural power relations and their 'objective' status as an exercise of epistemic authority, which can restructure power and open up surprising contingencies, contestations, and reconstitutions of the social order (Epstein, 1996; Jasanoff, 2004; Liberman, 2013; Shapin, 2016; Suryanarayanan & Kleinman, 2013; Teil, 2012).

3. Coffee production on the Galápagos Islands

This section characterizes historical and contemporary coffee production on the Galápagos Islands, a volcanic archipelago located 560 miles west of the Ecuadorian mainland.

This ‘natural laboratory of evolution’ is renowned worldwide for unique ecosystems and megafauna such as tortoises, iguanas, and birds; and its popular association with Charles Darwin and his voyage on the *Beagle* has drawn the interest of scientists, naturalists, and tourists for decades. Just 3% of the surface area is allotted for human habitation and agriculture; the remainder has been protected as the Galápagos National Park since 1959 (see Figure 4).[61] Scholars and policymakers have debated the place of tourism in this ecology, as exponential growth in visitors (and residents to provide services) makes conservation efforts financially feasible but introduces challenges due to unplanned development, pollution, and invasive species (Bocci, 2020; Hennessy, 2019; Valdivia, Wolford, & Lu, 2014). In 1998, Ecuador created the Special Law of Galápagos in response to transnational calls for a management regime to regulate human activity and preserve biodiversity (Valdivia et al., 2014). This governance regime envisions sustainability through management of the islands as a socio-ecosystem, promotion of responsible ecotourism, reconversion of the agriculture sector to support conservation, generation of wealth through knowledge and human capital, and pursuit of cohesive rural and urban development (CGREG, 2016). This discourse has been critiqued for constructing the archipelago as a ‘pristine’ ecosystem to suit endemic species, scientific researchers, and tourists, while negating the presence of the nearly 30,000 residents whose livelihoods and identities are intimately woven into Galápagos history and development trajectories (Bocci, 2020; Franke, Duncan, & Sherwood, 2017; Hennessy, 2019; Quiroga, 2009).

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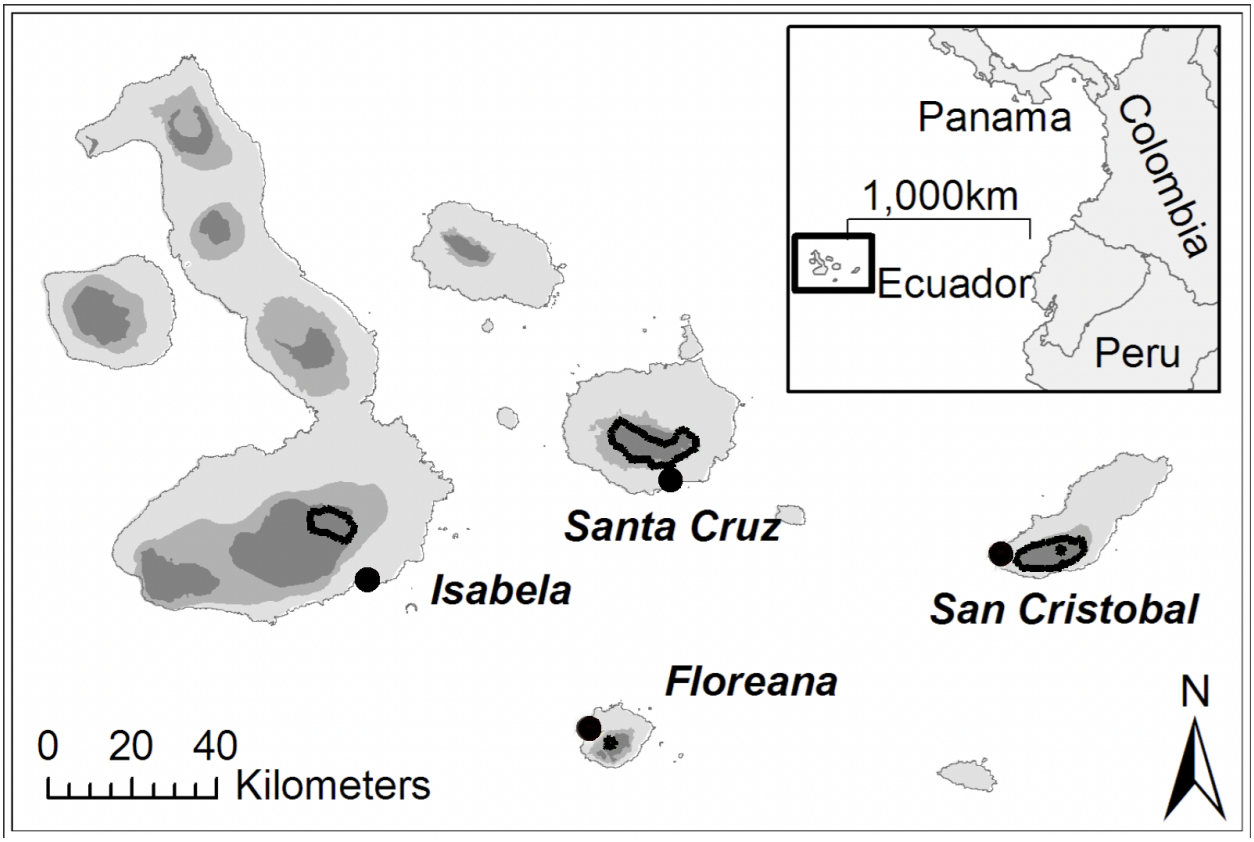
61. Additionally, the islands were designated a UNESCO World Natural Heritage Site in 1978.

Figure 4. Map of the Galápagos Islands. Broad climatic zones are shown (light: arid, medium: transition, dark: humid). The four permanently inhabited islands are labelled. Inhabited areas are shown within lines (rural) and as points (urban). Source: Guézou et al. (2010)



Coffee has been produced in the islands' humid highlands since the 1870s, when the Ecuadorian government encouraged the settlement of sugar and coffee plantations to solidify its claims to sovereignty (Latorre, 2013 [1990]).[62] During the 20th century, subsistence smallholders comprised the bulk of settlers, for whom coffee constituted the sole exportable commodity (Quiroga, 2013). Despite producing in a touristic hotspot on par with coffee destinations such as Bali and Kona, Galápagos producers have struggled with profitability in recent decades due to structurally elevated production costs, which include biosecurity restrictions on imports and

62. The Galápagos Islands have no indigenous inhabitants. In the first centuries after their 1535 discovery by Europeans, they were primarily used by whalers and other ships to restock food and water (Hennessy, 2019).

agrochemicals, controls on residency and migrant labor, and transportation regulations (Chiriboga, Maignan, & Hidalgo, 2007). In the past decade, the introduction of fungal and inspect pests have increased agronomic management costs and decreased productivity, prompting many farmers to abandon coffee. Ecuador's MAG estimates that there are 678 hectares planted with coffee across the islands (about one-third of the agricultural area), although the extent of abandoned or unproductive land is unclear.

4. Policy perspectives concerning denomination of origin coffee

A. Ecuadorian agricultural policy: Coffee renown and conservation

The GI Café de Galápagos initiative (see Figure 5 for a timeline) emerged under Ecuador's *Buen Vivir* ("good living") development model, which emphasized the pursuit of economic diversification, strategic import substitution, and endogenous innovation (Chassagne, 2019; Purcell et al., 2017).[63] For the agricultural sector, MAG sought to promote agro-industrial competitive advantage through strategic innovations in production, processing, and marketing for industries in which Ecuador had comparative advantage, such as cacao and coffee (MAG, 2016b). Ecuador had been a major coffee producer as recently as 1995, when peak exports of 120,000 metric tons made it the ninth largest coffee exporter in the world (International Coffee Organization, 2020). Yet production declined more than 75% in the following years due to

63. Buen Vivir is a Spanish translation of the ontology of sumak kawsay, borrowed from Kichwa, the largest indigenous language family in Ecuador. The development model ostensibly centers collective well-being, democratic participation, cultural diversity, and the rights of nature over economic growth. Additionally, subsoil resources, natural heritage sites such as the Galápagos Islands, and soil, water, and air were enshrined in the Constitution as features of Ecuador's 'national patrimony.' Despite rhetorical commitments to break with Western development models, Buen Vivir has been critiqued for reliance on mainstream development ideas (e.g., economic growth fueling social progress) and 'neo-extractive' funding of social projects through natural resource exploitation (Chassagne, 2019; Escobar, 2010; Gudynas, 2009).

market volatility and record low prices, as deregulation in world coffee markets coincided with a period of economic instability in Ecuador (Daviron & Ponte, 2005; International Coffee Organization, 2020; Solimano, 2002). Under *Buen Vivir*, MAG aimed to revitalize the national coffee sector by focusing on high-quality, agroecological, locally embedded coffee: "Offering a differentiated product in sustainable production systems, so that [coffee production] becomes an alternative for climate change mitigation and allows for the recovery of the country's culture and identity" (MAG, n.d., p. 6). Building on the renown of the Galápagos Islands, Ecuador sought to make GI part of its 'development from below' strategy to capture or create specialty coffee niches.

Figure 5. Timeline of implementation of GI *Café de Galapagos*. Source: The author

2013	Coffee exporter Procafé petitions for Galápagos coffee DO
2014	MAG gathers evidence to be included in Feasibility Study
2015 Jan.	Coffee characterization conducted and results presented to producers
2015 Feb.-Mar.	Conditions of production (COP) written
2015 Jul.	Producer cooperative COPGALACAF constituted
	MAG and INAO formalize technical exchange
2015 Sept.	DO Café de Galápagos official declared in Resolution 1938893
2016	Galápagos coffee parcels rehabilitated by agronomist brigades
2017	Coffee processing facilities established on Santa Cruz and San Cristóbal
	MAG delegated by SENADI to inspect producer compliance with COP
2018	Producer cooperative requests modifications to COP
2019	New COP approved, 12 producers inspected and authorized to use DO
	Ecuador forms Inter-Ministerial Commission for the Promotion and Protection of DOs and GIs of Ecuador

With regards to Galápagos agriculture, GI fit into MAG's policy strategy to support island-wide conservation efforts. Galápagos policymakers regard aggressive agricultural escapees such as blackberry and guava, which threaten to overrun food production and spread into protected National Park areas, as grave threats to endemic biodiversity (CGREG, 2016). MAG has sought to encourage producers to become part of the solution: "Transform agriculture into the main human activity co-responsible for conservation of the archipelago's natural heritage, particularly invasive species control" (MAG, 2016b, p. 293 emphasis added). Yet structural impediments, which include labor shortages,[64] high labor costs, and high transport costs for inputs such as fertilizer, have made it challenging to sustain on-farm income from fruit, vegetable, and coffee production. As a consequence, many producers have converted their croplands to pasturage or allowed it to go fallow, turning instead to income streams such as wage work, taxi-driving, and tourism. As one conservation practitioner argued in an interview, economic incentives are necessary to induce active management of labor-intensive crop species: "If the producers do not have a good market and cannot pay the [production] costs, they will abandon the farms, and once abandoned the fields become a focal point of [invasive species] infection." Among its efforts, MAG considered GI a mechanism for producers to capture added value and build direct connections with consumers, compensating them for contributing labor to limit the spread of invasive species (MAG, 2016b).[65]

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64. As the local labor market has trended towards less physically demanding work in government or tourism, the supply of agricultural labor has shrunk to less than one-third of that found on the mainland (Guzmán & Poma, 2015). Additionally, the rural share of the Galápagos population has declined from 16% to 6% since 1980 (Puente-Rodríguez, Bos, & Groot Koerkamp, 2019).

65. Coffee was a prime candidate for intervention because it represents the islands' only viable agricultural export and would require minimal additional investment in land management to control invasive species (Chiriboga et al., 2007; Puente-Rodríguez et al., 2019).

B. French technical assistance: Defending denominations

French advisors' interactions with MAG technicians and producers revealed their efforts to maintain cultural authority vis-à-vis developing countries in the domain of place-based labeling (Barham, 2003; Guy, 2010; Kerr, 2006). While French technical assistance is freely offered to recipients such as Ecuador, it reinforces perceptions that European consumers, certifications, and practices represent the highest standard for GI. Advisors encouraged adoption of French protocols to demonstrate *terroir*, which would allow Ecuador to register its GIs in Europe. As one technician explained in an interview: "All that about scientific studies that must be done to demonstrate that the quality is due essentially or exclusively to the biophysical, human, or biological conditions allowed us to understand and manage it in line with European legislation." French training led Ecuadorian officials to reflect that their previous GIs had failed to consider *terroir*. For instance, the delimited origin of the GI Cacao Arriba included the entire national territory, which precluded determining a singular typicity given the varied agro-ecologies of production. Ecuadorian officials also believed that adherence to French standards would bolster international credibility, as that same technician explained in an interview: "Registering [GI domestically] doesn't have much credibility at the international level. The goal was to register it in Brussels [the seat of the European Commission] to be able to use the EU logo, [but] they are more demanding." Facilitating access to European consumers attuned to *terroir* quality aligned with MAG's policy goal to reestablish its international reputation for quality foodstuffs (Demossier, 2012; MAG, 2016b).

