The Role of the State in Managing Voluntary Food Sustainability Standards Democratically

Abstract:

We have investigated the role of the state in the creation of democratic alternatives to private voluntary food sustainability standards (VFSS). Our study illustrates the complex relationship between civil society (in this case, the Participatory Guarantee System (PGS) VFSS), private VFSS and state actors, and the supportive role played by the state in establishing a framework for a food governance system that delivers food according to the values of all stakeholders. The PGS system is an alternative for family farmers that was initiated by civil society organizations (CSO) to reduce certification costs and bring more autonomy to family farmers through its democratic governance structure (in contrast to other private governance schemes). However, the institutionalization and development of such a governance system (i.e. PGS), was supported due to the action of the state. One of the key contributions of this study is the proposed typology that can help to identify and assess how such governance systems are evolving (by assessing how mature the system is) and at the same time, pointing out areas where the state actors could further act to develop a more democratic governance system. These include institutional support, market institutionalization, demand creation, technical support, and financial support. Our findings show that a polycentric system of food governance can result in greater participation, transparency, and accountability compared to a governance system driven by private VFSS. These characteristics can help drive greater equity in the food system which may be the key to promoting a healthier and more resilient governance system.

Keywords: Participatory guarantee systems (PGS); food certification; organics; state

1. INTRODUCTION

Voluntary food sustainability standards (VFSS) are a set of regulations created by non-state actors meant to deliver food products with an improved social and/or environmental impact compared to non-certified products. Due to the expansion of global food markets since the 1980s, due to debt politics and structural adjustment programs, the food system has changed considerably with long supply chains and international markets demanding information access and transparency about sustainable farming practices (Friedmann & McNair, 2008). Increasing the consumer awareness of the social and economic struggles of farmers in developing countries, and of modern agriculture's threat to biodiversity and ecological systems, has fostered a basis of consumer concern for ethical trade and sustainable agricultural practices (Giovannucci & Ponte, 2005; Hatanaka et al., 2005; Ariztia et al., 2016; Saleki et al., 2019).

Such concerns gave rise to a social movement using consumption as a political practice and new efforts to educate consumers on the impacts of production practices (Hatanaka et al., 2005). VFSS have given consumers an avenue through which to demand the integration of ethics and environmentally sustainable practices into existing food systems and to continue to gain greater public recognition and increased market value (Hatanaka et al., 2005; Giovannucci & Ponte, 2005; Dietz et al., 2022). The most emphasized benefit of VFSS for producers is access to new, often more profitable markets. This market access can be especially important for producers in developing countries with less stringent public food standards.

VFSS operates as a form of transnational business governance which refers to the systematic efforts to regulate business conduct that involves a significant degree of non-state authority

in the performance of regulatory functions across national borders (Eberlein et al., 2014). Transnational business governance has globalized impacts and forces states to reconsider their established modes of regulatory practices. VFSS can exceed the existing and replace missing public standards, providing protection from public regulatory penalties (in the case of more demanding private requirements), encouraging consumers to buy from countries whose export products might otherwise be deemed unsafe (Hatanaka et al., 2005; Reardon et al., 1999).

In this respect, VFSS can be theorized as part of the rise of private governance systems (Cashore, 2002; Nesadurai, 2019). VFSS develop their own private regulation schemes, establishing governance structures and rules dealing with the production and sale of various food products and services. These private governance schemes act like governments (Brammer et al., 2012), which raises concerns about whose interests they serve (Rudder, 2008). VFSS typically prioritize certification criteria that reflect the values of consumers in the North American and European markets (Friedmann & McNair, 2008). This does not necessarily align with the concerns of the citizenry in countries where the production of certified food takes place.

As VFSS became increasingly mainstream in global food markets, concerns arose around their legitimacy as a governance mechanism (Foley and Hébert, 2013; Marin-Burgos et al., 2015). Equity is one major issue: inequalities are created or exacerbated for consumers when food safety and quality become a matter of affordability, and for producers when smaller farmers unable to meet certification costs are forced into less profitable markets. Democracy and transparency are also issues when so few VFSS include producers in the governance mechanisms for designing or improving standards (Bennet, 2017). Critiques have also emerged regarding how the current governance systems have impacted the food system's

sustainability (de Lima, et al., 2021; Niederle & Radomsky, 2017). More specifically, organic food certification has been criticized for not necessarily incentivizing organic farming as regulations can move the farmers to produce the most valuable crops in the most profitable way (Guthman, 2004). VFSS also often fails to promote social inclusion and economic development, which are domains of the state. It is not appropriate or legitimate to leave this role to private VFSS actors who are global and ultimately act in their best interest as they are not accountable to any single state or institution nor the electorate therein.

The literature on alternative VFSS has yet to explore the role of the state in enabling alternative VFSS, such as participatory certification systems. This paper engages with this literature gap by developing a typology of the state's role in promoting alternative VFSS. Alternative VFSS based on participatory and democratic principles have the potential to resolve issues of legitimacy and democracy within the food system at a community scale (de Lima, et al., 2021).

Traditionally, private VFSS has limited space for democratic participation, while alternative participatory and place-based VFSS includes democratic processes that can address societal concerns at a community scale (de Lima, et al., 2023). This paper reviews the alternative participatory VFSS literature, showing that the role of the state within this literature is limited, before focusing on the multiple roles that the state in Brazil assumes to support alternative VFSS (PGS in the case of Brazil). The paper contributes to the literature by developing a typology of the role of the state in food governance systems. Through the various typologies, a hybrid approach with the state, creating a legislative and regulatory environment that fosters participatory approaches to certification mechanisms, has the power to build market trust by embedding legitimacy and democratic principles back into the system of VFSS. As a *descriptive conceptual typology* (Collier et al., 2012), our contribution classifies and theorizes

the role of the state and creates the basis for future theoretical development on the role of the state in developing and supporting alternative VFSS. Thus, the typology does not aim to be exhaustive and complete. Rather, its contribution lies in identifying and describing the role of the state for managing alternative VFSS which can be further developed in future studies.

2. Co-regulation and democratic mechanisms for VFSS

Despite the praise of VFSS for their global enforcement capabilities and potential to fill in for state regulation, they are largely still dependent on government influence. Governments have multiple means of influencing VFSS via the shadows of legal incentives, the support of competing programs to limit a single body's authority, and establishing restrictions via regulations (Gulbrandsen, 2014). The expansion of public-private partnerships for the co-regulation of food safety and quality can take many forms but regardless, Mayer and Gereffi (2010) emphasize the necessity of "bringing the state back in," arguing that corporate self-regulation and social pressure alone are difficult to sustain in a highly competitive global economy. Reardon et al. (1999) assert that governments can aid the implementation of VFSS by providing needed information, technical assistance, and infrastructure in developing countries as an inclusive public-private intermediate. While social pressures may not achieve change on its own, Niederle et al. (2020) found that social movements play an important role in producing institutional change within government infrastructure to support VFSS.

Public regulation earns democratic legitimacy via decision-making by those elected to represent civil society. But when governance falls to private VFSS, there is a risk that public voices are lost. Rudder (2008) asserts that private governance warrants particular study because decisions are made by private institutions that bind a wider public without giving them the opportunity, ability, or even inclination to participate. To investigate this, Fuchs et

al. (2011) evaluated the democratic legitimacy of seven VFSS based on three criteria: participation — the actors' access to information and decision-making, transparency—timely information on the standards' governance and performance, and accountability—the ability of the affected public to vote out poorly-performing decision-makers (Porter & Ronit, 2010; Schaller, 2007; Fuchs et al., 2011).

All standards studied were found to lack participation to some extent, although multi-stakeholder-managed initiatives fared better than their retailer-dominated counterparts (Fuchs et al., 2011). The transparency of VFSS tends to increase with broader participation but transparency is usually still selective in terms of its sustainability coverage (Fuchs et al., 2011). Finally, accountability exists frequently on an internal basis but lacks adequate extension to other stakeholders and the general public, weakening the influence of external actors in shaping standards (Fuchs et al., 2011). None of the VFSS assessed by Fuchs et al. (2011) were deemed to be fully democratically legitimate, calling into question the substantial authority of VFSS as a governance institution as a whole.

In contrast to private VFSS, participatory guarantee systems (PGS) can be a mechanism for supporting democratic processes through improved participation, transparency, and accountability. IFOAM–Organics International defines PGS as "locally-focused quality assurance systems. They certify producers based on active participation of stakeholders and are built on a foundation of trust, social networks and knowledge exchange" (Katto-Andrighetto et al. 2019). The key elements of PGS include a shared vision that is based on a core set of principles and values that enhance livelihoods, trust based on farmer pledge, horizontality with the norms conceived by all stakeholders, transparency resulting from documented management systems and procedures, mechanisms to verify compliance and clear pre-defined consequences for non-compliance, participation because the processes are

suitable to small-holder agriculture, and capacity-building through mechanisms for continuous learning and support for farmers (Home & Nelson, 2015). In this way, PGS also becomes a means for supporting food citizenship (Hatanaka 2020). In a PGS, the producers are responsible for inspecting each other and ensuring organic conformity at all stages: production, storage, transportation, and any selling channels.

