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Scaling up sustainability in commodity agriculture: Transferability of governance mechanisms across the coffee and cattle sectors in Brazil

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ABSTRACT

A number of governance mechanisms address socio-environmental challenges associated with commodity agriculture in tropical forested countries. Governance mechanisms that prove effective in one agricultural sector are often applied to other sectors as well. For example, voluntary certification programs have been adopted by producers of commodities as diverse as beef, coffee, palm oil, and soy. However, there are substantial differences in the extent to which governance mechanisms scale up and achieve impact in different sectors. This paper analyzes how the potential for scaling up a particular governance mechanism is influenced by environmental, market, and social geographies that differ between sectors. Through stakeholder interviews, farm-level surveys, and a literature review, we examine two types of voluntary governance mechanisms (third-party certification, and sustainable intensification programs) in the coffee and cattle sectors in Brazil, to understand why the two governance mechanisms have scaled differently between these two sectors. We find that third-party certification programs have scaled up relatively well in Brazil's coffee sector, more so than its cattle sector, in part owing to differences in sustainability priorities, market orientations, supply chain traceability, and social networks between the two sectors. We also find that pilot sustainable intensification programs in the cattle sector have had more success than certification in engaging farmers, in part because they involve less investment from participating farmers. We conclude that the distribution and quality of environmental resources, markets, knowledge, actors, and networks can play an important role in the ability of a governance mechanism to effectively take root.

1. Introduction

Commodity agriculture is a significant contributor to the economies of many countries that export beef, coffee, palm oil, and soy to meet growing global demand (FAOStat, 2017). At the same time, commodity agriculture in many countries is associated with environmental and social challenges that need to be addressed to enhance agricultural sustainability. For example, cattle and palm oil production are both associated with high rates of land use change,

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deforestation (Barona et al., 2010; Bowman et al., 2012), greenhouse gas emissions (Bustamante et al., 2012; Cederberg et al., 2011), encroachment into indigenous lands, and labor rights violations (Phillips and Sakamoto, 2012).

In many tropical forested countries, governments, corporations, and civil society organizations have attempted to implement a number of regulatory policies, voluntary programs, and other sustainability interventions and initiatives (collectively described in this paper hereafter as *governance mechanisms*) at local to global scales in an effort to achieve greater commodity agriculture sustainability (Newton et al., 2013; Agrawal et al., 2014). In recent decades, concerns about the effectiveness of regulatory approaches have led to a growing prominence of civil society and voluntary governance mechanisms. Such voluntary mechanisms include sustainable commodity roundtables, payments for environmental services programs, and third-party certification programs.

Voluntary governance mechanisms have found differing degrees of receptiveness across agricultural commodity producers and sectors. Governance mechanisms perceived to be effective in one sector have found application in other sectors, with the assumption that at least some of the elements driving successful outcomes are transferable. For example, moratoria on the production of soy and cattle have been established in Brazil, in each case to exclude supply chain actors that source from deforested properties in the Amazon biome (Gibbs et al., 2015, 2016). Similarly, voluntary zero-deforestation commitments have been made by numerous multinational companies in an attempt to sustainably source beef, palm oil, wood pulp, timber, and soy, by developing improved supply chain traceability and management systems (Lambin et al., 2018). Roundtables have been developed for commodities including beef, palm oil, and soy, taking a multi-stakeholder governance approach to defining and recognizing sustainability (Brassett et al., 2011). Finally, voluntary certification programs have been adopted by producers of commodities as diverse as black pepper, cattle, coffee, fish, palm oil, tea, timber, and soy (Tayleur et al., 2016). Certification programs are market-based systems that defineenvironmental and social sustainability standards, establish independent third-party verification of these standards, and recognize producers and products that comply with the standards.