Additionally, offering technical assistance is one tactic by which France garners international political support for GI and maintains its economically dominant position as the premier producer of *terroir* goods. As an INAO official stressed in the French media, countries

receiving assistance "more easily become [France's] allies when it comes to defending [GI] within the framework of international trade treaties" (Kindermans, 2015). Ecuador has been one such recipient, as MAG and INAO formalized a 5-year technical exchange program in 2015 that directly supported the implementation of the Galápagos GI. During this period, Ecuador was negotiating terms of accession to a multi-party trade agreement between the EU, Colombia, and Peru, which included conditions for recognition of 117 European indications (e.g., Champagne, Parmigiano Reggiano, Scotch) and restrictions on domestic producers' use of protected denominations on 'generic' products.[66] The EU is Ecuador's second largest export market (13%) after the U.S. (50%) (Norman-López et al., 2016), which constrained Ecuadorian negotiators' ability to change the terms of the deal.[67] Rather, officials acknowledged potential economic harms to domestic producers of cheese, meats, and spirits, but framed GI as an opportunity for Ecuador to distinguish and market its own traditional products.

C. Galápagos coffee producers: Protection and commercialization

While MAG officials emphasized GI's economic contribution as facilitating export market access, many producers believed that sufficient demand existed in local souvenir shops,

66. The agreement also recognized two Ecuadorian GIs: Cacao Arriba (2008) and the Sombrero de Montecristi de Paja Toquilla (2009). Negotiations to include other Ecuadorian GIs have continued.

67. In addition to the EU's push for recognition in bilateral and multilateral trade agreements and through direct technical assistance to developing countries, there are two other considerations that contextualize Ecuador's acceptance of GI. First, all member countries of the WTO are subject to the Agreement on Trade-Related Aspects of Intellectual Property (TRIPS), which established recognition for geographical indications (Sautier, Biénabe, & Cerdan, 2011). Second, origin labels have been proposed as a mechanism for achieving Sustainable Development Goals (SDGs) in developing areas, and as such are promoted by agricultural development agencies (see Vandecandelaere et al., 2018, for an example).

restaurants, and hotels to absorb the Galápagos coffee supply.[68] In an interview, one producer compared Galápagos to Hawaii: "There is an impressive market here, with 200,000 tourists who visit each year. Maybe we wouldn't even have to export. That's how I imagine Hawaii does it. I understand that if you go to Kona, the restaurants only offer you Kona coffee." Yet local marketing has been impeded by usurpation of the geographic identifier, as large profits can be made transporting and repackaging bulk coffee for Galápagos tourist shops or export markets.[69] Although this has been an open secret, firm evidence about the responsible parties and the extent of counterfeiting is unavailable. Regardless, producers have felt cheated and manipulated by intermediaries, as one expressed in an interview: "They brought a model. They put her in the farm, and she harvested with her high heel shoes. Just to take photos! They sent that abroad to sell the coffee as 'quality Galápagos coffee,' but they never came back to buy coffee here. They take the fame from here, but not the coffee." Indeed, several intermediaries in the commercial hub of Guayaquil own trademarks iterating 'Galápagos' that are registered in third countries, including in the EU, yet the bulk of the coffee sold under these marks likely originates on lower-cost mainland plantations.[70] To garner interest in GI, MAG emphasized how Europeans had deployed to protect their 'famous' products from usurpation.[71] To local producers, GI represented

68. This is not to say that officials were uninterested in developing the local coffee market. However, interview participants noted several challenges – including hesitancy from hoteliers and restauranteurs about buying more expensive local coffee – which made export markets more attractive.

69. All people and goods brought to Galápagos undergo biosecurity inspections, but the agency responsible is not mandated to limit coffee imports, an issue that has been under discussion in various coffee round-tables on Galápagos. It is also likely that imported coffee is the source of pests such as coffee leaf rust and borer beetle.

70. When the GI was declared, nationally registered coffee trademarks which had used the name 'Galápagos' were nullified. However, nullifying third-country trademarks would first require registering Ecuador's DOs there.

71. Even so, Ecuador tasks producers to monitor usurpation and bring claims again illegitimate uses.

a means to rebalance economic power among themselves, the tourist sector, and mainland coffee traders.

However, producers disagreed about the wisdom of modernizing production, processing, and marketing strategies. Many who inherited coffee agriculture have kept producing, despite earning only ancillary income, in order to preserve their heritage. Others may rely on agricultural income but prefer to outsource harvesting and processing to intermediaries who buy coffee "on the tree." Such producers have been reluctant to consider modernizing production without long-term buyer commitments, as one related in an interview: "We do the investment, and who will we sell to?" In contrast, other producers have sought to enhance coffee quality and employ entrepreneurial strategies, such as social media marketing, direct internet sales, coffee eco-tourism, and seasonal contracts with specialty coffee traders. Their marketing materials and brand names, which reflect Galápagos iconography such as tortoises, Charles Darwin, and volcanoes, demonstrate their attunement to origin signals. Further, they stressed investments to improve quality as necessary to pursue new commercialization channels. These producers viewed their colleagues' hesitancy as an impediment to economic survival, as one related in an interview: "Those who [produce] in the traditional way are simply not prepared, mentally, for the new challenges in the coffee area. There are people who say coffee production [on Galápagos] will end. It will end, but not for those do what they must. As it was done previously – that time is over." These positions on coffee modernization and GI reflect divergent producer outlooks toward the future of island agriculture: between those who view themselves fatalistically as an 'endangered species' or those who seek reinvention as 'farmers who conserve' (Valdivia et al., 2014).

5. Authorizing terroir knowledge: Producing the GI dossier

A. Introduction

This section analyzes efforts to produce knowledge concerning Galápagos coffee's *terroir* and authorize it through the GI dossier. In this document, evidence was compiled to demonstrate a causal relationship between coffee's typicity and relevant physical and cultural factors of place, including documentation concerning coffee's historical reputation, production area, specific practices of cultivation and/or processing, distinction from comparable products, and market potential. Through the creation of the dossier, coffee producers, MAG technicians, and French advisors sought to define coffee's *terroir* to suit their policy motivations, yet their participation reflected structural inequalities of economic, political, and cultural authority. MAG technicians spearheaded this effort, relying on technical assistance from French experts because of their own lack of GI experience. Through training offered to government personnel and producers, INAO advisors encouraged adoption of French models. Producer participation was relegated to offering household survey data and field visits.

As a result, the dossier embodied economic, political, and cultural power in the epistemic authorization of *terroir* knowledge. Through the practical contribution of internationally accredited experts and nationally recognized authorities, coffee's distinctive character was attributed to three primary factors: (1) biophysical elements of the natural ecology of Galápagos; (2) coffee's adaptation to unique Galápagos agro-ecosystems; (3) producer values toward conservation of the islands' unique ecology and endemic species (MAG, 2015a). Cultural factors such as traditional production practices were elided as important contributions to *terroir*, and in fact framed as detrimental to coffee quality. The social construction of *terroir* reproduced the 'objective' status of certain knowledge, including physical, chemical, and sensory assessments of coffee and climatological, chemical, genetic, and anthropological evidence concerning place (see

Table 3). The legitimacy and relevance of this knowledge served to obscure the unequal power relations through which *terroir* was determined and demonstrated. This construction would allow state actors to inscribe a productivity regime in the code of practice that would produce 'farmers who conserve' on Galápagos and enhance Ecuador's reputation in specialty coffee markets.

Table 3. Construction of Café de Galápagos *terroir* in the dossier. Source: The author

Aspect of terroir	Techniques	Expertise	Product
Characterization of product	Physical analysis of coffee Sensory analysis of coffee ('cupping') Chemical analysis	Physical discernment Sensory discernment Food chemistry	Galápagos coffee unique and specialty grade
Description of biophysical factors	Chemical analysis Georeferencing Meteorological data collection Structured interviews	Soil science Geography Meteorology Ecology	Unique coffee character due to microclimates (altitude) and volcanic soil
Description of biological factors	Phenotype analysis Historical analysis	Coffee agro-ecology Evolutionary biology History	Galápagos coffee distinct varieties due to speciation
Description of human factors	Structured interviews Observation Historical analysis	Social science History	Galápagos coffee produced through 'culture of conservation'

B. Coffee's typical character

Coffee's distinctive character was demonstrated through the application of internationally accredited food chemistry and sensory assessment expertise and industry-standard best practices (see Table 4). MAG contracted the Nespresso Head Office Laboratory to physically assess a sample of dry, unroasted Galápagos coffee for characteristics such as moisture, color, density,

and visual defects.[72] Additionally, Nespresso conducted sensory assessment to compare a sample of roasted ground and brewed Galápagos coffee to a reference Colombian sample. This panel concluded that Galápagos coffee possessed a unique flavor profile. Further, MAG contracted an accredited food chemistry lab in Quito for analysis of coffee's chemical composition. Finally, a panel of national and international coffee experts conducted another cupping on Santa Cruz to compare representative samples of island and mainland coffees. This panel produced a description of the 'essential' character of Galápagos coffee that highlighted its high acidity, agreeable and prolonged bitterness, and minerality; and awarded Galápagos coffee specialty grade (i.e., a cupping score above 80).[73] In sum, these analyses established an adequate technical foundation to claim a distinctive, place-based flavor profile and the potential to produce and market specialty coffee under the GI label.

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72. In general, coffee goes through wet or dry processing to remove the outer fruit and the mucilaginous casing around the beans shortly after harvest, resulting in dry parchment coffee. Then, the parchment is hulled, and a sample of the unroasted coffee beans is physically evaluated for irregular shapes or colors, imperfections, or tainted beans, and graded by size and density. Finally, coffee is roasted and ground, and cuppers evaluate aroma and flavor.

73. Following Specialty Coffee Association of America (SCAA) protocols and standards, 10 aspects of coffee quality, including aroma, flavor, body, sweetness, and acidity, are each given a score of 1-10, after which defects are subtracted to produce a total out of 100 (SCAA, 2015). In general, coffees scoring above 80 points are considered 'specialty' grade.

Table 4. Characterization of Galápagos coffee typicity. Sources: MAG (2015a); Seidlaboratory Cía Ltda. (2018); Swiss Accreditation Service (SAS) (2019)

Facet and actors	Source(s) of legitimacy	Practices	Coffee results
Physical analysis (01-21-2015)* Nespresso Head Office Laboratory (Lausanne, Switzerland)	Accredited by Swiss Accreditation Service (No. STS 0590) ISO 4150 Green Coffee Standards Internal standards adapted from ISO norms	Defect number determination by visual analysis Color determination on CIEL *a*b* scale Bean size determination by sieving	Moisture content Bean size, density, and color Four beans with minor defects
Sensory analysis (01-21-2015) Nespresso Head Office Laboratory (Lausanne, Switzerland)	Accredited by Swiss Accreditation Service (No. STS 0590) Internal standards adapted from ISO norms	Aroma (olfactory attributes) and flavor (taste attributes) for roasted coffee grind and roasted coffee brew	Profile (aroma, body, acidity, bitterness, fruity-winey flavors) not matched against Colombian Supremo reference sample Bitterness and acidity higher than reference One undesirable flavor
Chemical analysis (06-10-2015) Seidlaboratory (Quito, Ecuador)	Accredited by American Association for Laboratory Accreditation (AALA) & by Ecuadorian Accreditation Service (SAE) Methods based on ISO 17025 food testing standards Association of Official Agricultural Chemists (AOAC) methods or internal methods adapted from AOAC	Spectrophometry Plasma emission spectroscopy High-performance liquid chromatography (HPLC) Atomic analysis of mineral content Analysis of fatty acids, crude fats, protein, ash, fiber, and iron	Chemical composition levels (protein, fats, fiber, minerals, caffeine)
Sensory analysis (01-19-2015)‡ Three-person cupping panel (Santa Cruz, Galápagos, Ecuador)	SCAA Q-Grader Certification Representative sampling (typology of island, altitude, variety, post-harvest methods) Comparison to mainland Ecuadorian coffees (Jipijapa, Loja, Pichincha)	SCAA cupping protocol for olfactory and taste attributes	Description of typical organoleptic profile Determination of suitability for specialty coffee markets (average score >80)

C. Physical factors of place

In the dossier, altitude and soil were defined as sources for coffee's high quality and distinctive character, making these biophysical factors 'essential' to its *terroir*. These factors were determined from meteorological data, chemical analysis of soil samples, and georeferencing of coffee parcels (see Table 5). First, while the highest quality coffee (*Coffea arabica*) requires cool temperatures typically found 1200-1800 meters above sea level (Lambot et al., 2017), such coffee can be grown on Galápagos at only 300-450 meters above sea level. Despite the islands' equatorial location, the highlands experience distinctively cool microclimates due to a confluence of warm equatorial and cold Antarctic currents.[74] Second, the Galápagos Islands are among the most volcanically active places on Earth, which has "given the soils properties different from those of any other part of the world" (MAG, 2015b). The 'essential' coffee character that cuppers had described was attributed to volcanic soils, as one producer recalled in an interview: "The cupping was valuable because [they identified] a unique flavor that is very characteristic of volcanic soils like these, younger soils where there are those subtle mineral notes that linger."

74. A common shorthand among Galápagos scientists and residents is that one meter of elevation there is equivalent to four meters on the mainland. Elsewhere in Ecuador, in the region of Jipijapa, arabica coffee can be grown 450-530 meters above sea level due microclimatological effects similar to those found on Galápagos.