PGS also promotes commerce, and regulates and facilitates the sale of organic products to consumers. The advantage of PGS is that they are focused on assuring the quality of locally-sourced products based on the active participation of stakeholders. It is also context-specific with each PGS responding to the particular challenges and conditions faced by producers, consumers, and other stakeholders in each region, integrating the processes of place-based approaches (Home & Nelson, 2015).

PGS occurs in over 70 countries with recognition in terms of national organic regulation in 12 countries (doubled from six countries in 2018; Katto-Andrighetto et al. 2019): Bolivia, Brazil, Chile, Costa Rica, Ecuador, India, Mexico, Mongolia, Paraguay, Peru, Philippines, and Uruguay. IFOAM–Organics International conducts an international survey every two to three years to gather information on the international state of PGS. The most recent report on the global status of PGS (Anselmi & Castro, 2022) states that there are at least 242 PGS initiatives in 78 countries (an increase from 67 countries in 2018 (Katto-Andrighetto et al. 2019)), with at least 1,244,239 producers involved (more than doubled from 391,078 farmers in 2018; ibid) and 1,205,050 producers certified (up from 142,955 in 2018; ibid), indicating the growing popularity of the PGS approach around the world.

Brazil has institutionalized the organic food sector by implementing regulations for control and communication based on VFSS governance structures (Cavaliere et al., 2016; Vieira et al., 2013). PGS forms an important component of this relatively new regulation. The Brazilian

government has played a crucial role in promoting economic activity among organic producers, acting through multiple agents and public entities to organize the supply chains, and incentivize markets and new demand channels (Blanc & Kledal, 2012). This dynamic is particularly relevant to the arguments developed herein and therefore the case of Brazil is used to illustrate the mechanisms of hybrid public-private approaches to regulating VFSS.

PGS goes beyond the basic objective of meeting a market demand for greater sustainability in food production systems. PGS takes a place-based approach, centered on a recognition of the need to reconfigure the relationships between governments, philanthropy, civil society organizations, the private sector and citizens in order to achieve change. PGS does so by developing collaborative approaches to address the underlying causes of societal challenges. The Ecovida Agroecology Network (from now on referred to as Ecovida) in Brazil is a prominent example of PGS and how well PGS can support democratic processes within VFSS (Radomsky et al., 2014), as well as safeguard the interests of smallholder farmers within value chains (Mishra & Dey, 2018). Ecovida was formed in 1998 as the result of a progressive aggregation of different local NGOs and family farmers whose goal was to produce food using agroecological principles. Ecovida's mission and objectives align with place-based approaches that seek to build the capacity of the community to take charge of its own future, to speak for itself, and to build social capital and connections within the community. Central to place-based approaches are the principles of participation, transparency and accountability. With such a view, PGS, by nature, supports democratic principles (Kaufmann & Vogl, 2018).

While decision-making in private VFSS is neither participative nor representative of the stakeholder groups involved, PGS is responsive to the will of its membership base, which is open to the public, inclusive, and spans stakeholders across the food chain. For PGS VFSS, farmer empowerment occurs through information and knowledge exchange and capacity

building to enable them to participate in the certification process as an auditor. This necessarily means that the governance and performance characteristics are transparent to PGS members.

Finally, accountability in PGS is achieved by including the community of stakeholders in the process so then they are collectively responsible for the outcomes (Fuchs et al., 2011). If the outcomes do not meet expectations, all stakeholders are part of the same decision-making mechanism and have the opportunity to voice the need for change to improve the outcomes. Private VFSS are rarely accountable to producers or farm laborers (Schaller, 2007) or to the public that is affected by the externalities of the standards.

This leads us to consider how the equity and ethics of the distribution of costs and benefits of food production and the role that this plays when considering democratic principles. Critical scholars report that VFSS lead to an increasing gap in quality between exports and domestic food products (Van der Grijp et al., 2005), and it can act to exclude producers from accessing international markets if they are not able to join and comply with VFSS (Brown & Sander, 2007; Ponte, 2008). This raises again the issue of producing food to meet the demands set by consumers in the global north. In contrast, PGS VFSS produces food to meet the demands set by regional producers and consumers with the benefits and costs accrued more equitably across regional food system actors. The literature on alternative VFSS in general, and PGS in particular, has yet to meaningfully explore how the state supports such governance approaches despite the centrality of the state to its development - a gap that our research aims to cover.

As this research addresses the role of the state and PGS in Brazil, it is important to explain the differences and overlaps between organic, agroecology and family farming in Brazil and how these relate to PGS. In this instance, agroecological practices in Brazil are also considered

organic. However, in the Brazilian context, agroecology is more than a management approach to agricultural production. It is a political movement that is a reaction against the hegemony of the conventional industrial agri-food system that favors large-scale production, international corporate actors, intensive chemical inputs and global supply chains (van den Berg et al. 2022a, 2022b). Agroecological producers are usually also family farmers; these producers may be certified through either PGS or private VFSS. However, not all family farmers are agroecological or organic producers. Organic producers are not all family farmers; many large-scale industrialized farming systems are also managed organically (see Figure 1). These farms are likely certified by private VFSS. Therefore, when discussing the impact of various policies and legislation regarding family farmers or organic producers, these can have an impact wider than its intended target.

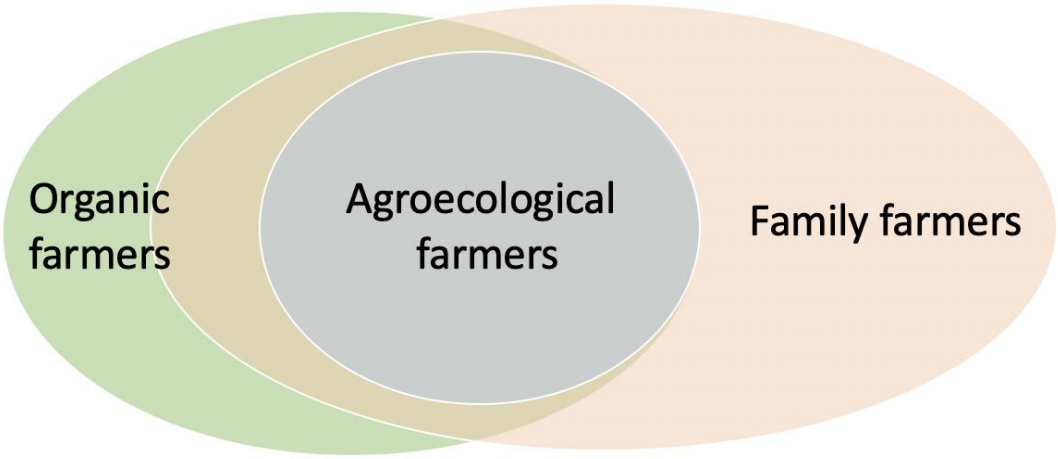

Figure 1: Schematic illustrating the relationship between family farmers, organic farmers and agroecological farmers.

The following sections of this paper will analyze the multiple ways in which Brazilian state support has enabled a more democratic approach to VFSS to flourish. We will further examine

how international VFSS could adopt components of PGS to develop new hybrid public-private partnerships based on democratic principles.

3. METHODOLOGY

The literature on the role of the state in enabling alternative VFSS is limited. A typology can contribute to organizing and mapping a social phenomena, forming the basis for further theoretical development. Typologies, as a well-established analytical tool, have the potential to contribute to organizing, classifying, and sorting cases as well as exploring, describing, and refining concepts (Collier et al., 2012).

Brazil has been adopted as a case study given how its economy is strongly based in industrialized agriculture linked to global food supply chains and yet, at the same time, more than 50% of its domestic food supply comes from family farms with a strong tradition of PGS VFSS (Kageyama et al., 2013). In this context, we adopted a triangulation of the data encompassing secondary sources and in-depth interviews. Firstly, an extensive review of secondary data sources was conducted. We analyzed public documents related to organic food production in the country (15 in total; see Table 1) including organic regulations, food public policies, and related food reports. We also accessed data from the Organic Farmer's National Register (MAPA, 2019) and mapped out the number of farmers certified by either private or PGS VFSS. Finally, we conducted in-depth interviews with key informants such as organic food certification agents, government representatives, technicians, and farmers to identify the role of different agents in promoting VFSS in Brazil.