Some of the ways that the success of a governance mechanism can be assessed are by its rate and extent of adoption, and by its positive and negative impacts. Certification is an example of a governance mechanism that has reached significant scale in several key commodity crop sectors, and the proportion of agricultural production that is certified in these sectors has increased dramatically in the past two decades (Potts et al., 2017; Tayleur et al., 2016). Producers that become certified usually need to improve their management practices to comply with the program's standards. This creates additional costs, but also several possible benefits: for example, product price premiums, improved market access, or improved on-farm efficiency or productivity (Raynolds et al., 2007). An emerging body of evidence suggests that certification can significantly influence environmental outcomes at large scales (Hardt et al., 2015; Vanderhaegen et al., 2018). Organic coffee certification reduced chemical input use and increased adoption of some environmentally friendly management practices, including increasing tree cover and habitat conservation, in several countries (Blackman and Naranjo, 2012; Giulia et al., 2017; Hardt et al., 2015; Jurjonas et al., 2016). A global review of the literature on effects of Sustainable Agriculture Network/Rainforest Alliance certification found that certified farmers applied more sustainable farm practices and contributed more frequently to protecting local water resources, while also increasing productivity and profitability, than non-certified farmers (Milder and Newsom, 2015).

Although certification has gained traction, there is significant heterogeneity among agricultural sectors in the proportion of production that is certified. For example, in 2014, globally, 48 percent of coffee, 30 percent of cocoa, 20 percent of oil palm, 18 percent of tea, and 12 percent of bananas were standards compliant (Potts et al., 2017). In contrast, just a handful of cattle farms are standards compliant (Alves-Pinto et al., 2015). Variation in the uptake of certification in different sectors may partly reflect how long programs have existed for different commodities – for example, reflecting the relatively nascent nature of livestock certification relative to crop certification. At the same time, there may be important lessons to learn from sectors for which certification programs have been in place for longer, or in which certification has scaled up to a greater extent –i.e. adopted by a larger number of actors (e.g. producers), and/or across a larger proportion of a sector. Such lessons from past experiences may be useful in more rapidly or successfully scaling up certification in sectors for which certification is relatively nascent. On the other hand, variation in the extent to which certification has gained traction in different sectors may also indicate inherent differences between sectors that affect either the likely viability of certification as a tool for enhancing sustainability, or the most appropriate strategies for scaling up certification.

Many agencies engaged in socio-environmental governance are proposing comparable solutions across sectors. Their underlying assumption is that it would be valuable to scale up new sustainability solutions that maintain or improve positive environmental, social, and economic outcomes. It is worthwhile, therefore, to identify sectoral differences pertinent to scaling up strategies. This paper asks: Are there salient environmental, economic, and social factors that differ among sectors, and that enable or constrain transferability of voluntary mechanisms, their scalability, and their potential for positive impacts on sustainability? This question is addressed by examining the case of certification and other voluntary initiatives in the coffee and cattle sectors in Brazil. In this paper, initiatives that have emerged in two contrasting agricultural sectors are compared and contrasted, key factors that explain their differences are identified, and the implications of these differences are assessed for the future expansion of certification and other voluntary initiatives in each sector.

2. Research context: sustainability governance mechanisms in the cattle and coffee sectors in Brazil

The focus of this study is on two agricultural commodity sectors in Brazil: cattle and coffee. Although these two sectors are markedly different in many dimensions, these sectors were chosen based on the opportunity to draw useful lessons from contrasting cases. On the one hand, experience from the coffee sector, which has a decades-long history of certification and has experienced relatively rapid and widespread uptake of certification, may inform the incentives and mechanisms by which certification in the cattle sector might better achieve impact and scale. On the other hand, research on other sustainability initiatives in the cattle sector might help identify if, how, and when other approaches besides, or in addition to, certification might be appropriate.

In addition, Brazil is a world leading producer of both of these products, allowing the comparison of both sectors within a single, globally significant country context. Furthermore, the Sustainable Agriculture Network/Rainforest Alliance (SAN/RA) certification program has certified both cattle and coffee farmers in Brazil, enabling the comparison of the same certification program across two contrasting sectors.