Table 5. Overview of biophysical factors of Galápagos coffee *terroir*. Source: (MAG, 2015a)

Result	Practices	Source
Soil fertility (ranges of available nutrients and organic material)	Chemical analysis of four soil samples	National Institute of Agricultural Research (INIAP)
Average monthly temperature and precipitation	Collection of meteorological data in Santa Cruz humid zone	El Carmen Meteorological Station
Location, altitude, and area of 135 coffee parcels	Georeferencing analysis of aerial and satellite photos	MAG

MAG employed phenotype analysis and historical data to identify essential and exclusive biological factors of place. While surveying producer households, MAG technicians examined coffee parcels to identify prevalent coffee varieties grown on the islands.[75] This taxonomical evidence was complemented by the written historical record (e.g., Latorre, 2013 [1990]) and local oral tradition to construct a unique agro-biology for Galápagos coffee. For instance, the dossier notes: "The Bourbon [variety] present on Galápagos… is very different from the Bourbon found on the mainland, whether in Ecuador, Colombia, or Peru. The oldest Galápagos Bourbon [was] probably introduced… at the end of the 19th century" (MAG, 2015a, p. 33). This example illustrates how evidence was included in the dossier to scientifically establish a Galápagos coffee *terroir*. First, MAG used phenotype evidence to suggest Galápagos coffee had become genetically distinct from mainland varieties due to the evolutionary pressure of island ecology – as occurred for emblematic species such as tortoises. Second, MAG used historical evidence to link current coffee varieties (and even, as some claim, extant coffee plants) to those

75. Although one informant referred to "identification of DNA" in an interview, the dossier describes only phenotype identification and "maybe 'finger printing' test to identify the historical variety of Galápagos: Típica (Old Bourbon)" (MAG, 2015a, p. 89). As such, it is unclear from the available data if genotype analysis was done.

planted by the earliest islands settlers. This evidence suggested the mutual evolution of distinctive coffee and distinctive agro-ecosystems, strengthening the case for *terroir*.

D. Cultural factors of place

As interpreted by MAG technicians, the cultural factors of *terroir* could legitimize official Galápagos narratives centering conservation in the practical governance of human habitation and agriculture (Hennessy, 2019). MAG held a series of ostensibly consultative workshops with producers to establish standard production practices. In preparation, technicians developed a typology of typical practices that integrated historical data on the development of island agriculture, survey data from 135 coffee-producing households, and observational data from coffee parcels and production facilities. Yet technicians expressed concern that inferior quality and lack of consistency would harm the GI's collective reputation, as one related in an interview: "The coffee [that many producers] produce is terrible because they harvest everything and when they roast it, they burn it. They process it poorly and the marketing becomes hard work." In the dossier, technicians flagged many common practices as detrimental to coffee's sensory quality (e.g., non-selective harvesting, washing with brackish water, drying in direct sunlight on concrete slabs). To produce high-quality coffee consistently over time and across parcels, they outlined detailed procedures that would be enforced through code of practice.

Another cultural aspect – Galápagos coffee's lack of historical reputation – presented an opportunity for MAG technicians to link *terroir* to the ministry's 'co-responsibility for conservation' development discourse. Because international audiences were unfamiliar with the islands' agricultural heritage, technicians struggled to document a historically established collective reputation and productive traditions, which legitimize the distinction of GI from

trademark protection (Gangjee, 2012a). One MAG technician related in an interview how this issue was addressed: “Galápagos is famous because of the animals, not because of the coffee. So I said, ‘Let’s stick the product and the history to the word [‘Galápagos’], and among all that it has the renown.’” For MAG, coffee’s market potential was a blank canvas on which to draw connections to the conservation of the islands’ prized biodiversity. For instance, soil analysis had demonstrated the richness of organic matter in the volcanic soils of Galápagos, for which reasons (as well as costs and regulatory hurdles) producers have typically eschewed chemical fertilizer application. MAG highlighted the inadvertently organic character of coffee production to distinguish producers for their affinity for nature. One clause from the official GI declaration made this socio-natural intimacy explicit: “Coffee forms part of [producers’] *culture of conservation* (with respect to nature) and their form of life, for which they maintain a good *symbiosis* with endemic native plants” (SENADI, 2015, p. 4, emphasis added). Likewise, press materials touting the GI claimed that production of certified coffee on Galápagos “contributes to the protection of biodiversity” (MAG, 2015b).

As constituted in the dossier, Galápagos coffee’s *terroir* reflected national and local agricultural development agendas. State actors sought to institutionalize practices that would improve coffee quality, enhance the marketability of place, and support the conservation of the islands’ protected areas and charismatic megafauna. Rather than protecting and reaffirming traditional practices or institutionalizing practices such as planting native shade trees that might foster on-farm biodiversity, the GI would enshrine a ‘culture of conservation’ as the ‘essential’ human aspect of *terroir*. ‘Conservation’ in this sense meant producers would become ‘part of the Park’ (Valdivia et al., 2014), through the adoption of an environmentally conscious agrarian identity – *savoir-vivre* rather than *savoir-faire* (Guy, 2011). Not incidentally, producers’ affinity

with nature and socio-geographic distance from cosmopolitan consumers were vital to producing coffee's market value (Besky, 2014; Bowen, 2015). The construction of the dossier enabled MAG to discursively elide the sharp break it sought to make with traditional coffee production, yet its political motives were obscured through claims that the dossier merely expressed 'objective' facts about the factors of place that comprised the unique Galápagos *terroir*.

6. Authorizing regulation: Producing the DO code of practice

A. Introduction

In this section, I use the code of practice that authorized practices, product standards, and certification mechanisms to highlight conflicts over which actors could make knowledge relevant and legitimate to GI regulation. Through the dossier, actors had sought to embody their policy preferences through the production of 'objective' knowledge of *terroir*. The code would institutionalize this authoritative knowledge in the material reproduction of 'essential' coffee quality and physical and cultural aspects of place. However, producer resistance illustrates how epistemic authority is contingently and unequally accomplished. Producers deployed authoritative knowledge of coffee character to challenge to the 'objective' basis of stipulations for new harvesting and processing practices. This challenge delegitimized compliance inspections while establishing extra-local coffee cuppers as the ultimate authority on Galápagos coffee's *terroir*. While structurally marginal in terms of political, economic, and cultural authority, Galápagos producers deployed epistemically authoritative *terroir* knowledge to challenge other knowledge institutionalized in the code of practice. Doing so, however, reproduced the authority of 'scientific' assessments to determine the relevant aspects of coffee's character and govern the Galápagos coffee sector.

B. Sensory knowledge: Challenging the evidentiary basis for the code

In September 2015, after corroborating the dossier, Ecuador's National Intellectual Property Service (SENADI) officially declared the GI Café de Galápagos and a code of practice to authorize its use. The code stipulated changes to Galápagos coffee production based on knowledge authorized in the dossier, which included practices of selective harvesting, processing with fresh water, and drying and storage with specialized equipment in dedicated locations. MAG believed that the code would standardize production and reduce quality variability among producers, which could create renown for Galápagos and Ecuadorian coffee in specialty markets. To help producers modernize, MAG offered training workshops, installed specialized processing centers, and sent agronomy student brigades to clear overshaded parcels. However, facing labor shortages and prolonged drought at harvest time, many producers harvested non-selectively (i.e., unripe and overripe coffee) and processed with available brackish water. As a result, no producers were authorized to use GI on their coffee. Despite this setback, many regarded the code as a means to collectively enhance productivity, quality, and marketing. However, as multiple harvests passed without GI authorization and price premiums, some producers began to frame particular standards as overly strict and unnecessary to produce specialty coffee.

In 2018, these socio-economically powerful producers – among them, intermediary traders, cooperative leadership, and exemplary 'farmers who conserve' – moved to have the cooperative request modifications to the code,[76] which was permitted under Ecuador's legal framework for GI if the proposed changes could be shown to not adversely affect quality. While these producers exerted pressure to tamp down disputes within the cooperative and lobbied local

76. The cooperative, known as the Cooperative of Coffee Production of the Galápagos Islands (COPGALACAF), was constituted by MAG to administer and commercialize DO coffee.

authorities to acquiesce, their efforts to change the code succeeded because they used knowledge authorized in the dossier – especially sensory knowledge concerning coffee's 'typical' character – to show that a return to the status quo ex ante would not harm quality. They reminded regulatory authorities that the sensory descriptions of coffee's 'essential' character were determined from samples produced before the code was institutionalized. Sensory evidence in the dossier had 'objectively' demonstrated Galápagos coffee's *terroir* but had not shown that practices such as selective harvesting, fresh-water processing, and use of specialized drying equipment were 'essential' to reproduce *terroir* quality. As an example, the code mandated freshwater processing based on technicians' experience with specialty coffee and their belief that brackish water introduced contaminating flavors and aromas. However, the cooperative used evidence from the dossier to challenge the 'objectivity' of this assertation, as indicated in a letter to SENADI: "The samples which were used to determine the profiles of Galápagos coffee were done with *brackish water*, which did not cause important changes to the final product" (COPGALACAF, 2018 emphasis added). As producers argued, because knowledge of coffee's 'essential' character in the dossier indicated that Galápagos coffee could be specialty grade whether it was washed with fresh or brackish water, there was no scientific basis on which to stipulate the use of fresh water. Further, the use of brackish water better reflected how the biophysics of Galápagos were characterized in the dossier because fresh water is limited during dry seasons and prolonged periods of drought. Producers supported their challenge to the enforcement of strict practices by strategically deploying authoritative knowledge in the dossier concerning coffee's character and link to soil chemistry, microclimates, and speciation dynamics. Based on this evidence, the state permitted modifications to the code and adopted producers' framing that this would not harm quality. As one SENADI representative related in an interview:

"The code laid out very high goals that were difficult to achieve, and which above all, did not alter the quality of the product" (emphasis added). In 2018, a new code was issued that permitted a degree of non-selective harvesting and use of brackish water in processing.

C. Sensory assessment: Taking qualification out of their own hands

Producers' challenge to the code reaffirmed the legitimacy of sensory assessment to determine *terroir* quality. As a corollary, it also legitimized sensory assessment, rather than compliance inspections, as a mechanism to determine GI qualification. The original code had instituted a four-tiered compliance structure based on the French model: (1) producer self-control; (2) inspections by an authorized body of the cooperative (internal control); (3) third-party certification (external control);[77] (4) regulatory oversight by SENADI. Members of the cooperative regulatory body opposed their own participation as certifiers at the second tier, as one related in an interview: "I have to say if [others] comply or not? Horrible. Because apart from that, I am a beneficiary of the GI, so I would have been *judge and jury*" (emphasis added). To these producers, internal inspections represented an inherent conflict of interest that would produce tension among the tight-knit coffee community. As an alternative, the cooperative proposed to neuter the role of 'subjective' inspections to determine qualification in favor of independent, 'objective' sensory assessment. As stipulated in the revised code, if a cupped coffee sample received SCAA specialty grade, its producer could use GI regardless of adherence to practices outlined in the code. MAG technicians would still conduct inspections, but their observations became unenforceable recommendations. According to producers, while inspections could not be value-neutral because of the political motives of fellow producers or institutional

77. In the absence of a qualified third-party certifier, MAG has fulfilled this function.

actors, the coffee score – produced through the impersonal, standardized, and rigorous technique of cupping – provided an 'objective' metric to determine if coffee truly expressed *terroir* quality. Additionally, the score had the benefit of parsimony, as one producer expressed in an interview: "If you don't process [coffee] well, you won't score 80 [points on the SCAA specialty coffee scale]. So why did we put all those requirements [in the code]? If you want your coffee to get 80 or more, you know what you must do." To these producers, the score was authoritative because it revealed as much information about coffee quality as inspections yet replaced pages of checklists and written assessments with a single number.

Ironically, producers reaffirmed the legitimacy of the dossier and sensory assessment by framing their own knowledge of coffee's sensory character as inadequate and irrelevant. In interviews, producers juxtaposed their own discomfort and unfamiliarity with cupping against the practical experience and extraordinary sensitivity to flavor and aroma of expert cuppers. As one related: "I'm not good at cupping but I had to learn. I don't like it because so much coffee gives me a headache." Another, a lifelong drinker of instant coffee, recalled difficulty learning roasting techniques due to lack of experience tasting 'real' coffee. Yet it was not just qualities of expertise but rationalized techniques that made cupping an 'objective' determination of quality, which include strict protocols (e.g., blinded tasting, standardized preparation) and collective derivation of the score (Liberman, 2013; Shapin, 2016). This rationalized knowledge production lent credence to the notion of Galápagos coffee's unique character and specialty grade, which supported producers' socio-economic power vis-à-vis intermediaries who illegitimately drew on the marketing power of origin. However, it also reflected and reproduced the power of coffee retailers and expert cuppers to define quality standards, authorize assessment techniques, and determine who qualifies and on what terms (Daviron & Ponte, 2005; Teuber, 2010). By

outsourcing qualification to sensory analysts, producers bought in to existing relations of epistemic authority and the determination of policy outcomes through scientific expertise.