Table 1: Public Documents on Organic Production in Brazil

Title and type of document	Government body responsible	Available at
Law No 10.831, 23/12/2003. Brazilian Organic Laws	Related to the Federal Ministry of Agriculture, Livestock and Supply (MAPA in Portuguese)	http://www.agricultura.gov.br/assuntos/sustentabilidade/organicos/legislacao/ingles
Decree Nº 06.323, 27/12/2007. Guidelines for organic agriculture	Related to the Federal Ministry of Agriculture, Livestock and Supply (MAPA in Portuguese)	http://www.agricultura.gov.br/assuntos/sustentabilidade/organicos/legislacao/ingles
Decree Nº 06.913, 23/07/2009 - Phytosanitary Products with Approved Use for Organic Agriculture	Related to the Federal Ministry of Agriculture, Livestock and Supply (MAPA in Portuguese)	http://www.agricultura.gov.br/assuntos/sustentabilidade/organicos/legislacao/ingles
Normative Instruction Nº 50, 05/11/2009 - Official Seal of the Brazilian Organic Conformity Assessment	Related to the Federal Ministry of Agriculture, Livestock and Supply (MAPA in Portuguese)	http://www.agricultura.gov.br/assuntos/sustentabilidade/organicos/legislacao/ingles
Normative Instruction Nº 54, 22/10/2008 - Structure Composition and Responsibilities of the Organic Production Commissions	Related to the Federal Ministry of Agriculture, Livestock and Supply (MAPA in Portuguese)	http://www.agricultura.gov.br/assuntos/sustentabilidade/organicos/legislacao/ingles
Normative Instruction Nº 19, 28/05/2009 - Organic Quality Control and Information Mechanisms	Related to the Federal Ministry of Agriculture, Livestock and Supply (MAPA in Portuguese)	http://www.agricultura.gov.br/assuntos/sustentabilidade/organicos/legislacao/ingles

Title and type of document	Government body responsible	Available at
Decree Nº. 7.794 of 20/08/2012. National Policy of Agroecology and Organic Production.	Special Secretariat for Family Farming and Agrarian Development (Secretariat under the Chief of Staff Ministry)	http://www.planalto.gov.br/ccivil_03/_ato2011-2014/2012/decreto/d7794.htm
Decree nº 1.946, 28/06/1996. National Program for the Strengthening of Family Farming (PRONAF in Portuguese)	Related to the Federal Ministry of Agriculture, Livestock and Supply (MAPA in Portuguese)	https://www2.camara.leg.br/legin/fed/decret/1996/decreto-1946-28-junho-1996-435815-norma-pe.html
Guidebook of the National Program for the Strengthening of Family Farming, modality "Agroecology"	Secretariat of Cooperativism and Family Farmers (former Ministry of Agrarian Development).	http://www.mda.gov.br/sitemda/sites/sitemda/files/ceazinepdf/CADERNO_PRONAF_AGROECOLOGIA_FINAL.pdf
Law nº 11.947, 16/06/2009. National School Feeding Program	Related to the Ministry of Education	https://www.fnde.gov.br/programas/pnae
Food Acquisition Program Law nº 10.696, 02/06/2003	Related to Social Development Secretary (former Social Development Ministry)	http://mds.gov.br/assuntos/seguranca-alimentar/programa-de-aquisicao-de-alimentos-paa
Guidebook of the Food Acquisition Program	Related to the Social Development Secretary (former Social Development Ministry)	http://www.mda.gov.br/sitemda/sites/sitemda/files/user_arquivos_64/CARTILHA_PAA_FINAL.pdf
Report "The Fome Zero (Zero Hunger) Program: The Brazilian experience"	Center of Agrarian Studies and Rural Development/Secretariat of Cooperativism and Family Farmers (former Ministry of Agrarian Development), and the Food and Agriculture Organization of the United Nations	http://www.fao.org/3/a-i3023e.pdf

Title and type of document	Government body responsible	Available at
Law nº 12.188, 11/01/2010. National Policy for Technical Assistance and Rural Extension.	Secretariat of Cooperativism and Family Farmers (former Ministry of Agrarian Development).	http://www.mda.gov.br/sitemda/sites/sitemda/files/user_arquivos_64/Pnater.pdf
National register of individual organic farmers	Related to Federal Ministry of Agriculture, Livestock and Supply (MAPA in Portuguese)	http://www.agricultura.gov.br/assuntos/sustentabilidade/organicos/cadastro-nacional-produtores-organicos

The study used an exponential non-discriminative snowball sampling technique to identify the interviewees. Through this technique, we identified ten key informants – due to their embeddedness, knowledge, and influence on the field (their role varies from state technicians, government representatives, producers and auditors to directors of VFSS) – who are actively involved and embedded in the structure and organization of the organic food sector in Brazil (see Table 2). Our intention was to identify key stakeholders that were embedded in the sector and who comprised a diverse set of stakeholders to gain a holistic perspective of the institutional environment of the organic sector. The interview schedule was informed by both theory and the secondary data analysis and included questions about the current organization of the organic food sector, the members involved in the supply chains and focused especially on how the certification process works, enabling the role of the state to emerge. The interviews were carried out in person or via Skype from July 2017 until August 2018 with each interview lasting approximately 40-50 minutes.

In order to elaborate a *descriptive conceptual typology* (Collier et al., 2012), data collection and analysis followed a data-driven approach based on grounded theory (Gioia et al., 2012; Corbin & Strauss, 2008), in which no hypothesis was formulated, following an inductive approach that enabled the contribution to emerge from the data.

The process of data collection and analysis was treated as being reciprocally related (Gioia et al., 2012; Corbin & Strauss, 2008). We applied content analysis to the selected documents and transcribed and coded the interviews. Following an exploratory approach inspired by grounded theory (Gioia et al., 2012), a thorough analysis was carried out where the data was broken down and compared, then conceptualized and grouped. After initial coding, it was possible to direct the additional data collection to strengthen the data triangulation.

The empirical research has enabled the development of a *descriptive conceptual typology* (Collier et al., 2012) that creates the basis for the future theoretical development of the role of the state in developing and supporting alternative VFSS. Our aim is not for the typology to be exhaustive and complete. Rather, its contribution lies in identifying and describing the role of the state in managing alternative VFSS, which in the case of this paper is the PGS.

Expert Code	**Occupation**	**Brief bio/description focusing on the PGS governance system**
R1	Researcher	Professor and expert in Rural Sociology and Rural Development
N1	NGO Representative	Working for 30+ years in organic agriculture. Pioneer in the development of the PGS system in Brazil.

AT 1	Agricultural Technician I	Works for Technical Assistance and Rural Extension in the south of Brazil. Working for 20+ years with smallholders, assisting them in the transition from conventional to organic agriculture.
AT 2	Agricultural Technician II	Works for Technical Assistance and Rural Extension in the northeast region of Brazil. Works with smallholders, assisting them in the transition from conventional to organic agriculture.
C1	Third-party certification representative	Director of a private VFSS in Brazil.
C2	PGS representative	Rural Extension technician. Works as an organic auditor. Represents a PGS VFSS.
C3	PGS representative	Represents an organic rice cooperative. The cooperative covers producers under private and PGS VFSS.
P1	Organic producer 1	An organic farmer in northeast Brazil. Represents an organic association that holds third-party certification. Sells his products at a street market.
P2	Organic producer 2	An organic farmer in southeast Brazil. Holds PGS Certification. Sells his products at a street market.
G1	Government representative	Represents The National Secretariat for Food Security and Nutrition which is responsible for programs such as the Food Acquisition Program and National School Feeding Program.

Table 2: List of interview participants

4. RESULTS AND DISCUSSION

4.1 Institutionalizing markets and the role of the state in VFSS: The case of PGS in Brazil

Agroecology in Brazil began as a movement that sought to engage farmers in collaborative networks to provide a better quality of life (van den Berg 2022a). Historically, agroecology in Brazil has its roots in the south and southeast regions and was related to NGOs and religious organizations whose main role was to organize local markets and food fairs, debates, capacity

building, and to organize farmers into associations and cooperatives (Interview with R1). They sought to promote healthier farming practices to benefit farmers and the environment (Interview with R1).

The growth of the Brazilian GDP since the 2000s has enabled the middle class (more than 35 million individuals) to access more diversified markets and expensive items like organic food (Kamakura & Mazzon, 2013). According to the Brazilian Ministry of Agriculture, Livestock, and Food (MAPA *in Portuguese*), the organic food market has grown by almost 40% from 2010 to 2015 (MAPA, 2017). In the last two decades, the organic sector in Brazil has experienced significant structural changes as a result of government intervention. The government created an enabling institutional environment by passing the National Legislation of Organic Agriculture in 2003 (Law 10.831) regulating production standards for certification, accreditation, scope and sustainable extractives rules in 2007 (Decree N. 6.323). This was as well as creating normative instructions regarding the use of phytosanitary products, food additives and the specifications of organic production systems (agriculture, extractivism, animal production systems, and organic seeds) in 2009 (Decree N. 6.913). Also in 2009, the government created a uniform label for all certified organic products in the country (Normative Ruling nº 50).

According to the legislation, MAPA is responsible for the main guidelines for certification, accreditation, scope, and sustainable resource use as part of organic production. The legislation states that all food sold as organic must conform with one of the three following assurance systems: third-party certification (private VFSS), PGS certification, or social control through direct sales. Private VFSS is the only assurance system that is authorized to trade organic products in international markets and it is the most common type of VFSS among large- and medium-scale organic producers.