Beyond this, the 'objective' status of this knowledge was an effect of the social and economic power of certain producers to institutionalize their preferences to the potential detriment of others. In 2019, only 12 producers (of the approximately 135 across the islands) were certified to use GI, based on receiving specialty-grade coffee scores between 80 and 85. Changes to the code reproduced the power of certain producers – younger, better educated, more tech-savvy, and wealthier – while obscuring their efforts to draw boundaries around the 'collective' heritage of *terroir* to their advantage (Besky, 2014; Coombe et al., 2014b; Gade, 2004; Guy, 2011). Using the GI, socio-economically powerful intermediary traders, cooperative leadership, and 'farmers who conserve' may be able to use entrepreneurial strategies for coffee upgrading and adopt conservation symbolism to make the market work, while enacting few practical changes to coffee production. In contrast, marginal producers who might have benefitted from collective efforts to use GI to improve coffee quality may be left with few options: sell cheaply, leave unsold harvests to molder in warehouses, or abandon coffee production altogether. As one producer in this latter group remarked to me in an interview: "[If coffee] is not profitable, then the biggest expense would be to buy a machete for $8 and cut it all down." Ironically, structurally powerful producers who argued that they could not participate in GI qualification have nonetheless disqualified their colleagues. Yet their participation was obscured, as outsourcing to cuppers took qualification out of their hands.

7. Conclusion: Epistemic authority and the social construction of terroir

In this chapter, I have argued that the social construction of *terroir* implicates political efforts to claim the *epistemic authority* to determine product quality and its link to origin; and to institutionalize this authority in GI regulatory frameworks. Knowledge was legitimized in the Galápagos GI dossier through actors' political, economic, and cultural power, especially the political authority granted to Ecuador's MAG to pursue *Buen Vivir* agricultural policy directives and support Galápagos conservation governance. Through the dossier, state development agents framed political questions – over who should qualify for GI and on what terms – as technical questions (Ferguson, 1990; Scott, 1998), marginalizing producers' policy preferences and concerns for socio-economic survival. However, the widespread acknowledgement that *terroir* must have a scientific foundation reflected French cultural authority to conceptualize *terroir*; political authority to define standards of proof; and economic authority as the premier market for GI goods (Barham, 2003; Guy, 2010). As French technical assistance was conditioned on Ecuador's political support for GI, the project bolstered European power in its trade disputes with the U.S. and other opponents of this *sui generis* system of intellectual property (Josling, 2006; Kerr, 2006).

While the dossier embodied these structural relations of power, it also comprised another form of authority, one that producers strategically deployed to challenge the code of practice and reaffirm or disrupt structures of authority. Often, these affirmations and disruptions of authority occurred simultaneously, as for instance, producer efforts to reconstitute the code involved challenging their own ability to assess coffee's sensory qualities. This strategic moment of alignment with authoritative knowledge, while empowering producers to locally redefine the terms of GI certification, may reproduce global patterns of knowledge authorization that are

ultimately disempowering. Indeed, even as Galápagos producers challenged aspects of the French GI model, their adoption of 'scientific' framings and discourses of place-based character ultimately reflected and reinforced the authority of structurally dominant Western actors to say what matters for food, quality, and development (Flachs, 2019; Levidow et al., 2007; Winickoff & Bushey, 2010). Thus, this limited strategic victory may ultimately prove pyrrhic, as it reproduces the legitimacy of scientific governance of Galápagos and wider dynamics of 'scientization' in modern politics (Bocci, 2020; Hennessy, 2019; Jasanoff, 2004; Kimura & Kinchy, 2016).

I suggest the need for attention to how economic, political, and cultural inequalities structure and are structured by struggles to establish epistemic authority over *terroir* and institutionalize this authority through the discursive and practical enactment of GI. As many GI proponents claim to protect producer knowledge traditions and *savoir-faire* through the marketing of place-based quality and heritage (Marie-Vivien & Biénabe, 2017; Tashiro et al., 2019), more empirical work will contribute to theorizing epistemic authority as an important dynamic of the social construction of *terroir*, both in the macro-politics of food standards, trade relations, and institutional authority; and the micro-politics of local implementation, contestation, and adoption (Besky, 2014; Bowen, 2015; Castelló, 2021; Josling, 2006). In particular, there is a need to address how French and EU institutions produce the form and content of technical assistance or determine which countries are worth investing in. These questions are beyond the scope of the present study, but could be addressed in future work exploring epistemic relations of authority among and within national governments, supra-national regulatory institutions, and development agencies with a stake in GI, such as the Food and Agriculture Organization of the United Nations (Vandecandelaere et al., 2018). Further, there is an opportunity for deeper

engagement with processes of *terroir* 'rationalization' (Barham, 2003; Nizam & Tatari, 2022; Teil, 2012), through attention to scientifically authorized knowledge in legal frameworks, policy discourses, and academic research.

CHAPTER FOUR: EXPLORING GEOGRAPHICAL INDICATIONS AND LOCALIZED AGROFOOD SYSTEMS IN THE GLOBAL SOUTH: THE TERRITORIAL VALORIZATION OF GALÁPAGOS ISLANDS COFFEE

1. Introduction

The legal recognition of geographical indications (GIs) has been increasing globally in recent years, such that approximately one-third of all registered GIs now come from countries of the global South (WIPO, 2019). A GI identifies a good as originating in a particular territory where a given quality, reputation, or other characteristic of the good is essentially attributable to its geographical origin. Because GIs are tied to territory through the notion of *terroir* ('the taste of place'), they are widely viewed by policymakers as a mechanism for food system relocalization (Barham, 2003; Ilbery & Kneafsey, 2000; Mancini, 2013a), especially for marginalized rural areas (Bramley, Biénabe, & Kirsten, 2009; Hirczak et al., 2008). The tie to territory has been seen as facilitating gains in added value, collective empowerment, economic diversification, and the preservation of heritage and knowledge (Barham & Sylvander, 2011; Chabrol et al., 2017; Rueda & Lambin, 2013; Tashiro et al., 2019; Teuber, 2010). The growth in global registration of GIs has been accompanied by increasing interest from rural studies and development scholars, who have often challenged the celebration of these labels as an economic development panacea for global South producers and states (see e.g., Besky, 2013; Bowen, 2015; Mancini, 2013b; Neilson et al., 2018; Rangnekar, 2011). Yet surprisingly, despite the centrality of *territory* to the legal expression and cultural valorization of GIs (Casabianca et al., 2006), there has been a dearth of scholarship considering the role of territory in the creation, registration,

management, and commercialization of these standards in the global South (except see e.g., Fournier, 2008; Mancini, 2013b; Pachoud, Labeyrie, & Polge, 2019).

The are two primary and interrelated reasons for this gap. First, as is the case for related initiatives such as fairtrade (Raynolds, 2018), global South GIs are seen as mechanisms to redistribute the economic benefits of participation in North-South value chains (Nizam, 2017; Quiñones-Ruiz, Penker, Vogl, & Samper-Gartner, 2015). Indeed, producer groups and state policymakers often conceive of such initiatives as a means to maintain or enhance export competitiveness (Chabrol et al., 2017; Ingram et al., 2020; Sautier et al., 2011; Schüssler, 2009), and the principle markets for many GI goods tend to be affluent countries in Europe and elsewhere in the global North (Besky, 2014; Biénabe & Marie-Vivien, 2017). Second, as Bowen (2010b) highlights, "GI supply chains tend to be governed by local actors but sold within extralocal markets" (p. 214), necessitating an analytical approach that can address the power relations at play in negotiating the passage from local to global. Given the typically long supply chains in question, many scholars have relied on the analytical framework of the global value chain (GVC) (Bair, 2005; Gereffi, Humphrey, & Sturgeon, 2005) to investigate global South GI systems. Such an approach focuses on the stages of productive activities that bring a product to market, in particular highlighting *coordination* aspects at nodes where value is added and *governance* aspects concerning the overall distribution of benefits along the chain (Gibbon & Ponte, 2008; Kaplinsky, 2000). Yet as a consequence, such scholarship tends to conceive of the 'local' in terms of systems of production, distribution, and consumption detached from territory (Bowen & Mutersbaugh, 2014), which gives less attention to the territorial rootedness of GI systems through the construction and articulation of quality and heritage rooted in *terroir*.

Coffee – one of the most frequently studied tropical commodities – is an important cash crop for smallholder farmers throughout the global South; consequently, it has been the object of social movement and alternative market strategies in favor of addressing imbalances in power and economic benefits between local producers and transnational traders and buyers (Jaffee, 2014 [2007]; Raynolds, 2012). Likewise, it has been considered as a product with a favorable outlook for GI (see e.g., FAO, 2016), given the existence of a strong market for specialty and single-origin coffees, with consumers attaching value to the sensory experience and cultural distinction associated with high-end coffee consumption (Daviron & Ponte, 2005; Fischer, Victor, & Asturias de Barrios, 2020; Schüssler, 2009). Recent decades have seen the creation of GI for coffees in countries such as Colombia, Honduras, Indonesia, Vietnam, Guinea, Kenya, and Ethiopia (Barjolle et al., 2017; Chabrol et al., 2017; Durand & Fournier, 2017; Schüssler, 2009; Teuber, 2009). While studies of coffee GI have suggested key barriers to successful, participatory, and equitable implementation due to the limited capacity of producer organizations and local institutions, entrenched supply chain structures, and consumer ignorance of emergent coffee regions (Barjolle et al., 2017; Marescotti & Belletti, 2016; Neilson et al., 2018; Schüssler, 2009; Teuber, 2009, 2010), the attention to value chain dynamics and government activity of this scholarship has not allowed for a fully developed exploration of the role of territory.

In this chapter – co-authored with Rafael Villota, Professor of Hospitality, Culinary Arts, and Tourism at the Universidad San Francisco de Quito – we address the role of *terroir* and territory as frameworks for understanding and valorizing the 'localness' of food products. We examine how stakeholders in GI implementation construct territorial factors relevant to the creation, registration, management, and commercialization of GI standards. Our approach – outlined below – emphasizes the role of policy discourse and technical assistance in shaping how

stakeholders understand and apply *terroir* as a framework for the collective construction and valorization of localized food heritage.

To emphasize the importance of *territory* as an organizational factor in GI as a localization and alternative market strategy for coffee, we use the analytical framework of Localized Agrifood Systems (SYAL, from the French *Systèmes agroalimentaires localisés*). The emphasis in the SYAL framework is on *territory* not merely as the substrate of food system activities, but as a multidimensional category comprised of localized and interlinked material, conceptual, social, and organizational factors (Bowen & Mutersbaugh, 2014; Mascarenhas & Touzard, 2018; Sanz-Cañada & Muchnik, 2016). This analytical stance has made SYAL a critical framework for addressing the "coordination and interaction between place, social relations, and institutions" (Mancini, 2013b, p. 184). As an analytic, the SYAL framework focuses on four interrelated areas of investigation: (1) product distinction and qualification; (2) collective action and coordination; (3) resource management; and (4) knowledge (Mancini, 2013b). GI arguably represents the institutionalized form of the SYAL approach (Bowen & Mutersbaugh, 2014; Sanz-Cañada & Muchnik, 2016), yet despite the demonstrably utility of the framework as applied to many European cases (see e.g., Amilien, Tocco, & Strandbakken, 2019; Castelló, 2021; Virginie et al., 2022) and to processed goods (wines and cheeses) from the global South (see e.g., Cerdan et al., 2018; Crespo, Réquier-Desjardins, & Vicente, 2014; Mariani, Cerdan, & Peri, 2019), there has been only limited application of this framework to GI for tropical commodities such as coffee (except see e.g., Belletti, Chabrol, & Spinsanti, 2016; Fournier, 2008; Videgla et al., 2016; Wang, Anh, & Moustier, 2021). Consequently, there is a need for more and deeper empirical work exploring the interaction of value chain dynamics, such as those present in the coffee

commodity sector; and territorially rooted food system dynamics, such as those valorized through GI initiatives.

To address this empirical gap, we apply the SYAL framework to analyze the creation of a GI for coffee grown on the Galápagos Islands in Ecuador. The Galápagos, renowned for endemic biodiversity and scientific significance, also host a modest coffee sector that is overshadowed by the local economic dominance of tourism (Taylor, Hardner, & Stewart, 2009). This case illustrates characteristics that are typical of coffee production globally, while also offering some sharp divergences that demonstrate the potential and limits of GI coffee as a food system localization strategy. The struggles faced by Galápagos producers mirror the challenging landscape for smallholder coffee growers worldwide, which include:

- The increased power of international traders since the decline of the International Coffee Agreement (Talbot, 2004);
- The prevalence of globally defined quality norms and standards, whether for physical and organoleptic aspects (e.g., Specialty Coffee Association) (Ponte, 2004), or values-based aspects (e.g., Fairtrade International, USDA Organic) (Raynolds, Murray, & Heller, 2007);
- The rising threat of fungal and insect pests, such as leaf rust (*la roya*) or borer beetle (*la broca*) (McCook, 2019).

Yet in contrast to many growing regions, the worldwide fame and popularity of the Galápagos offer the potential for local producers to exploit symbolic marketing, in-person service quality, and synergies with the tourism sector. Even so, these factors also induce actors to smuggle and repackage cheaper, non-locally sourced coffee, threatening the viability of the local sector. These dynamics arguably position the Galápagos coffee GI as an extreme case (Seawright & Gerring, 2008), powerfully illustrative of the importance of local territorial factors in the creation and management of a GI. Our application of the SYAL framework to this case addresses how the GI was employed to reconfigure and reconstruct a localized coffee system, highlighting the

interaction of territorial characteristics, product qualification strategies, collective action, knowledge and resource management, and the law and national institutions.