In the case of social control through direct sales, farmers must be a member of a cooperative or association. These entities are responsible for ensuring that the requirements set by the organic legislation are met. The farmers are allowed to sell their products directly to consumers in farmers' markets without needing to label their products as organic (MAPA, 2017).

More than 42% of organic farmers use private VFSS, while approximately 33% use PGS VFSS and 25% use social control certification (MAPA, 2019). While legislation recognizes the legitimacy of PGS, it does not allow PGS-certified products to be exported as organic. PGS-certified products can only be sold in the domestic market, resulting in short supply chains and accountability to the local community (see the next section for a further discussion on accountability). The following sections will assess the role of state actors in regulating such certification and institutionalizing the organic food market.

4.2 Role of state actors in creating a supportive environment for family farming, organic production, and PGS in Brazil

Growth in the organic sector is linked to the national regulation of organic practices and the certification schemes established between 2003 and 2009, illustrating the role of the state in facilitating an environment supportive of VFSS. The regulation for PGS, as part of the legislation on organic foods, enabled the participatory processes within VFSS to continue to flourish as well. Growth in the organic sector occurred parallel to the public policies designed to stimulate and strengthen organic production and consumption (Blanc & Kledal, 2012). We present below the main public policies enacted by the government in the last decade that support organic food production. While some of the policies targeted organic producers, others targeted family farmers. Fig. 1 illustrates how the policies targeting either of these

groups indirectly affect PGS producers as PGS producers overlap completely with both target groups.

In order to stimulate agroecological and organic production by family farmers, the National Policy on Agroecology and Organic Production (PNAPO) was created in 2012. One of the main instruments of the policy is the National Plan of Agroecology and Organic Production (PLANAPO in *Portuguese*) with the objectives of disseminating agroecological knowledge and practices, supporting the sustainable use of natural resources and increasing the number of family farmers working organically (PLANAPO, 2012). The national policy and execution plan was supported by more than 10 ministries. This policy also illustrates the state's objectives to make organic agriculture a competitive sector in both domestic and international markets and how policies can address the multiple objectives of the food governance system. In parallel to PLANAPO, financial support was initiated for family farmers transitioning to organic agriculture through the National Program for the Strengthening of Family Farming.

Social programs related to family farming and other minority groups are broad programs with different objectives, which have also contributed to strengthening organic production. The main programs established by the Brazilian government to promote food acquisition are the National School Feeding Program (PNAE *in Portuguese*) and the Food Acquisition Program (PAA *in Portuguese*). The PNAE and PAA are programs created to strengthen the demand for products from family agriculture and other minority rural groups, preferably agroecological farmers.

The PNAE has its origins in the early 1940s where national campaigns were initiated to offer school meals in public schools. In 1979, it received the proper name of the National School Feeding Program. The program is carried out by the National Education Development Fund which transfers resources to each municipality. In 2009, additional regulation required that

at least 30% of the funds are invested in the acquisition of products from family farming. In 2015, another resolution established priority status for family farmers settled in agrarian reforms, traditional indigenous communities, and quilombolas. The objective was to strengthen family farming and contribute to local social and economic development (FNDE, 2023). Also, when buying organic food from these groups, an additional 30% of the conventional food value is paid. According to the government's official data, the program has generated more than 1 billion US dollars in payments to family farmers throughout the country (FNDE, 2018).

PAA was created in 2003 to procure the food produced by family farmers and to provide said food to people experiencing food and nutritional insecurity (MDS, 2018). PAA also pays a premium of 30% for organic products (MDS, 2012). PAA was coordinated by the National Secretary of Food and Nutrition Security under the administration of the Ministry of Social Development. PAA is also linked to another relevant program in the country, the Zero Hunger Program (*Fome Zero in Portuguese*). PAA has a number of different pathways for procurement to achieve specific objectives, requiring the involvement of different actors in federal, regional and local jurisdictions (MDS, 2018).

Other mechanisms for supporting organic agriculture are the National Policy for Technical Assistance and Rural Extension (PNATER *in Portuguese*) and the National Program of Technical Assistance and Rural Extension (PRONATER *in Portuguese*) to operationalize the policy. PNATER and PRONATER were created to support technical assistance and rural extension agencies working on diverse fronts to strengthen family farmers and consolidate rural sustainable development (linked programs to strengthen supply; PNATER, 2004). However, in every state, there are different demands faced by the EMATER agencies. The different actions promoted by the agencies also reflect the degree of regional agriculture development and its

needs. In some states, agencies suffer from a lack of financial and human resources that can negatively influence the implementation of PLANAPO. The different actions promoted by the companies also reflect the degree of development of regional agriculture and its needs. In the south of Brazil, EMATER stimulated organic production by assisting farmers in transitioning to organic production and certification: “We are doing a good work towards participatory certification. Today we work with 92 farmers' associations, 755 farmers in 79 municipalities in Rio Grande do Sul. EMATER encourages producers to organize themselves so that they are able to follow participatory certification requirements'' (AT 1).

When it comes to the role of the state, there are a number of different actors across the departments operating at different scales and with different objectives. For example, when the Ministry of Social Development (MDS *in Portuguese*) was created, the National Secretariat of Food and Nutritional Security (SESAN *in Portuguese*) was responsible for food purchases and distribution, including for the PNAE and PAA programs described above, which support organic production and family farmers. The Ministry of Agrarian Development (MDA *in Portuguese* was a Ministry until 2016, when its activities were transferred to the Special Secretariat for Family Agriculture and Agrarian Development) and the Technical Assistance and Rural Extension Office (EMATER *in Portuguese*) are state bodies that support family farmers, providing organizational and development support. These organizations historically work with farmers to realize the governmental policies that are created.

4.3 Intertwined state action and its impact on governance schemes

The policy programs that were created to support family farming and organic production indirectly supported PGS as this was also institutionalized and an important means for family farms to achieve the certification of organic products. As a result of concurrent supportive

policies for organic production and commercialization, the state played a dominant role in promoting the development of alternative governance systems. One example of this support was the development of alternative markets both for the sale of PGS-certified products and for the sale of other products produced by family farmers who struggled to access markets.

Our research shows there to be a complex relationship between state actors, civil society organizations, and producers. The PGS system is an alternative for family farmers that was initiated by civil society organizations (CSO) in order to reduce certification costs and bring more autonomy to family farmers through its democratic governance structure (in contrast to other private governance schemes). However, the institutionalization and development of such a governance system (i.e. PGS), which has expanded across Brazil, was supported due to the action of the state.

The state is central to the network of relationships that constitute food system governance (Jessop, 2016; 2020). The state is composed of a plethora of organizations with different pressures, objectives, and targets that act in both contradictory and complementary ways (Jessop, 2020). Such "governance-centric would consider how the state is enrolled in governance practices in various social fields, not as the prime mover or as primus inter pares, but as one actor-cum-stakeholder among others with distinctive resources to contribute to governance arrangements and projects that are initiated beyond the state" (Jessop, 2016: 83). Despite the importance of the state in developing such governance systems, as demonstrated in section 2, the PGS literature has yet to explore the different roles performed by the state. Our research has examined the role played by the state with regards to organic production and the development of the PGS system. Based on this analysis, we have developed a typology for the role of the state in the development of the VFSS governance system in Brazil. We found that the state, through its public policies, regulates and

institutionalizes the organic market, creates demand, and provides technical and financial support to farmers. Table 3 summarizes the public policies examined and presents a typology for the role of the state.

Table 3: Typology of the role of the state within governance systems

	Year	Objective	Policy Area or type of regulation	Support to PGS Governance System	Target farming group	Role played by the State
Law No 10.831 of 23rd December 2003	2003	Define what an organic product is and an organic system of production	Legislation	Establish an organic production system	Organic	**Market Institutionalization**
Decree No 6.323 of 27th December 2007	2007	Regulate Law n. 10.831	Legislation	Regulate and institutionalize PGS	Organic	**Market Institutionalization**
Decree No 6.913 of 23rd July 2009	2009	Regulate organic production systems	Legislation	Regulate the use of phytosanitary products, food additives, and the specifications of organic production systems (agriculture, extractivism, animal production systems, and organic seeds)	Organic	**Market Institutionalization**
Normative Ruling No 50 of 5th November 2009	2009	Establish uniform labeling for all certified organic products	Legislation		Organic	**Market Institutionalization**
PNAE	1994 2009 - priority given to organic or agroecological products	Ensure that school meals are provided in all public schools	Inequality - Zero Hunger Program	Require that 30% of the funds are spent on locally-produced organic or agroecological food	Family Farmers Agroecological Farmers Organic	**Demand Creation**
PAA	2003	Require that food aid is procured from family farmers	Inequality - Zero Hunger Program	Commercialize organic products and pay a 30% price premium to family farmers for organic products	Family Farmers Agroecological Farmers Organic	**Demand Creation** and **Financial Support**
Pronater - National Program of Technical Assistance and Rural Extension	2003 2012 Technical support for organic and agroecol	Provide technical support and non-formal education regarding management, production, processing, and commercializatio	Provide technical support to small-scale farms	Support the transition to organic farming and the development of innovation and social technologies in rural areas	Family Farmers Agroecological Farmers Organic	**Technical support**

	ogical agricultu re transitio n.	n activities to family farmers				
PNAPO - National Policy on Agroecolo gy and Organic Production	2012	Articulate and integrate policies, programs and actions that promote a transition towards agroecology and organic production.	Agroecology and Organic production	Set the National strategy for developing organic production and developing a trans-ministerial program to achieve that	Family Farmers Agroecologic al Farmers Organic	**Institutional support** and **Demand Creation**
PLANAPO - National Plan of Agroecolo gy and Organic Production	2012	Stimulate agroecological and organic production by family farmers	Agroecology and organic production	National Plan for Agroecology and Organic Production	Family Farmers Agroecologic al Farmers Organic	**Institutional support** and **Technical support**
PRONAF	1996 (Pronaf) 2014 (Pronaf Agroecol ogia)	Support family farmers financially, with lower interest rates to increase productive capacity.	Provide financial support to small farm holds	Provide a dedicated stream for farmers aiming to transition towards agroecology or organic production	Family Farmers Agroecologic al Farmers Family Farmers Agroecologi cal Farmers Organic	**Financial Support**

4.4 Typology for State Intervention

From our analysis, we identified that the state performed multiple roles to create a governance system supportive of small-scale organic producers in Brazil (see Table 5). The typology of the role of the state in governance systems is explained below where we show how each element contributes to democracy and the legitimacy of food governance.

4.4.1 Institutional support

The state provided institutional support by creating an overarching public policy that gave direction to various government departments. Institutional support occurred when the state created a plan of action focused on specific sectors and developed strategies that were

articulated within different state bodies. This was a pivotal role as it provided the necessary institutional framework to build bridges between the different public policies. Institutional support created the framework for other kinds of state interventions, which have been explored below. One of the challenges that PGS faces is recognition. In countries where there is a lack of institutional (legal) recognition at the state level, there is often the lack of legitimacy as perceived by many actors, translating into low credibility towards them (Binder and Vogl 2018; Nelson et al. 2016). As we see in the case of Brazil, explicit institutional support for organic, and especially PGS, producers promoted their legitimacy for consumers by legislating and standardizing certification practices and expectations. One key stakeholder said, "*Before the national regulation every certifier company had its own way to certify…what I can see now is that there is a pattern that all companies in Brazil have followed since the regulation*" (C1). Another key stakeholder that has worked with PGS for more than 30 years highlighted that before legislation, PGS was more regionalized but that legislation strengthened PGS as an alternative production system recognized throughout the whole country (N1).

Similarly, institutional support has promoted democracy at the state level as it has fostered the development of an alternative localized food system and engaged those that were excluded from the globalized food system. For members, PGS was experienced as more than a certification system because it promoted collective participation based on collaboration and communication that strengthened the local production systems. Two key stakeholders illustrated the benefits of wider participation through the following quotes:

> "*It has a very strong symbolic dimension, more than having a participative certification, the most important thing is the social network in which they are involved, so there is a high complicity"* (R1).

"You cannot be part of such a system if you do not know the values of working in an association or cooperative. We are all together to help each other" (P2).

By specifically enabling PGS under national organic legislation, the state provided support for democratic and legitimate processes at the organizational level due to the inherent nature of PGS. Legitimacy was also gained by legislating a certification system that did not exclude producers who could not afford the cost of certification, as indicated by the key farmer stakeholders. Even though they came from different regions, they both highlighted the differences in terms of financial investments between private VFSS and PGS: "*I think one of the main constraints is cost [talking about private VFSS], it is very expensive for the small-scale farmer. This should be less important for certification"* (P1). Another stakeholder noted that "*PGS is considerably cheaper, but requires intense participation"* (P2). The challenge of the increased time commitment to participate in PGS is recognized across many other contexts as well (Kaufmann et al., 2020; Kaufmann & Vogl 2018; Hruschka et al., 2022).

4.4.2 Market institutionalization

A second form of state intervention occurred when the state created and supported the organic market. Such a role was performed via the development of legislation, i.e. hard law mechanisms, and was therefore regulated. This was done when the state established regulations about the use of organic labeling. Market institutionalization stabilized routes for commercialization and reliable market access which led to a consistent level of demand and made certification economically viable. Market institutionalization was relevant for conventional distribution channels (e.g. supermarkets) in which the consumer did not have a relationship with the farmer and did not know how the product was farmed. Hence, institutionalizing the organic market created the opportunity for certification to emerge and fill the trust gap between consumers and farmers. One stakeholder said,

> *"In Brazil, 30 years ago organic was a marginal issue, nobody knew what organic food was (or agroecological food). We had to justify our farmers market and the set of products in the supermarket were very incipient. Nowadays, everything has changed, it is the subject that's right there. It is on the news, the magazines, in the television, the farmers market are a success along the whole country (...) there are hundreds of farmers markets weekly spread throughout the country"* (N1).

Organic market institutionalization in Brazil enabled the development of different marketing channels, benefiting farmers who were at different levels of organizational maturity in the production chain. Farmers that produced organic food for a long time were better prepared to use traditional market channels: farmers' markets, supermarkets, and specialized stores. Farmers who had converted from conventional to organic more recently and who had lower production volumes could benefit from government programs such as PAA and PNAE.

There was also the relationship between marketing channels and the perception of the requirements that consumers had of the organic label and certification systems. According to one key stakeholder, in more traditional channels such as supermarkets, the label was a factor of great relevance and consumers did not see the distinction in many cases between private VFSS and PGS (Interview with R1). However, for regional and direct sales channels, the label was not as important due to the social ties inherent in PGS that united the two ends of the chain: producers and consumers.

This was particularly important for products where organic certification played a less important role for consumers. One key stakeholder said, "*For example, in farmer's markets, certification is not that relevant because consumers are already connected, they already know the farmers. So it depends on the channels; if more alternative, or more conventional*" (R1).

According to this stakeholder, organic certification was important to consumers when purchasing meat and dairy products because these were more likely to be sold by third party vendors. Farmers selling horticulture products directly to consumers in markets were less dependent on certification to be able to sell their organic produce because of the trust implicit in the exchange. It was this element of trust that occurred in the direct sales between producers and consumers that contributed to democracy and legitimacy at the organizational level. In both cases however, the government legislation enabled the democratic participation of all organic farmers in the targeted markets, enabling organic producers to participate in more diverse supply chains. In the subsequent sections, we will address how this element could be amended to make it possible for PGS to access global supply chains.

4.4.3 Demand creation

Demand creation consisted of public policies that used state procurement power to stimulate market access by creating an additional demand for specific products. Rather than focusing on production, demand creation policies targeted objectives such as food security and poverty (e.g. PNAE, PAA and Zero Hunger Program). Actions to stimulate demand influenced the governance system by creating a stable commercialization channel.

Demand creation was pivotal for ensuring the economic viability of alternative systems. Indirectly, demand creation could also help with the development of the PGS at the organizational level. With livelihoods secured, producers were available to engage with the development of PGS and contribute to the democratic processes within their own organization. The stable demand generated through these policies was particularly important for attracting new organic farmers to the PGS system and providing them with a stable income stream. One key stakeholder said: "*Also what helped to expand organic production in Brazil (more recently) were the national programs like the PNAE with the government buying food*

for the schools" (R1). Another stakeholder confirms this: "*Public policies are important for those who are starting in the market (farmers' markets). Those who are better organized no longer depend so much (cooperatives and associations), they already have other channels that pay better. In my opinion, the role of public policies is mainly to stimulate production"* (AT1).

4.4.4 Technical support

Technical support focused on providing the targeted population with the necessary technical knowledge to convert to organic production and/or to access other public policies. Lack of training and access to technical support is a significant challenge to the expansion and resilience of PGS (Anselmi and Vignola, 2022; Hruschka et al. 2022). Technical support was pivotal in bridging several dimensions of the governance system. Because technical support focused on organizational development, capacity building and management skills, it was also supporting the democratic and participatory mechanisms in PGS. Additionally, technical support contributed to democratic principles at the state level because it was available to all producers, rather than only to those who could afford to pay for it. One key stakeholder shared, "*Regarding actors involved in the supply chain, an important service is the rural extension, like EMATER we have here. They are very important to give farmers training and knowledge support"* (C2).

An interesting aspect about the agricultural technical assistance institutions in Brazil was that, despite a common format, they acted independently to meet regional demands. In the case of technical assistance institutions in the south of the country, PGS was better consolidated, so the work was aimed at strengthening the system with guidelines for farmers who wanted to produce organics to choose PGS. As one key stakeholder stated:

> *"EMATER encourages the organization of producers so that they are able to follow participatory certification (...) Producers have to create a committee with*

different agents participating (Ministry of Agriculture, Emater, Regional committee for the Organic Production) all this to create participatory processes for experiencing exchange and transparency " (AT1).