We argue that this case study can contribute to important empirical, conceptual, and policy-relevant discussions within rural studies and development studies. Empirically, we offer an extension of previous studies that have used the SYAL framework to assess the effectiveness, fairness, and equity of GI systems for lightly processed tropical commodities (see e.g., Belletti et al., 2016; Videgla et al., 2016; Wang et al., 2021). In particular, we argue that coffee has been understudied in this respect (for an exception, see, Fournier, 2008), which is an important gap given the importance of coffee income for millions of smallholder farmers and the challenges of relocalizing coffee production systems given the obdurate structures of the global market. The study of coffee in this respect can also contribute to the refinement of the SYAL approach as both theory and method through attention to the challenges and opportunities of relocalization efforts in sectors defined by territorial disconnection (Neilson et al., 2018). Finally, our study offers important policy implications concerning the use of GIs to relocalize food in developing contexts. In particular, we draw attention to how internal divisions among coffee producers reflected and exacerbated market structures; the opportunities and challenges posed by the presence in the same territory of a dominant tourism sector; and the inconsistent policy direction and technical assistance offered by state actors intervening in the territory.

2. Conceptual background: SYAL and GI

The concept of Localized Agrifood Systems (SYAL) was developed by researchers from the French Agricultural Research Center for International Development (CIRAD) in the 1990s. A SYAL is defined as: “Production and services organizations (units of agricultural production,

agrifood enterprises, markets and stores, restaurants, services) linked by their characteristics and by their relationship to a specific territory" (Muchnik et al., 2007, p. 1465). What differentiates the SYAL approach from the more familiar (to Anglophone audiences) global value chain (GVC) analysis of food systems – even those constructed as 'local' – is the importance of *territory*, not merely as the location within which food system activities take place, but as a factor in the construction of food quality and the organization of the actors involved (Bowen & Mutersbaugh, 2014; Mascarenhas & Touzard, 2018; Sanz-Cañada & Muchnik, 2016). In the agrofood literature, the concept has been understood and applied in two distinct but related ways: as analytical object and as method of analysis (Bowen & Mutersbaugh, 2014). First, as analytical object, a SYAL constitutes the "concentration of locally networked farms, small firms and institutions, mainly located in rural areas, which are specialised [sic] in producing and marketing identity-based food products" (Sanz-Cañada & Muchnik, 2016, p. 2). Scholars have applied this concept to assess the degree of territorial concentration and/or dispersion present in diverse aspects of particular food systems (e.g., Boucher & Brun, 2010; Mancini et al., 2019). Second, the concept also serves as an analytical framework to evaluate policy proposals and tools aimed at enhancing and developing local food resources (Mascarenhas & Touzard, 2018; Sanz-Cañada & Muchnik, 2016). For this reason, the SYAL approach is highly relevant for understanding and even remediating the inequality among food system actors, even those intentionally engaged in 'alternative' strategies of food production, distribution, and consumption (Bowen & Mutersbaugh, 2014; Lamine et al., 2019).

Much of the SYAL scholarship has addressed the use of geographical indications (GIs) to support local food system actors (e.g., Guareschi, Mancini, & Arfini, 2023; Millet, 2019), which can be argued to represent the institutionalized form of the SYAL approach to the development

of local agricultural and related resources (Bowen & Mutersbaugh, 2014; Sanz-Cañada & Muchnik, 2016). A GI is a state-protected product label that identifies a good as originating in a particular territory where a given quality, reputation, or other characteristic of the good is essentially attributable to its geographical origin. Examples of GIs include the French *appellations d'origine contrôlée* (AOC) and the EU Protected Denominations of Origin (PDO), both of which codify and protect the linkage between territorially based natural factors, cultural factors, and typical food character that is described by the French term *terroir. Terroir* has been defined as:

> (1) A delimited geographical space, (2) in which a human community, (3) constructs over the course of its history a collective production know-how, (4) based on a system of interactions between a physical and biological environment, and a set of human factors, (5) in which the socio-technical histories involved, (6) reveal an originality, (7) confer a typicality, (8) and engender a reputation, (9) for a good originating from this geographical space (Casabianca et al., 2006, p. 3).

Scholars using the SYAL approach have described *terroir* as an analytical tool for assessing the degree to which food systems are 'anchored' in territory (Mancini, 2013b; Sanz-Cañada & Muchnik, 2016, p. 3), thus making explicit the connection between the institutionalization of GI, the conceptualization of *terroir*, and the analysis of SYAL.

Because GI ties food systems to territory, it has been conceptualized as a mechanism for protecting traditional agrofood products and practices from the vagaries of the contemporary 'placeless' food system (Ilbery & Kneafsey, 2000; Mancini, 2013a). Indeed, proponents argue that pursuing food system localization through GI can guarantee product quality and distinction for consumers while offering fair compensation to producers for preserving traditional practices and agrofood character (Barham, 2003; Carimentrand et al., 2019). There are several claimed benefits for producers and rural regions stemming from the use of GI. First, economic analyses have suggested products marketed on origin may gain a price premium over industrially

produced or mass-market products (Rueda & Lambin, 2013; Teuber, 2010). Second, because GI is a collective form of intellectual property, it can foster localized collective action and producer empowerment (Barjolle et al., 2017; Chabrol et al., 2017). Third, GI can facilitate the preservation and transfer of traditional and locally rooted forms of knowledge (Marie-Vivien, 2008; Tashiro et al., 2019). Fourth, the use of GI may induce positive spillover effects in the region of origin, including economic diversification and protection of rural cultures and environments (Barham & Sylvander, 2011; Suh & MacPherson, 2007; Thual & Lossy, 2011).

A review of the relevant Anglophone and Francophone scholarship on the intersection of SYAL and GI reveals several prominent themes. First, scholars have focused on the dynamics of collective action in SYAL that are institutionalized as GI (Amilien et al., 2019; Boga, Paül, & Haslam-McKenzie, 2023; Cerdan et al., 2018; Crespo et al., 2014; Fournier, 2008), addressing factors such as the benefits of belonging to collective organizations (Wang et al., 2021), the sharing of knowledge and advice among networks of local actors (Chiffoleau & Touzard, 2014; Pachoud, 2019; Pachoud et al., 2019), and trust (Menozzi & Finardi, 2019). Second, scholars have analyzed the construction of quality and locality (Aspøy, 2019; Garçon, 2019; Hegnes, 2019), with particular attention to the challenge of balancing tradition against innovation (Boucher & Brun, 2010; Mancini et al., 2019; Mariani et al., 2019) and the management of quality through production specifications (Belletti et al., 2016; Lamine et al., 2019; Rinallo & Pitardi, 2019). The third major theme addressed by these studies is integration of local food system histories (Castelló, 2021; Millet, 2019; Sgroi & Modica, 2022), including especially attention to consumer knowledge of and links to territorialized food products (Barrionuevo, Bernat, & Velarde, 2019; Videgla et al., 2016; Virginie et al., 2022). The fourth major theme is the role of institutions in the locality, whether national organizations or the relevant legal

frameworks (Mancini, 2013b; Marie-Vivien, Carimentrand, Fournier, Cerdan, & Sautier, 2019). Finally, a few studies have considered the interaction of these territorial factors (Lamine et al., 2019; Mascarenhas & Touzard, 2018; Nowack, Schmid, & Grethe, 2022).

Despite the explicit connection made between SYAL as object, method, and institution (in the form of GI), there has been relatively little scholarship applying the SYAL framework to analyze the effectiveness of GI in the global South, as most scholars tend to draw on global value chain (GVC) analysis (see e.g., Bowen, 2010b; Ingram et al., 2020; Mancini, 2013a). In contrast to the SYAL approach, which considers how the territorial rootedness of food systems is constructed, GVC analysis tends to define 'local' in terms of systems of production, distribution, and consumption (Bowen & Mutersbaugh, 2014). Thus, these analyses have tended to address the power relations among actors occupying different positions along the value chain, with particular attention to how product quality and heritage are defined and institutionalized (Belletti et al., 2017; Marescotti & Belletti, 2016; Nizam, 2017; Nizam & Tatari, 2022). These analysis have been important for revealing how GI schemes present opportunities for materially powerful actors to expropriate elements of collective cultural heritage, often with tacit state support (Bowen, 2015; Bowen & Gaytán, 2012; Rangnekar, 2011). Further, critics have drawn attention to the unequal distribution of benefits between lead firms in GI value chains and the farmers whose traditional, artisanal practices have formed the basis for agrofood quality reputation (Mancini, 2013a; Neilson et al., 2018; Renard & Domínguez Arista, 2020). Yet there has been comparatively little attention to the role of place– specifically *terroir* as a framework for understanding and valorizing the local – as the basis for understand how GIs are created and managed in these contexts and whether they are effective at meeting their stated goals.

This is even more surprising given that the SYAL approach was developed as a framework for exploring the dynamics present in food systems in developing contexts (e.g., Francophone Africa, Latin America) (Bowen & Mutersbaugh, 2014; Mascarenhas & Touzard, 2018). Indeed, while scholars from the mostly French SYAL tradition have considered the relationship between territory, the construction of quality, and food system organization, they have applied this framework to cases that, with a few exceptions, draw from the European context where this tradition is strongest (see e.g., Amilien et al., 2019; Aspøy, 2019; Boga et al., 2023; Castelló, 2021; Chiffoleau & Touzard, 2014; Garçon, 2019; Guareschi et al., 2023; Hegnes, 2019; Lamine et al., 2019; Mancini et al., 2019; Mascarenhas & Touzard, 2018; Menozzi & Finardi, 2019; Millet, 2019; Nowack et al., 2022; Rinallo & Pitardi, 2019; Sgroi & Modica, 2022; Virginie et al., 2022). This limitation is not merely geographical, but also categorical, as the few cases of global South products considered using the SYAL framework have generally been highly processed, such as wines and cheeses (see e.g., Barrionuevo et al., 2019; Boucher & Brun, 2010; Cerdan et al., 2018; Crespo et al., 2014; Mancini, 2013b; Mariani et al., 2019; Pachoud, 2019; Pachoud et al., 2019), with only limited attention to commodity goods (see e.g., Belletti et al., 2016; Fournier, 2008; Videgla et al., 2016; Wang et al., 2021). Our analysis of the case of the institutionalization of the Café de Galápagos GI presents the opportunity to explore the construction of territoriality empirically, and most especially, reveal the dynamics involved in constructing a localized agrifood territorial link that may be particularly relevant in developing contexts. This case study can contribute to a fuller understanding of how a SYAL may be constructed (as an object) in the developing world; how the SYAL methodology may be applied to a wider range of cases from the global South; and how this approach can give a more rounded picture of the application of GI in the global South.

3. Findings: The coffee sector in the Galápagos Islands, Ecuador

The contribution of the Galápagos coffee sector to the islands' economy, and to the national coffee sector, is relatively small. Indeed, the rapid growth of tourism following the creation of the Galápagos National Park has been the main factor driving changes to the islands' social, economic, and environmental systems (Grenier, 2000).[78] The dominance of tourism – accounting for as much as 85% of economic activity on the islands (Grenier, 2000) – has led some coffee growers to refer to themselves as the tourism sector's 'little brother' in terms of economic and political power. The area of production, at just under 700 hectares, represents only one percent of the total area of coffee production in Ecuador (Jiménez Buri, Quezada, & Vega Granda, 2023). There are around 135 coffee farms across the four inhabited islands of the Galápagos, although production is concentrated on the island of Santa Cruz. Around one-third of the agricultural land of the archipelago is planted with coffee, although it is estimated that many of these plots may be abandoned or unproductive. Even so, coffee occupies the largest area of agricultural land after pasture, and remains the islands' only viable export crop (Puente-Rodríguez et al., 2019). Since the 1980s, the profitability of the Galápagos coffee sector has been in decline, which can be attributed to two factors: competition from large-scale farms on the mainland,[79] and the growth of the tourism sector, which absorbs most of the available labor pool (Chiriboga et al., 2007; Quiroga, 2013).[80] Many coffee farmers now either supplement their income or offset the loss of agricultural profitability with work in tourism or services (Chiriboga

78. The most recent figures reported by the Galápagos National Park management are approximately 270,000 annual visitors to the islands in 2019.

79. The competitiveness of the Ecuadorian coffee sector as a whole is also hampered by its use of the U.S. dollar as national currency, which increases labor costs relative to neighboring coffee-producing countries such as Colombia.

80. For instance, the percentage of the island population working in agriculture has declined from 16% in 1980 to just 6% (Puente-Rodríguez et al., 2019).

et al., 2007). Total annual production is estimated to be 200 tons, with an average sale price of $3 per pound for unroasted coffee and $10-15 per pound for ground roasted coffee (2013 figures). However, as much as 98% of coffee is sold unroasted to intermediaries, with only 2% packaged for sale in local souvenir shops.