4.4.5 Financial support

The final type of state support was financial support which occurred when the state created financial mechanisms for the target population through public funds, cheaper interest rates and/or premium prices. Financial support leveled the playing field, reducing the barriers to accessing the financial system and corresponding information. For example, combined technical and financial support helped farmers develop a business plan which enabled the farmers to access the financial funds needed to achieve business objectives. In the case of Brazil, there are still some improvement to be made, as shared by one key stakeholder: "*So the legal framework is important regarding certification and institutional purchases, but there is still a lack of credit. There is still improvement in credit lines, such as the Pronaf Agroecology line"* (AT 1). However, the equal access to financial mechanisms again met the democratic principles at the state level.

4.5 State interventions for building VFSS governance

Each state action above acted in different ways to support and build a governance system for VFSS. For example, institutional support was distinct from market institutionalization as it did not regulate markets and instead set standards and definitions. However, it influenced the governance system through the development of public policies. Moreover, the typology emphasizes that actions can be complementary. For example, demand creation was complemented by financial support. We have not explored whether this complementarity was intentional or not. It is noteworthy that we did not find contradictory actions but considering the state organization, this would not be unlikely in a different governance

system. The actions of the state have been presented here as supporting the growth of agroecological and organic food production. However, it is also important to note research that demonstrates that these same actions have also been used to promote conventional, input-intensive practices as well (Altieri et al. 2012; Schmitt et al. 2017; Giraldo and McCune, 2019; da Silva et al., 2018).

This typology illustrates the various mechanisms available to the state to support the governance of VFSS, both PGS and private, and it may be used to understand the maturity of such a governance scheme. In its nascent phase, the state may only engage in one or two aspects, such as financial and technical support, but this may still result in many challenges and obstacles for PGS-certified producers and producer groups to overcome. Such is the case in Mexico where many PGS farmer cooperatives still struggle, despite some financial and technical support (Kaufmann & Vogl 2018; Bara et al., 2018). A more mature and fully developed system of governance will involve many actors and types of state action, as is the case in Brazil. This is likely to support a broader level of engagement in PGS which can support social goals such as the improvement of the livelihoods of small-scale farmers in terms of income, health, nutrition, and social recognition (FAO 2017).

In the case of Brazil, CSO actors first initiated the demand for a PGS that was democratic and more responsive to the local context. The state then institutionalized the market and provided the necessary hard-law regulation to enable further support for PGS. Once the legislation was in place, technical support improved the capacity of the actors to take advantage of emerging markets. Understanding that organic production was important to achieving sustainable development and considering the socio-economic characteristics of Brazilian small-scale farmers, the state decided to play a pivotal role in the form of institutional support. This created an institutional framework for bridging public policies and advancing PGS and organic

production in Brazil which created the conditions for the remaining actions identified. It also fulfilled two important steps in providing democratic approaches and legitimacy to VFSS. However, a third step remains to bring PGS on par with other VFSS: being able to participate in global food chains.

Although we have not explored the political coalitions that have supported (or threatened) the public policies examined here, we have found enough evidence to indicate a risk of discontinuation which can impact the governance system at the time of writing. This risk is realized if the state changes priorities and either terminates public policies, dramatically cuts their funding, or increases the bureaucracy that makes it practically difficult to participate. Therefore, we suggest that governance systems—and the state roles that support such systems—become dynamic and evolve through time as we have already noted. Below, we evidence the risk of discontinuation.

4.6 Uncertainties and the discontinuation of programs

Short-term changes in institutional support have made PGS's wider market access unreliable in the long term. One key stakeholder said the following about PAA: "*The program budget has decreased over 70%. If you compare 2013, when we had the highest number of purchases, compared to today (Oct.2018). In fact, if we check it, there has been a drop in all social programs investments. It's a linear fall. This is a governmental decision; we have no regency"* (G1). PNAE, the National School Feeding Program, has also received less funding since 2017. Even though the National Congress approved a 34% budget increase in 2022, the current government rejected it twice, claiming that it exceeded the 2023 national budget authorized by the National Budget Guidelines Law (LDO) (OAE, 2022).

This has strongly impacted family farmers who have over-relied on state market mechanisms for selling their produce. To build economic resilience into the system, new ways of accessing

markets could be identified, thereby creating a redundancy in sourcing options. Here the state can continue to play a supporting role in PGS by legislating the exporting of products certified via PGS. There are also other mechanisms for indirectly increasing the budget for PAA purchases including institutional purchases by the Navy, Army, and federal universities, for example. However, these are hindered by the need to provide a quantity of food that is larger than what family farmers are able to supply (Interview with G1).

The current political context, in which there has been a dramatic shift from liberal politics to far-right conservative politics and back again, has introduced uncertainties about continuous financial support for organic production and markets (Interview with AT1). Under the Bolsonaro presidency, a number of ministers became secretaries, coupled with other ministries (e.g. MDA), which affected the implementation of food programs (Special Secretariat for Social Development, 2020). These changes also affected data access, making it difficult to research the subject. The interview data illustrates the uncertainty about the future of these food programs, even in the short term. In the case of PNAE, the discontinuity was not severe since legislation required the provision of school meals. However, PAA suffered a reduction of more than 70% in total budget in 2018, compared to 2013 (Interview with G1).

Producers in the south and southeast have a longer history of organization and were able to access the government funding programs from very early on. As a result, these producers were successful in creating their own markets with some cooperatives even marketing their products to an international market (Interview with G1). These producers no longer depend on government funding programs. This was in stark contrast with the producers from the north and northeast who were more dependent on program funding and received more than 70% of the funding in 2017 (Interview with G1).

At the moment of writing, uncertainties persist and more time is necessary to examine the consequences for PGS and the food governance system. Lula's election win in October 2022 could mean increased financial support again for family farmers and organic production but with the soaring inflation, the cost-of-living crisis and other budgetary demands, it remains to be seen what policies are prioritized in Lula's budget agenda. However, as political coalitions and the state priorities change, the typology is likely to evolve and a new element focusing on discontinuation could emerge. Under this context, although the state was (and still is) pivotal for the development of more democratic and efficient governance systems, if our societies continue to aim to develop a more sustainable and resilient food system, we need to move towards a polycentric governance system as we discuss in the next sections.

4.7 Approaches for generating democratic approaches to global food supply chains

Globalized processes have increased exponentially in the last half century with people and products traveling further distances, and exotic foods becoming a mainstay in northern retail outlets. Food chains have become longer and more complicated with a gulf developing between food producers and consumers (Gordon et al., 2017). Private VFSS have thus far been the only option for consumers in the global north seeking to purchase foods produced in the global south according to minimum safety, environmental and/or social standards. Beyond considering the role of the state in supporting alternative VFSS, we have considered the role of civil society organizations in driving innovation in food governance. PGS is a bottom-up participatory approach to governing production and quality standards throughout the local food supply chain. However, questions remain about whether or not PGS can be supported within a global food system which would arguably require further innovation in food system governance.

In Brazil, direct sales of organic products between producers and consumers are allowed without requiring certification. This form of sale is premised on the implicit trust that exists in a face-to-face exchange between producers and consumers. More recently, digital tools have been harnessed to close the gap between international producers and consumers to create a modified “face-to-face” exchange (Havran et al. 2021). Tools such as crowdfarming enable producers in one country to market their product nearly directly to consumers, sharing information about their farming practices and principles online with consumers in an effort to build trust over physical distance (De Clercq et al. 2018).

Current blockchain technology focuses on achieving greater transparency in the food system which is premised on the same problem identified above: long supply chains creating a lack of trust in the safety and impact of food production practices. While blockchain technology itself is still in its infancy, further innovation could focus on a mechanism for using blockchain technology as a two-way communication tool between the actors at either end of the food supply chain (De Clercq et al. 2018). Such avenues have not yet been explored by state bodies and obviously would further develop the typology elaborated here.

If the physical distance between global producers and consumers can be virtually reduced through the use of digital technology, it becomes possible to once again establish trust between producers and consumers. This is the space into which PGS can move. State legislation can serve a role in facilitating this process through legislating the export of PGS-certified products (De Clercq et al. 2018). However, civil society has a role to play, to both demand and harness the necessary technology to achieve these goals. Changing and restructuring the global food system is a challenge that will require the participation of the state, civil society, and industry while also having the potential to revolutionize the

consumers' relationship to food, creating a food governance system that delivers greater wellbeing and sustainability across the global food supply chains.

5. CONCLUSION

Our study illustrates the critical role that civil society (in this case, in the form of PGS VFSS), private VFSS, and state actors each play in establishing a framework for a food governance system that delivers food according to the values of all stakeholders. In this way, a more democratic approach to food system governance can be achieved. However, this does not mean that all actors necessarily work towards the same objective; even the state does not act as a homogeneous actor. One of the key contributions of this study is the proposed typology that can help to identify and assess how such governance systems are evolving (by assessing how mature the system is) and, at the same time, point out areas where the state actors could further act to develop a more democratic governance system. Additionally, the objectives may also shift as new actors emerge, as so happens in the election of new political parties. This institutional short-term driver of change can make long-term planning difficult for farmers. In order to instill greater resilience into PGS, it is important to consider how the relationship between the three actors can be reconfigured.

One way to reconfigure these relationships is through diversifying the market pathways to build resilience for long-term income and profitability. Thus, PGS is not overly reliant on state-sponsored support. In the south of Brazil, where PGS is in a more mature stage, this has already largely been achieved. However, northern producers who are new to PGS have yet to build multiple market routes, and thus are more vulnerable to variations in state support.

Another aspect of resilience is the degree to which the system is capable of self-organization. By its nature, PGS are highly self-organizing and able to respond to changes desired by the

stakeholders through a process of negotiation and co-production. A third consideration is the system's capacity to learn and adapt. Ecologically, PGS is all about learning and adapting to different signals from the natural dynamics of the production system. Socially, PGS has had to learn and adapt in order to transform the regional conventional food system. Here, innovation between the actors can also play a role by making it possible to open up global markets while maintaining the democratic principles within the food system.

A polycentric system of food governance with the participation of civil society actors, in the form of PGS, represents a more democratic approach with greater participation, transparency, and accountability compared to a governance system driven by private VFSS. These characteristics can help drive greater equity in the food system which may be key in promoting a healthier and more resilient governance system. This is another important finding of this study.

Our study thus provides a valuable contribution to the domain of food governance, particularly in the Brazilian context. However, the current findings are based on secondary document reviews and ten in-depth interviews. The use of additional methods involving multiple data sources (surveys, archival data, secondary reports etc.) could enhance the validity and generalizability of our findings. The study would also benefit from further empirical investigation using a larger sample size and comparing the role of the state in the other twelve nations with PGS legislation to further help us to understand the commonalities and associated complexities.

6. REFERENCES

Altieri, M. A., Funes-Monzote, F. R., & Petersen, P. 2012. Agroecologically efficient agricultural systems for smallholder farmers: contributions to food sovereignty. *Agronomy for sustainable development*, 32, pp. 1-13.

Anselmi, S., and Castro, F. M. E., 2022. Participatory Guarantee Systems in 2021. In H. Willer, J. Trávníček, C. Meier and B. Schlatter (Eds.): The World of Organic Agriculture. Statistics and Emerging Trends 2022. Research Institute of Organic Agriculture FiBL, Frick, and IFOAM – Organics International, Bonn.

Anselmi, S., V. Raffaele, 2022. Participatory certifications for the sustainability transition of food systems in Costa Rica: barriers and opportunities for scaling out, Agroecology and Sustainable Food Systems, 46:2, 273-293, DOI:10.1080/21683565.2021.1989106

Ariztia, T., Kleine, D., Bartholo, R., Brightwell, G., Agloni, N. and Afonso, R., 2016. Beyond the "deficit discourse": Mapping ethical consumption discourses in Chile and Brazil. *Environment and Planning A*, *48*(5), pp.891-909.

Bennett, E.A., 2017. Who governs socially-oriented voluntary sustainability standards? Not the producers of certified products. *World Development*, *91*, pp.53-69.

Binder, N. and Vogl, C.R., 2018. Participatory guarantee systems in Peru: Two case studies in Lima and Apurímac and the role of capacity building in the food chain. *Sustainability*, *10*(12), p.4644.

Blanc, J. and Kledal, P. R. The Brazilian organic food sector: Prospects and constraints of facilitating the inclusion of smallholders. *Journal of Rural Studies*, *28*(1), 142-154.

Brammer, S., Jackson, G. and Matten, D., 2012. Corporate social responsibility and institutional theory: New perspectives on private governance. *Socio-economic review*, *10*(1), pp.3-28.

Brown, O. and Sander, C., 2007. Supermarket buying power: Global supply chains and smallholder farmers. *International Institute for Sustainable Development, Winnipeg*.

Cashore, B., 2002. Legitimacy and the Privatization of Environmental Governance: How Non-State Market-Driven (NSMD) *Governance Systems Gain Rule-Making Authority. Governance: An International Journal of Policy, Administration, and Institutions* 15(4): 503–529.

Cavaliere, A., Peri, M. and Banterle, A., 2016. Vertical coordination in organic food chains: A survey based analysis in France, Italy and Spain. *Sustainability*, *8*(6), p.569.

Collier, D., LaPorte, J. and Seawright, J., 2012. Putting typologies to work: Concept formation, measurement, and analytic rigor. *Political research quarterly*, *65*(1), pp.217-232.

Corbin, J. and Strauss, A., 2008. Theoretical sampling. *Basics of qualitative research (3rd ed.): Techniques and procedures for developing grounded theory. SAGE Publications, Inc*, pp.143-158.

da Silva, F. C., Antonio, L. Ã., & Maia, A. H. 2018. Public policy on the family farming sector in Brazil: Towards a model of sustainable agriculture. *African Journal of Agricultural Research*, 13(33), pp. 1719-1729.

De Clercq, M., Vats, A. and Biel, A., 2018. Agriculture 4.0: The future of farming technology. Proceedings of the World Government Summit, Dubai, UAE, pp.11-13.

de Lima, F.A., Neutzling, D.M. and Gomes, M., 2021. Do organic standards have a real taste of sustainability?–A critical essay. *Journal of Rural Studies*, *81*, pp.89-98.

de Lima, F. A., Neutzling, D. M., Seuring, S., Kumar, V., and Bossle, M. B., 2023. Analyzing the implications of organic standardization and certification in alternative food networks: The capability approach. *Business Ethics, the Environment & Responsibility*, *1,* pp.1-16.

Dietz, T., Biber-Freudenberger, L., Deal, L. and Börner, J., 2022. Is private sustainability governance a myth? Evaluating major sustainability certifications in primary production: A mixed methods meta-study. *Ecological Economics*, *201*, p.107546.

Eberlein, B., Abbott, K.W., Black, J., Meidinger, E. and Wood, S., 2014. Transnational business governance interactions: Conceptualization and framework for analysis. *Regulation & governance*, *8*(1), pp.1-21.

FAO. 2017. The future of food and agriculture – Trends and challenges. Rome.

FNDE, 2018. Fundo Nacional de Desenvolvimento da Educação. Ministério da Educação*. (In Portuguese).* Available at*: http://www.fnde.gov.br/programas/pnae* (accessed 29 February, 2019).

FNDE, 2023. Fundo Nacional de Desenvolvimento da Educação. Ministério da Educação*. (In Portuguese).* Available at*:* https://www.fnde.gov.br/index.php/programas/pnae/pnae-sobre-o-programa/pnae-historico (accessed 03 march, 2023).

Foley, P. and Hébert, K., 2013. Alternative regimes of transnational environmental certification: governance, marketization, and place in Alaska's salmon fisheries. *Environment and Planning A*, *45*(11), pp.2734-2751.

Friedmann, H. and McNair, A., 2008. Whose rules rule? Contested projects to certify 'Local production for distant consumers'1. *Journal of Agrarian Change*, *8*(2-3), pp.408-434.

Fuchs, D., Kalfagianni, A. and Havinga, T., 2011. Actors in private food governance: the legitimacy of retail standards and multistakeholder initiatives with civil society participation. *Agriculture and human values*, *28*(3), pp.353-367.

Giovannucci, D. and Ponte, S., 2005. Standards as a new form of social contract? Sustainability initiatives in the coffee industry. *Food policy*, *30*(3), pp.284-301.

Gioia, C., Hamilton, 2013 Gioia, DA, Corley, KG, & Hamilton, AL (2013). *Seeking qualitative rigor in inductive research: Notes on the Gioia methodology. Organizational Research Methods*, *16*(1), pp.15-31.

Giraldo, O. F., & McCune, N. 2019. Can the state take agroecology to scale? Public policy experiences in agroecological territorialization from Latin America. *Agroecology and Sustainable Food Systems*, 43(7-8), pp. 785-809.

Gordon, L.J., Bignet, V., Crona, B., Henriksson, P.J., Van Holt, T., Jonell, M., Lindahl, T., Troell, M., Barthel, S., Deutsch, L. and Folke, C., 2017. Rewiring food systems to enhance human health and biosphere stewardship. *Environmental Research Letters*, *12*(10), p.100201.

Gulbrandsen, L.H., 2014. Dynamic governance interactions: Evolutionary effects of state responses to non-state certification programs. *Regulation & Governance*, *8*(1), pp.74-92.

Guthman, J., 2004. Back to the land: the paradox of organic food standards. *Environment and planning A*, *36*(3), pp.511-528.

Hatanaka, M., Bain, C. and Busch, L., 2005. Third-party certification in the global agrifood system. *Food policy*, *30*(3), pp.354-369.

Hatanaka, M., 2020. Beyond consuming ethically? Food citizens, governance, and sustainability. *Journal of Rural Studies*, *77*, pp.55-62.