Coffee harvest and post-harvest processing among Galápagos producers is heterogeneous. First, as many as two-thirds of coffee growers do not harvest or process coffee themselves (MAG, 2015a). Rather, many growers sell their coffee 'on the tree' to a buyer based on the size of the plot, with the buyer assuming responsibility to contract laborers and manage the harvest. Others harvest their own coffee but sell the cherries directly to a firm or association that handles post-harvest processing. For growers who process themselves or for intermediary buyers who handle this stage, there are generally two means of removing the fruit that encases the coffee bean: wet and dry processing. First, wet processing of coffee entails mechanically removing the fruit around the coffee beans before fermentation. After fermentation, beans are washed to remove the mucilaginous layer that surrounds them before drying. Second, dry processing entails drying coffee beans within the fruit before mechanically separating them. Among Galápagos coffee producers, individual practices within these methods are also highly variable. For instance, according to a 2014 census of coffee producers on the islands, 60% wet-process coffee with rainwater, while the remainder use the brackish water that is available from local grottos (MAG, 2015a).[81] This census also records six different mean of drying coffee, including directly on the ground, under a canopy, or on the beach (MAG, 2015a). Technicians from Ecuador's Ministry of Agriculture (MAG) noted these heterogeneous practices and sought

81. Brackish water is applied to a wide variety of household uses on Galápagos (e.g., washing dishes, showering, cleaning), while fresh water is reserved for human consumption.

to apply the GI conditions of production (COP) to standardize practices across producers, in order to produce coffee of uniform and high quality for the GI.

Based on the census of coffee farmers, the MAG developed a typology of Galápagos coffee growers, based on variables such as principal income source, place of residence, age of coffee plants, and demographic characteristics. The first category includes farmers who had inherited their lands and viewed coffee as an ancillary income activity. Essentially, these growers maintain coffee as a hobby or to hold onto family traditions. The second category includes producers who rely on agriculture as their major income source, but lack the knowledge, commercial outlets, and labor necessary to intensify their production. While professionally dedicated to farming, these primarily older farmers often struggle to maintain their parcels due to high labor costs. Many growers in both of these categories participate in the traditional market relationship of selling coffee 'on the tree.' The third category includes growers who are generally younger and better educated, and who see coffee as a lucrative business venture. These producers exploit or intend to exploit the potential of niche coffee production, including working through specialty intermediaries, using social media and other communications technology to develop high-end markets, and pursuing values-added labels such as USDA Organic and bird-friendly certification. However, for many in this latter category, coffee-growing is a secondary source of income, as many rely on tourism or hospitality services for most of their income.

Below we list the main markets for Galápagos coffee.

1. Traditional buyers. As mentioned above, these buyers often buy coffee 'on the tree.' In general, their concerns are for volume rather than quality, as they can resell harvested coffee into commercialization streams for instant coffee, coffee blends, and even specialty single-origin coffee.

2. New entrants. These intermediaries have recently entered the Galápagos sector looking for high-quality specialty coffee to sell on to large chains such as Starbucks. They have been more active in offering technical assessment to producers and buying small lots of only the highest scoring coffee.

3. Local markets. Some growers are able to sell their coffee – either green or roasted and ground – in local supermarkets, to specialty coffee shops that serve tourists and locals, or through 'buy local' fairs organized by community groups.

4. Tourist markets. Galápagos restaurants and hotels generally do not buy local coffee, preferring to import cheaper products available from large chains. While some souvenir shops feature 'Galápagos coffee,' the origin of this coffee is dubious. It is an open secret on the islands that much of this coffee is not grown locally but imported from mainland regions with lower production costs. The high prices that souvenir shops can charge has created a lucrative market in coffee speculation, with markups reported as high as 600%.

5. Direct sales. Several producers have tried direct internet sales to individual buyers in the U.S., but report difficulties with customs enforcement.

4. Findings: Construction a SYAL through the GI initiative

A. Qualification of the product

In GI systems, the practices and/or product parameters that qualified users must adhere to are specified in a document called the conditions of production (COP).[82] Technicians from Ecuador's MAG produced the initial COP in 2015 through focus groups with coffee producers. However, during inspections for the first harvest after the declaration of the GI, it was revealed

82. *Cahier des charges* in French or *pliego de condiciones* in Spanish.

that no producers were fully in compliance, for which reason no one could be granted the authorization of use. The reason was a disconnect between how technicians and producers conceived of the COP: as an *aspirational* document, and as *codification* of existing practices, respectively. For technicians, this meant using the COP to enforce the adoption of strict practices to ensure quality: everything from how often to prune shade trees, when to apply fertilizer, what kind of water to use in wet processing, how long to ferment, what kinds of bags to store processed coffee in, and how to roast and/or grind coffee. Technicians argued that the GI alone would not facilitate marketability without a reputation for quality, for which reason they applied to COP to try to correct what they viewed as inadequate practices in the traditional methods used on the islands. For instance, as one technician explained in an interview regarding the need for selective harvesting: "If we had left the harvest as they had always done it, the coffee that would result would taste terrible, because they had harvested green [coffee] cherries, mature, over-mature, dry cherries."

A System of Internal Control would be put in place to verify compliance with the production and processing practices in the COP. This traceability mechanism, modeled on the French system for *appellations d'origine contrôlée* (AOC), would include four levels of verification:

1) producer self-monitoring through record-keeping (agronomic management practices applied, pre-declaration of anticipated yield);
2) collective oversight through inspections conducted by a regulatory body of the producer organization (corroboration of producer records, flag inadequacies, impose sanctions);
3) third-party inspections from an external certifier (independent audit);
4) systemic oversight provided by Ecuador's intellectual property service.

Numerous institutional and organizational inadequacies prevent this system from functioning as intended, however. First, even many years after the declaration of the GI (and others in Ecuador), there is still not an independent actor designated by the government to conduct audits of

producer cooperatives. Second, in practice, the Galápagos producer cooperative has been unable to organize itself to perform inspections, and as such, this task has been performed by technicians from the MAG. Thus, the MAG operates as both second-party and third-party inspector, until such time as the cooperative establishes a regulatory council and the government designates an accredited auditor.

While MAG technicians argued that these conditions had been co-created with producers through focus groups, many producers cast doubt on this narrative. For one thing, the logistical challenges of transport among the islands meant that many producers were unable to participate. For another, even those producers who did participate felt that the conditions were imposed by MAG, rather than emerging from producer consensus. As one related in an interview: "Some technicians came from Quito and said, 'It's necessary to do this, wash with fresh water, all the processing.' They put it, not us. It came from outside." Indeed, by 2018, the producer cooperative had sent a letter to the intellectual property service requesting a revision to the COP, which was officially approved in 2019 (see Table 6 for examples of major changes). For the most part, the cooperative opted for the gradual phasing-in of many stipulations, such as those for pruning of shade trees and the application of fertilizers, to allow producers time to adjust. Other stipulations, however, reflected the particular challenges of production on the Galápagos Islands. First, producers opposed the initial requirement to selectively harvest mature beans, which would have increased their labor costs in an alright tight labor market. Second, producers opposed the requirement to use fresh water, which is often unavailable in large quantities, especially during the dry season or prolonged periods of drought. In general, however, the stipulations are less strict than in the previous COP, with more leeway for producers to maintain their habitual techniques and technologies. Rather than establishing a standard, then, the COP presents a menu

of methods of harvest and post-harvest processing that producers can select to best represent their current practices and facilities.

Table 6. Examples of changes made to Café de Galápagos COP. Source: The authors.

Topic	2015 COP	2019 COP
Pruning	One pruning of shade trees each year.	**Starting in the second year of use of the DO**, carry out one pruning of shade trees each cycle.
Fertilization	At least one edaphic application each year, starting in the second year of use of the DO.	Starting in the third year of use of the DO, carry out **as necessary** at least one edaphic application.
Selective harvesting	Harvest only mature cherries (red or yellow), not green or semi-ripe.	Harvest mature cherries (red or yellow), trying not to exceed 20% semi-ripe and 3% green… **however, this will not be subject to verification of compliance.**
Drying	Drying must be carried out in African beds under canopies or freely exposed to the sun. Mechanical dryers may also be used.	Drying the protected coffee can be by sun or mechanical means, through use of **appropriate machinery and infrastructure.**
Water use	Use fresh water throughout the process.	Use clean water with salinity between 0 and 1.8 mg/L throughout the process; however, **this will not be subject to verification of compliance.**

The most surprising change, however, and the one most threatening to the credibility of the GI system, was that stipulations such as selective harvest and the use of water – those that would have a direct impact on the flavor of the GI coffee – were explicitly exempted from verification. Further, many respondents confirmed that in practice, the inspections carried out by MAG were pro forma, without any possibility of sanction or loss of certification. Indeed, the form that technicians carry into the field to perform inspections is clear about this, reminding inspectors: "This does not mean that [the producer] must, at the moment of inspection, comply with 100% of the practices." Thus, aspects that would previously have disqualified producers from authorization to use the GI are merely flagged by inspectors as suggestions to improve quality. Many important aspects – such as producer declarations of parcel size and anticipated yield, which are commonly used in certifications to ensure the traceability of products – cannot be verified; rather, producers must be taken at their word.

In contrast, what can exclude producers from authorization to continue using the GI is a bad coffee score. The modified conditions called for coffee to undergo physical evaluation (density, size, defects, humidity) as in the original COP, with the additional parameter of sensory evaluation. Specialty coffee tasting would be done for each producers' coffee following Specialty Coffee Association (SCAA) protocols. As established by SCAA, ten aspects of quality are ranked on a scale of 1-10, including aroma, flavor, body, sweetness, acidity, and others; then, defects are subtracted from this total to produce the final score from 0-100 (SCAA, 2015). Coffees receiving a score above 80 points are considered specialty coffee (SCAA, 2015), which was established as the minimum score necessary for qualification to use the Galápagos GI. Thus, sensory evaluation would be the basis for determining producer qualification, rather than any stipulated practices. Even MAG technicians did not hide this fact, as one related in an interview:

“In the end, what locks [qualification] down, the key, is the cup. The physical and organoleptic analysis of the sample. That is what tells you that it is certified.” What is problematic about this, from the perspective of SYAL, is that non-local coffee can be ‘localized’ through the process of sensory evaluation. The pro forma nature of inspections, the lack of documentary proof of origin, and the use of sensory evaluation as a mechanism of traceability, all potentially serve the interests of actors who counterfeit the name ‘Galápagos’ to sell their less expensive, non-locally sourced coffee. This change has strongly displeased the traditional producers, who have therefore decided to turn away from the cooperative.

B. Coordination: GI implementation, national policy and laws, and institutional actors

i. Implementation

The creation of the Café de Galápagos GI was a process that received international support from the EU and the French National Institute of Origin and Quality (INAO). At initial meetings between the INAO, ministry representatives, producers, and coffee agronomy technicians, three recommendations were made:

1) The need for an inventory of coffee producers in the islands, in the absence of available data of any precision.
2) The need, suggested by the EU representatives, to create a cooperative to gather producers interested in GI.
3) The need for a physical and organoleptic characterization of the coffee by an independent institution to attest to its typicality.

Despite the INAO's efforts to adapt the French cooperative model, this structure did not function properly due to local conditions. It is important to consider that associations or cooperatives are relatively few in Ecuador. During the implementation process, the MAG encouraged producers to form a provincial cooperative, COPGALACAF, which would carry out productive and commercialization activities in the coffee sector. Before this, there were other small cooperatives

on the islands, with a maximum of 10 producers, but their objective was limited to the sharing of machinery for harvesting and post-harvest processes. At its creation, the cooperative had 62 partners in the 4 populated islands, including 59 producers and 4 coffee processors. COPGALACAF was created with the objective of using this GI as a cooperative and not as a producer. In other words, producers must deliver the coffee to the cooperative, which must process and sell the coffee with the Galapagos Coffee GI; this management model is applied in France, particularly in the production of certain cheeses such as Comté. To this end, the coffee processing center, located on Santa Cruz Island, was built and donated to the cooperative by the Ministry of Agriculture. The failure of the initiative relates to the cooperative model and its economic implications. As the cooperative has no means of its own to buy coffee from producers, due in particular to the low level of state support, producers must wait until the coffee is sold to be paid. The delays that this system implies are not sustainable for the producers, who do not have the cash flow to cope, and therefore prefer to sell their coffee directly, even if it means losing the added value that the GI is supposed to allow. However, the marketing model never materialized and, as a result, all producers continued to sell their product under their own brand and not through the cooperative. In fact, the first sale through the cooperative took place in the second half of 2019 with the participation of only four producers.

ii. GI and national agricultural policy in Ecuador

At the national policy level, it is important to note that the Ecuadorian economy is heavily dependent on primary commodity exports, especially oil ($8.6 billion in 2020) and agricultural products ($7.4 billion in 2020), the bulk of which are low value-added goods such as bananas, shrimp, fish, and unprocessed cacao and coffee (MAG, 2022). The importance of

exports guides the government's agricultural policy, which tends to favor large commodity chains over the small producers and local developments. Recent administrations have also emphasized developing agro-industrial competitive advantage through strategic innovations in production, processing, and marketing for industries in which Ecuador had comparative advantage, such as cacao and coffee (MAG, 2016b). The Ecuadorian government does not have a budget line dedicated to GI, and the pressure to increase agricultural export revenues to compensate for falling oil prices has tended to favor a policy orientation towards productivity growth rather than quality enhancement. Another limitation in implementing the Galápagos Coffee GI is the fairly slow process and the changes in guidelines linked to the political changes that have taken place during the process. For instance, there have been four Ministers of Agriculture since the beginning of the implementation process. Thus, there is no coherent and stable state policy regarding GI in Ecuador; while Galápagos GI coffee may be seen as part of a rural 'development from below' strategy to capture or create specialty niches, its importance to Ecuador's overall agricultural policy is minimal.