Havran, D., Kerényi, P. and Víg, A.A., 2021. Social Finance and Agricultural Funding. In *Innovations in Social Finance: Transitioning Beyond Economic Value* (pp. 269-290). Cham: Springer International Publishing.

Home, R. and Nelson, E., 2015. The role of participatory guarantee systems for food security. *Feeding the people: Agroecology for nourishing the world and transforming the agri-food system*, pp.26-29.

Jessop, B. (2016). State theory. In Torfing, J. and Ansell, C.K. eds., 2016. *Handbook on theories of governance*. Edward Elgar Publishing, pp. 71-85.

Jessop, B., 2020. Putting Civil Society in Its Place: Governance, Metagovernance and Subjectivity.

Hruschka, N., S. Kaufmann & C. R. Vogl, 2022. The benefits and challenges of participating in Participatory Guarantee Systems (PGS) initiatives following institutional formalization in Chile, International Journal of Agricultural Sustainability, 20:4, 393-407.

Katto-Andrighetto, J., Kirchner, C., e Castro, F.M. and Varini, F., 2019. Participatory Guarantee Systems in 2018. *the World of organic agriculture*, *160*, p.161.

Kageyama, A.A., Bergamasco, S.M.P.P. and Oliveira, J.T.A.D., 2013. Uma tipologia dos estabelecimentos agropecuários do Brasil a partir do censo de 2006. *Revista de economia e sociologia rural*, *51*, pp.105-122.

Kamakura, W.A. and Mazzon, J.A., 2013. Estratificação socioeconômica e consumo no Brasil.

Kaufmann, S. and Vogl, C.R., 2018. Participatory Guarantee Systems (PGS) in Mexico: a theoretic ideal or everyday practice? *Agriculture and human values*, *35*(2), pp.457-472.

Kaufmann S., Hruschka N., Vogl C.R., 2020. Bridging the literature Gap: a framework for assessing actor participation in participatory guarantee systems (PGS), Sustainability, 12: 8100.

MAPA, 2019. Ministério da Agricultura, Pecuária e Abastecimento. Cadastro Nacional de Produtores Orgânicos. [online] Available at: http://www.agricultura.gov.br/assuntos/sustentabilidade/organicos/cadastro-nacional-produtores-organicos [Accessed 26 Sep. 2019].

MAPA, 2017. Ministério da Agricultura, Pecuária e Abastecimento. Decreto Nº 06.323 de 27 de Dezembro de 2007.pdf [online] Available at: http://www.agricultura.gov.br/assuntos/sustentabilidade/organicos/legislacao/portugues/decreto-no-06-323-de-27-de-dezembro-de-2007.pdf/view [Accessed 26 Sep. 2019].

MDS, 2012. Ministério de Desenvolvimento Social. Resolução Nº 50, de 26 de Setembro de 2012. http://www.mds.gov.br/webarquivos/arquivo/seguranca_alimentar/compra_institucional/RESOLUCAO_N50_26SETEMBRO2012.pdf [Accessed 26 Sep. 2019].

MDS (2018). *Ministério do Desenvolvimento Social. Programa de Aquisição de Alimentos (PAA).* In Portuguese. http://mds.gov.br/assuntos/seguranca-alimentar/programa-de-aquisicao-de-alimentos-paa [Accessed 18 Aug. 2018].

Marin-Burgos, V., Clancy, J.S. and Lovett, J.C., 2015. Contesting legitimacy of voluntary sustainability certification schemes: Valuation languages and power asymmetries in the Roundtable on Sustainable Palm Oil in Colombia. *Ecological economics*, *117*, pp.303-313.

Mayer, F. and Gereffi, G., 2010. Regulation and economic globalization: Prospects and limits of private governance. *Business and Politics*, *12*(3), pp.1-25.

Mishra, P.K. and Dey, K., 2018. Governance of agricultural value chains: Coordination, control and safeguarding. *Journal of Rural Studies*, *64*, pp.135-147.

Nelson E., Gomez Tovar L., Gueguen E., Humphries S., Landman K., Schwentesius Rindermann R., 2016. Participatory guarantee systems and the re-imagining of Mexico's organic sector. Agric Hum Values, 33 :373–388.

Nesadurai, H.E., 2019. Transnational private governance as a developmental driver in Southeast Asia: The case of sustainable palm oil standards in Indonesia and Malaysia. *The Journal of Development Studies*, *55*(9), pp.1892-1908.

Niederle, P., Loconto, A., Lemeilleur, S. and Dorville, C., 2020. Social movements and institutional change in organic food markets: Evidence from participatory guarantee systems in Brazil and France. *Journal of Rural Studies*, *78*, pp.282-291.

Niederle, P.A. and Radomsky, G.F.W., 2017. Quem governa por dispositivos?: a produção das normas e padrões para os alimentos orgânicos no Brasil. *Tomo: revista do Núcleo de Pós-Graduação e Pesquisa em Ciências Sociais. São Cristovão, SE. N. 30 (jan./jun. 2017), p.[227]-265*.

OAE, 2022. Observatório da Alimentação Escolar. (*In Portuguese).* Available at: https://alimentacaoescolar.org.br/media/notastecnicas/documentos/NTEstadosOAE_2022_.pdf

PLANAPO (2012). Plano Nacional de Agroecologia e Produção Orgânica. Ministério do Desenvolvimento Agrário. (*In Portuguese)*. Available at: http://www.mda.gov.br/planapo/ (Acessed in 15 December 2018).

Ponte, S., 2008. Greener than thou: The political economy of fish ecolabeling and its local manifestations in South Africa. *World Development*, *36*(1), pp.159-175.

Porter, T. and Ronit, K. eds., 2010. *The Challenges of Global Business Authority: Democratic Renewal, Stalemate, Or Decay?*. State University of New York Press.

PNATER, 2004. Política Nacional de Assistência Técnica de Extensão Rural. (*In Portuguese*). Available at: http://www.mda.gov.br/sitemda/sites/sitemda/files/user_arquivos_64/Pnater.pdf (Accessed in 15 December 2018).

Radomsky, G., Niederle, P. and Schneider, S., 2014. Participatory systems of certification and alternative marketing networks: The case of the Ecovida Agroecology Network in South Brazil. In *Rural development and the construction of new markets* (pp. 79-98). Routledge.

Reardon, T., Codron, J.M., Busch, L., Bingen, J. and Harris, C., 1999. Global change in agrifood grades and standards: agribusiness strategic responses in developing countries. *The International Food and Agribusiness Management Review*, *2*(3-4), pp.421-435.

Rosina Bara, C., Jarquin Gálvez, R., Reyes Hernández, H. and Fortanelli Martínez, J., 2018. Adaptation of a participatory organic certification system to the organic products law in six local markets in Mexico. *Agroecology and Sustainable Food Systems*, *42*(1), pp.48-76.

Rudder, C.E., 2008. Private governance as public policy: a paradigmatic shift. *The Journal of Politics*, *70*(4), pp.899-913.

Saleki, R., Quoquab, F. and Mohammad, J., 2019. What drives Malaysian consumers' organic food purchase intention? The role of moral norm, self-identity, environmental concern and price consciousness. *Journal of Agribusiness in Developing and Emerging Economies*.

Schaller, S., 2007. The democratic legitimacy of private governance: An analysis of the ethical trading initiative.

Schmitt, C., P. Niederle, M. Ávila, E. Sabourin, P. Petersen, L. Silveira, W. Assis, J. Palm, and G. B. G. Fernandes. 2017. La experiencia brasileña de construcción de políticas públicas em favor de la Agroecología. In: Políticas públicas a favor de la agroecología en América Latina y El Caribe, ed.FAO, Red PP-AL, 73-121. Brasilia: FAO

Special Secretariat for Social Development, 2020. Ministério do Desenvolvimento e Assistência Social, Família e Combate à Fome. (*In Portuguese*). Available at: https://www.gov.br/cidadania/pt-br/composicao/orgaos-especificos/desenvolvimento-social

Van den Berg, L., Teixeira, H.M., Behagel, J.H., Verschoor, G., Turnhout, E., Cardoso, I.M. and Botelho, M.I.V., 2022a. From managing transitions towards building movements of affect: Advancing agroecological practices and transformation in Brazil. *Geoforum*, 131, pp.50-60.

Van den Berg, L., Behagel, J.H., Verschoor, G., Petersen, P. and da Silva, M.G., 2022b. Between institutional reform and building popular movements: The political articulation of agroecology in Brazil. *Journal of Rural Studies*, 89, pp.140-148.

Van Der Grijp, N.M., Marsden, T. and Cavalcanti, J.S.B., 2005. European retailers as agents of change towards sustainability: The case of fruit production in Brazil. *Environmental Sciences*, *2*(4), pp.445-460.

Vieira, L.M., De Barcellos, M.D., Hoppe, A. and da Silva, S.B., 2013. An analysis of value in an organic food supply chain. *British Food Journal*.