At the provincial level, agricultural policy is aligned with initiatives to support conservation of the 'natural laboratory of evolution' that is the Galápagos (Hennessy, 2019). Recent development models for the islands have emphasized collaboration among farmers, NGOs, and the governing council to reconsider agriculture's contribution to conservation (Wolford, Lu, & Valdivia, 2013). Agricultural projects are planned with conservation efforts in mind; examples include a project to intercrop coffee plants with endemic trees rather than imported fruit trees and another which supported farmers with training and equipment to control invasive species like blackberry and guava (Wolford et al., 2013). The policy focus has been on efforts to enhance productivity and profitability to keep farmers on their land – a dual effort that

enrolls farmers in control of invasive species on their lands and reduces food imports from the mainland (Puente-Rodríguez et al., 2019; Valdivia et al., 2014).[83] In this model, agriculture can enhance harmony between people and native ecosystems, but only if farmland generates sustainable income for the families that work it (Chiriboga et al., 2007). The coffee GI project was conceived as one such effort.

iii. Relevant legal frameworks for GI in Ecuador

There are two major shortcomings in Ecuador's GI laws with regards to rural development. First, the relevant law considered GI under the industrial property category (trademarks), which restricts the ability of policymakers to advance rural development motivations for GI projects. Second, for a similar reason, the heritage aspects of GI (local know-how, historical dimensions) are largely excluded. Aspects such as local knowledge (related to culture, harvest and production process), safeguarding traditions and heritage, and cultural diversity must be taken into account (Sautier et al., 2011), which is not the case with Ecuadorian GI. When a GI product is supported by not only geographical characteristics but also by historical and cultural features, the product is more likely to have an impact on the rural development of the geographical area where it is produced (Barjolle, Sylvander, & Thévenod-Mottet, 2011). Second, some aspects of the imported French model revealed themselves to be not fully adapted to the local situation. For instance, the creation of an institution dedicated to the GIs seems too demanding from a financial and managerial point of view, whereas the cooperative marketing model could never work because of the reluctance of local farmers.

83. A potential source of new invasive species, which are considered highly threatening to the Galápagos's endemic biodiversity (Hennessy, 2019).

iv. Coordination among national institutions in Ecuador

Prior to 2019, the only Ecuadorian state institution with a legal mandate relating to GIs was the National Intellectual Rights Service (SENADI). As the national body charged with regulation of intellectual property rights, including brands and commercial marks, SENADI has legal authority over determining GI regulations, processing applications for recognition, evaluating documentation to declare GIs, authorizing qualified users, and managing reciprocal recognition of third-country GIs. Additionally, SENADI has legal authority to inspect certified GI users for compliance, yet as a practical matter it lacks the human and financial resources necessary to carry out this responsibility. The institution is poorly funded, and among its staff of 160 technicians and administrators, only two are dedicated to GIs. For this reason, implementation of GIs before 2019 involved ad hoc coordination between SENADI and other institutions. In particular, starting in 2017, SENADI came to rely on the MAG to fulfill many of its functions regarding GIs and even granted MAG some of its authority through inter-ministerial agreements. As MAG had more personnel around the country who worked closely on a daily basis with producers, it was reasoned to be better positioned to provide technical assistance and training, create producer associations to oversee GIs, collect data on production conditions and methods to create feasibility studies and production specifications, and inspect producers post-declaration to monitor compliance. In some cases, such as for Café de Galápagos, MAG has served as a communication channel through which producers petition SENADI for authorization to use the GI. This ad hoc system was given legal force by 2019 by presidential decree, which established what was called the Inter-Institutional System for the Development and Protection of National Denominations of Origin and Geographical Indications. The goal of this system has

been to formalize what had been a rather informal coordination of institutional activities, in order to extend GI protection, identify potential products, evaluate the impacts of GI policy, and monitor the traceability of protected products. In addition to granting MAG official purview over the functions it had been executing on SENADI's behalf, the decree integrated two other institutions who were seen as having a stake in GI. Among these was the Ministry of Production, Foreign Trade, Investment, and Fisheries (MIPRO), which in addition to its mandate to promote and facilitate the export of GI products, was granted leadership of the Inter-Institutional System. The other was the National Secretary of Higher Education, Science, Technology, and Innovation, which has a minor role in the administration of GI but was included because of its purview over the development of knowledge resources and human capital.

Another source of uncertainty for producers applying for GI is the frequent changes in personnel that characterize Ecuador's institutions and ministries. Frequently, the inauguration of a new presidential administration will entail not only changes in the political appointees of ministries, but mass replacement of technical and administrative personnel as well. This was the case when the Lenín Moreno administration came to power in 2017. Producers expressed frustration with personnel changes that cause institutional knowledge to be lost and cases in progress to be misplaced. One MAG staff member related that information from Ecuador's previous GI experiences was lost because much of it was stored on personal computers that laid-off personnel took home with them. Additionally, producers suggested that SENADI gave contradictory directions about the Galápagos cooperative's role and its administrative power over the label. One producer related her frustration with the experience: "It's not just that they delay [the GI], but they completely change it. They say to you, 'Go over here! No, no, no! Sorry, we took that away. So over here! No, no, no.'" Producers suggested that the delay and lack of clarity

harmed trust in the system among producers. Many had been convinced that the GI would work when price projections for certified coffee were double or triple the market rate, but when potential sales contracts fell through because the label had not been issued, producers became discouraged and distrustful. Many expressed concern that the GI project had “lost momentum” on the islands.

There are challenges to the continual monitoring and verification necessary to ensure the traceability of GI. For instance, while random inspects are supposed to be carried out to verify producers’ continued compliance, we have found that no such checks have been done, and neither the MAG nor SENADI have the budget to dedicate technicians to this task. Furthermore, at the national level, there is still no approved certification organization, which again reflects limitations in state investment. This absence means there is no reliable guarantee that the standards are being respected throughout the production process. Within the cooperative itself, the regulatory council responsible for monitoring producer compliance likewise has not been empaneled, now nearly a decade after the initial declaration of the GI. Thus, at the local and national levels, there are no bodies assigned responsibility for the defense and management of the GI, limiting the trust that consumers can place in the guarantee of origin. Conversations with SENADI suggested that it would be incumbent on the cooperative, with its scant resources and great distance from the government centers in Quito, to take suspected fraudulent users to court. For this reason, many producers expressed dissatisfaction with the remedies available to contest fraudulent usage.

C. Resource management: heritage and natural, human, and symbolic resources

i. Historical heritage of Galápagos coffee

The historical development of the Galápagos coffee sector parallels the islands' settlement history. The earliest settlements were large-scale plantations that relied on exploitative labor relations, the most notorious being the Hacienda El Progreso on San Cristóbal island, founded in 1879 by Manuel J. Cobos (Latorre, 2013 [1990]).[84] Cobos was likely the first to bring coffee into production in the archipelago, as he reported obtained beans of the Bourbon varietal from the French Caribbean colonies, eventually bringing an estimated 100,000 coffee plants into production (Latorre, 1991). As popularly related, these plants provide the genetic material for many of the coffee plants that are found on the islands today. These plantations fell into decline in the early 20th century, after which the coffee sector can be characterized as one of smallholder production (Quiroga, 2013). These smallholders represented mainly former plantation laborers (in the 1910s), settlers from Europe and North American (in the 1930s), and mainland Ecuadorians (from the 1940s onward) (Grenier, 2000). In particular, a prolonged drought that struck Ecuador's mainland coffee producing regions in the late 1960s and early 1970s drew many settlers to the islands, who brought their coffee traditions with them. Coffee can thus be characterized as moving to progressively smaller scales, and today, most farms have between two and six hectares in coffee production.[85]

84. The preeminent historian of Galápagos, Octavio Latorre (1991, 2013 [1990], 2014), likens working conditions under the cruel Cobos to those of chattel slavery or a concentration camp. Cobos was eventually killed during a labor revolt on his plantation in 1904.

85. The exception is the erstwhile Hacienda El Progreso, a 250-hectare plantation purchased in 1990 by the González family and refurbished into the organic Hacienda El Cafetal.

ii. Natural resources

The Galápagos archipelago, located about 600 miles west of the Ecuadorian mainland, consists of more than 20 islands spread between 1 degree north and south of the equator. Broadly, the Galápagos can be divided into three climatic zones determined by altitude: hot and dry in the lowest coastal areas, cool and humid in the highlands, with a transition zone in between. The islands experience two seasons: a warm season (Dec.-May) and a cool season (June-Nov.), the latter of which is characterized by frequent fog and a drizzly mist known locally as *garúa*. Annual precipitation is also strongly influenced by the fluctuations of *La Niña* and *El Niño*, with the likelihood of prolonged periods of drought increasing due to anthropogenic climate change. The environment offers some features that distinguish coffee there from almost anywhere else in the world. First, while the long maturation time of *Coffea arabica* typically requires an altitude between 1200 and 1800 meters above sea level (Lambot et al., 2017), such coffee can be grown on the Galápagos Islands anywhere between 300 and 450 meters above sea level. Indeed, a shorthand common among locals and scientists is that a one-meter increase in elevation on the islands is equivalent to a four-meter increase on the mainland. This extremely low growing altitude – lower than practically any other arabica coffee region – is due to the microclimates generated by the islands' location at the confluence of cold, warm, and deep ocean currents. Second, the Galápagos Islands are volcanic in origin, and the main coffee-growing islands of Santa Cruz and San Cristóbal are only 1.7 and 3.2 million years old, respectively. The breakdown of volcanic rock into organic soil is ongoing, particularly on Santa Cruz, where growers cannot plant coffee in regular rows but must search out available soil between rocks. This volcanic soil, in addition to being a rich source of mineral and organic matter for

productivity, is the source of the coffee's strongly metallic flavor and bitterness, which can be pleasant when coffee is properly processed and roasted.

iii. Human resources

While comparative analysis of Galápagos coffee and reference samples validated the notion of a distinctive *terroir*, there was little effort on the part of policymakers, technicians, or powerful local actors to consider human resources as a principal element of the interrelationship between product and place. Indeed, some aspects of local coffee culture were either outright ignored (traditional agricultural knowledge, grower culture and history) because the implementation process lacked anthropological research on the uses and history of coffee on the islands. Other aspects, such as agronomic management and harvesting practices, were denigrated as detrimental to quality. By far the biggest deficit – noted in the documents creating the GI, but not fully addressed – was the shortage of local labor to carry out the intensive management and harvesting practices mandated by the 2015 COP. Galápagos locals prefer to work in tourism, hospitality, or government services, and few are interested in the hard and poorly remunerative work of agricultural labor. Yet the GI failed to recognize that coffee production has remained low-intensity, with scarce adoption of industry-standard practices for fertilization, shade management, and pruning, largely due to high labor costs. Further, at the local and national levels, there are very few actors – either producers, ministry technicians, or local consultants – that are experts in GI recognition, administration, and management. This lack of institutional infrastructure to monitor and control coffee origin is a common phenomenon in developing countries (Neilson, 2008). There is also the question of the scientific basis on which these GIs are based. Unfortunately, in Ecuador, very few scientific research programs have been carried out

around GI, so results on the link between the typicality of products and a geographical area are limited.[86]

iv. Symbolic resources

The popular understanding of Darwin's voyage on *The Beagle* and his visit to the islands providing the inspiration for his theory of natural selection is largely apocryphal, but both Darwin and biodiversity are heavily touted in marketing the islands as a tourist site. The islands are recognized for high rates of endemism, and their charismatic fauna – sea lions, blue-footed boobies, and of course, the giant tortoises from which the islands derive their name – are all represented in the names and brands of restaurants, hotels, and coffee farms. The archipelago was declared a UNESCO World Natural Heritage Site in 1978. The islands and the marine waters surrounding it have been the subject of numerous protection policies since the late 1960s, especially under the auspices of the Galápagos National Park and Galápagos Marine Reserve. The connection to Darwin, natural history, and scientific conservation presents amply symbolic resources to be drawn on in forging a locally rooted coffee culture.

86. The example of the Cacao Arriba GI is a case in point. It was created at the request of a group of producers; however, the scientific basis for demonstrating its originality is somewhat weak, which is reflected in the specifications. These conditions leave a large production horizon open since the growth, harvesting, and post-harvest processes of cocoa are not considered for this GI. And without a doubt, the most important aspect that has not been considered is the geographical location from which the product originates. Any producer throughout Ecuador, as long as they respect the COP, could have the right to use the GI. This represents a problem for the product's organoleptic characteristics, as each region's geographic characteristics are completely different, and the final product will therefore be non-uniform due to geography.

D. Knowledge, skills, and product innovation

Many farmers have taken advantage of technical assistance offered by both public and private entities to increase their knowledge of coffee management and marketing. For instance, the intervention of the MAG and INAO was accompanied by informational sessions provided to producers, which provided information about best practices for agronomic management, harvesting, and processing coffee to maintain high standards of quality for the GI. Many of these practices – such as fertilization and pruning – were maintained in the revised COP, although producers were allowed to phase these new techniques into their management plans. Additionally, two processing centers were established on the islands of Santa Cruz and San Cristóbal with the support of Ecuadorian NGOs, to help producers process their coffee in line with the new standards. The sessions also gave producers more information about GI management and training in organoleptic characterization and coffee tasting, so that producers would better know the quality of their product. Producers have also benefitted from private intervention, such as technical assistance provided by intermediary coffee traders such as Caravela.

Some producers, encouraged by what they learned about the specialty coffee market, opted to maintain traditional, high-quality varieties (Bourbon, Típica) rather than replant with hybrid varieties (Sachimor, Catimor) that have proven more resistant to the coffee leaf rust pathogen (*la roya*). One producer explained his reasoning this way: “I am not going to continue with the [hybrid] varieties. Better to plant Típica, manage it well, take care with leaf rust, and I have a possibility of having a coffee with a high quality score. You have to weigh things in the balance. If I have a coffee with more [SCAA] points, they will pay more.” Farmers now have more knowledge of coffee and their market options and can determine for themselves what

strategy they wish to pursue: high intensity, high quality coffee, or those that are easier to manage but may not receive top grades and prices. Additionally, while formal associationism in the provincial cooperative has stagnated, local actors have formed solidarity networks to share advice and provide mutual support. As one example of this, a local coffee roaster, in addition to buying from Galápagos producers, provides roasting and packaging services to producers who sell their coffee elsewhere. Those who have participated comment that they have learned a little about roasting 'professionally' rather than 'artisanally' from these interactions.

The Galápagos coffee sector has also seen innovation in production and marketing in relation to the construction of a localized agrofood system. In terms of production, some producers have been experimenting with different final products in order to better dispose of their production. These have included efforts to make and sell coffee liqueurs and roast coffee for espresso, in addition to brewed coffee. Local coffee shops, inspired by the popularity of barista culture and specialty coffee globally, have been innovating their offerings. These include not just a range of espresso drinks (cappuccino, caffè latte, espresso martinis), but also different techniques and instruments for preparing brewed coffee, including V60, Chemex, Aeropress, and others. Other efforts have focused on ancillary activities to support the coffee sector, including a 'Coffee Route' proposed by the Ministry of Tourism in 2019, which would seek to engage the growth of on-island tourism to offer tours and tastings from local coffee farms. While these initiatives are incipient, it is important to note that there is increasing recognition among locals, tour operators, and tourists of the quality and unique character of locally sourced coffee. There is a potential to be exploited for a strong, local coffee identity.

5. Discussion

The case of Galápagos coffee exemplifies the intricate challenges and opportunities that arise in the implementation of GI as a sustainability tool in the global South. The application of the SYAL framework in our analysis has allowed for a more nuanced understanding of how territorial factors, including symbolic and cultural aspects, influence the development and implementation of the GI. This approach complements and enriches global value chain-based analyses that have dominated the literature on coffee GIs (e.g., Neilson et al., 2018), by providing a more comprehensive perspective on how territory, in all its dimensions, shapes GI dynamics. Our findings reveal a fundamental tension between territorial valorization and the economic sustainability of local producers, which has significant implications for three dimensions of sustainability: environmental, economic, and socio-cultural.

In terms of environmental sustainability, the GI implementation has fostered more sustainable agricultural practices, such as the maintenance of traditional coffee varieties and integration with broader conservation efforts on the islands. This finding aligns with previous studies that have highlighted the potential of GIs to promote biodiversity conservation and traditional agricultural practices (Barham & Sylvander, 2011). However, the lack of resources to fully implement these practices limits their potential impact, underscoring the importance of aligning GI initiatives with broader rural development and conservation policies.

Regarding economic sustainability, our study reveals that the Galápagos GI has not yet provided the expected economic benefits due to persistent challenges in marketing and cooperative management. This situation raises questions about the long-term viability of the initiative and supports the warnings of previous studies about the risks of GIs failing to meet economic expectations in the global South (Bowen, 2015; Mancini, 2013a, 2013b). The

difficulty in establishing a functional cooperative system and limitations in local institutional capacity reflect the findings of Barjolle et al. (2017) on the critical importance of strong local institutions and organizational capacity in the success of GIs.

From the perspective of social and cultural sustainability, our results indicate that while the GI has contributed to the valorization of Galápagos coffee's cultural heritage, the initial lack of inclusion of traditional knowledge in the product specification suggests a missed opportunity to strengthen local identity. This finding underscores the importance of adopting a more holistic approach in defining production conditions, incorporating not only technical aspects but also traditional knowledge and local cultural practices. Such an approach could enhance the legitimacy and local acceptance of the GI, as suggested by previous studies on the importance of territorial embeddedness in localized agrifood systems (Bowen & Mutersbaugh, 2014).

A distinctive aspect of our study is the attention paid to the interaction between the dominant tourism sector and coffee production in Galápagos. This dynamic presents both opportunities and challenges for the sustainability of the GI. On one hand, tourism offers a potential market for high-quality coffee and coffee-related experiences, as evidenced by emerging agritourism initiatives. On the other hand, competition for labor and resources with the tourism sector poses significant challenges to the economic viability of coffee production. This complex interaction between different economic sectors in a territory with unique ecological constraints merits further exploration in future studies on GIs in similar contexts. Our findings also highlight the importance of adapting imported GI models to local realities. The difficulty in implementing the French cooperative model in the Galápagos context underscores the need for a more flexible and adaptive approach to GI implementation in the global South, as previously noted by authors such as Fournier (2008). This implies not only adapting the technical and

organizational aspects of the GI but also considering how it can be more effectively integrated with existing rural development and conservation strategies.

6. Conclusion

The Galápagos Coffee GI presents significant potential to contribute to the sustainable development of the region, although its success will depend on the ability to adapt the model to local realities, strengthen institutional capacities, and balance quality demands with the valorization of local cultural heritage. This case underscores the importance of an integrated territorial approach in the design and implementation of GIs, especially in contexts with fragile ecosystems and tourism-dependent economies. Our analysis reveals that while GI has contributed to territorial valorization and fostered more sustainable agricultural practices in the Galápagos context, its implementation has faced significant obstacles that have limited its impact on the economic sustainability of local producers. The original contribution of this study lies in the application of the SYAL framework to analyze the implementation of a coffee GI in a unique context such as the Galápagos Islands. This approach has highlighted the critical importance of considering the territory in its entirety, including symbolic, cultural, and economic factors, in the development of GIs for tropical commodities. Our findings underscore the need for a more holistic approach in defining production conditions, incorporating not only technical aspects but also traditional knowledge and local cultural practices.

By focusing on a single case, our findings may not be generalizable to all GI contexts in the global South. Additionally, given that the implementation of the Galápagos Coffee GI is relatively recent, we cannot fully assess its long-term impacts. These limitations suggest the need for longitudinal and comparative studies to deepen our understanding of how GIs can contribute

to sustainable development in different global South contexts. To advance our understanding of GIs as sustainable development tools, we suggest several directions for future research. First, longitudinal studies are needed to evaluate the long-term socioeconomic and environmental impacts of the GI. Second, it is crucial to further investigate how to effectively integrate traditional knowledge into GI systems. Finally, comparative analyses of coffee GIs in different global South contexts could provide valuable insights into best practices and success factors in GI implementation.

Based on our results, we recommend that producers strengthen local solidarity networks and explore synergies with the dominant tourism sector. For regulators and policymakers, it is crucial to develop local capacities for GI management and adapt imported models to the local context, integrating GI policies with broader rural development and conservation strategies. The case of Galápagos Coffee illustrates how GIs can be potential tools for sustainable development in regions with unique characteristics, yet underscores the need for an adaptive and contextualized approach in their implementation. The interaction between coffee production, biodiversity conservation, and tourism in Galápagos presents both unique challenges and opportunities that merit further exploration.

CHAPTER FIVE: CONCLUSION: THE DYNAMICS OF GEOGRAPHICAL INDICATION LEGITIMIZATION IN THE GLOBAL SOUTH

This dissertation has addressed how the legitimacy of GI as a development model is reproduced and challenged through the production of knowledge of *terroir*. Through the application of the analytical framework of 'co-production' (Jasanoff, 2004), it has revealed the technopolitical processes through which knowledge production practices and expertise are employed to define an inimitable, exclusive, and essential link between GI products and their places of origin. This dissertation has revealed how, through these *terroir technopolitics*, actors from the European GI 'macro-organization' (Feuer, 2022) and their stakeholder partners in the global South legitimize GI despite evidence against its effectiveness and appropriateness for many contexts. I apply this framework to a multi-sited ethnographic case study (Feagin et al., 1991; Marcus, 1995; Walton, 1992), exploring Ecuador's receipt of technical assistance from France to implement GI products.

I have explored this research question across three chapters. In Chapter Two, I examine how *terroir* is constructed as a socio-material hybrid category in GI implementation. Through analysis of how characterization produces the distinction of Ecuadorian GI products, I demonstrate how the legitimacy of the GI development model emerges from the strategic application of *terroir* to reconstruct Ecuador as a country naturally endowed with diverse ecosystems and production traditions, which through the application of GI, could be drawn on the overcome the country's less-than-promising outlook as an agro-exporter.

In Chapter Three, I apply the concept of 'epistemic authority' (Gieryn, 1999) to examine how structural inequalities of power shape the legitimacy and relevance of knowledge claims concerning *terroir*, and how stakeholders deploy such knowledge in turn to institutionalize

preferential product standards. Using the case of Galápagos Islands coffee, I show how the practical accomplishment of epistemic authority in the implementation of this geographical indication allowed powerful stakeholders to shape the construction of *terroir* and GI regulations to suit their interests. Yet knowledge of coffee's *terroir*, once constituted as authoritative, provided a strategic resource for marginally powerful producers to reshape regulation.

In Chapter Four, with my co-author Rafael Villota, we apply the analytical framework of the localized agrofood system (Sanz-Cañada & Muchnik, 2016) to examine how stakeholders construct territorial factors relevant to the creation, registration, management, and commercialization of GI standards. Addressing product distinction, qualification, collective action, resource management, and knowledge in Galápagos Islands coffee, we argue that the localized agrofood system approach has been under-utilized by scholars to examine relocalization efforts for commodity goods in the global South, and we illustrate its applicability for the analysis of tropical goods, such as coffee, that are characterized by territorial disconnection (Daviron & Ponte, 2005).

Although based on a single case study, these findings do suggest wider implications concerning the expansion of GI laws, institutions, and rights across the global South. There are two related reasons for this. First, many countries that have recently implemented or reformed GI systems have relied on European technical assistance to do so. Institutions such as the INAO, the CIRAD, and FAO (among others) have been active in this respect in Latin America (e.g., Colombia, Peru, Brazil), Africa (e.g., Cameroon, Guinea, Ivory Coast), Southeast Asia (e.g., Vietnam, Laos, Indonesia), and in former Soviet republics in Asia and Europe (e.g., Kazakhstan, Turkmenistan, Georgia). Thus, while the particularities of the Ecuadorian context differ from these other countries, the procedures of GI technical assistance – especially the central role of

terroir characterization – are likely to be the same, and by extension, so are the technopolitics. Second, states and producer groups in the global South who contemplate the application of GI focus their attention on the EU as an export market. As such, European state and parastatal actors will be able to exert economic, political, cultural, and epistemic power over these stakeholders, much as has been seen in the Ecuadorian case presented here.

There are several issues to raise concerning the limitations of this study. First, the generalizability of the findings is limited by the study's research design, which did not contemplate cross-national comparison. The intention of this project was to intensively examine the multi-sited phenomenon of GI legitimization through an ethnographic case study, which by necessity limited the opportunity to pursue a comparative case study. Thus, while this project provides rich details concerning this phenomenon as situated in the Ecuadorian context, it limits the ability of these findings to speak to broader dynamics of GI implementation in other global South contexts. Second, the analytical focus of this project is on transnational dynamics of GI *implementation*, especially the politics of expertise, quality regulation, and food system relocalization expressed in this process in Ecuador. This focus, while worthwhile for teasing out the dynamics of legitimacy in GI development, also limits the ability of this study to speak to the construction of political, economic, cultural, and especially *epistemic* authority among the 'macro-organization' producing GI policy discourse and technical assistance. That is to say, this study does not address the socio-historical processes through which European – and especially French – knowledge-producing practices have, over time, accomplished credibility and become institutionalized in GI laws, regulations, and expertise. In sum, this study is limited in the generalizability of its findings to other global South contexts; and in its attention to the social organization of legitimate and relevant knowledge claims concerning the *terroir* of GI goods.

As a corollary, sociological understanding of the reproduction of GI legitimacy would benefits from future work looking at the technopolitics of *terroir* in cross-national perspective. In particular, extending on the Ecuadorian case study presented here, scholars could address *terroir technopolitics* in former French colonies in Southeast Asia or West Africa, which have stronger language, cultural, and historical ties to France. Such as comparison would induce variance based on the strength of these ties, offering the opportunity to draw broader conclusions about the politics of knowledge in GI policy discourse and technical assistance as expressed throughout the global South. Additionally, more scholarship is needed on the institutionalization of 'technical' expertise and evidentiary standards in Europe's GI laws, regulatory institutions, and technical assistance providers. Analysis of the historical organization of epistemic preferences – through attention to the processes of European integration, regulatory harmonization, and agro-export policymaking – would reveal more about the technopolitical expression of GI policymaking in the global South today. Such historical analysis could be complemented by attention to processes of professionalization among GI practitioners and researchers; and by in-depth research into the construction of an GI 'epistemic community' (Haas, 1992) and its role in global political economy.

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