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Sustainability Standards and Social Network Development: Indonesian Coffee Farmers' Unpredictable Impact Pathways to Achieving a Living Income

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Abstract

This paper presents coffee producers' subjective perceptions of voluntary sustainability standards (VSS) programs across southern Sumatra, a global center for Robusta coffee production. Household surveys and a series of farmer interviews revealed that producers generally had positive perceptions of these programs. Despite positive perceptions, the standards had little impact on yield or household incomes. This apparent paradox is explained by improved social networks and social capital, which were seen as important for broader livelihood security. Producers believed that VSS facilitated access to material support and increased knowledge exchange. This builds both bonding and bridging social capital, all with minimal disruption to the low-input system of coffee production that fits within farmers' broader livelihood strategies. Our approach highlights the challenges that impact assessments (including applications of the living income concept) face when seeking to establish ostensibly objective measures of well-being.

Keywords sustainability, coffee, Indonesia, living income, social capital

1. Introduction

Over the last twenty years, voluntary sustainability standards (VSS) have sought to improve social and environmental conditions in the producing regions of international commodity markets (like coffee). VSS follow a basic template of i) establish a code, ii) introduce the code to a producing community, iii) ensure code compliance, iv) audit practices against the code, and v) apply a label to "add value" at the point of consumption (although this last step does not always occur). This model was pioneered by Fairtrade and organic labels in the 1980s. Broad "sustainability" labels like Rainforest Alliance and the Common Code for the Coffee Community (4C) only applied this model in the coffee sector from about 2003 (Neilson & Pritchard, 2007). Advocates assert that VSS will improve participating farmers' incomes in commodity-producing regions. However, it is unclear whether VSS actually improve farmer livelihoods or deliver a "living income" in the global south (as they were initially developed to meet consumer demand in the global north). In ar-

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eas like southern Sumatra (Indonesia), coffee farmers lack a collective voice and are generally passive recipients of VSS interventions like 4C, the standard examined in this study. Most empirical studies on VSS attempt an ostensibly objective assessment of impact to examine effects on coffee producer livelihoods and incomes. In contrast, we present the results of an attitudinal survey among Sumatran producers enrolled across five 4C "production units" to understand their lived experiences in the program. We attribute the positive perceptions of VSS to improvements in social capital.

VSS were initially established in the coffee value chain to assure consumers of acceptable production practices and enhance consumer brand recognition and trust. London (2012) argues that these schemes were also intended to secure key commodity supply for lead firms. This is increasingly important in a global context of stagnating production levels and the looming threat of climate change (International Coffee Organisation, 2018). The resulting audit-oriented model may satisfy the downstream demands of buyers (e.g., manufacturers, retailers and consumers) but fails to meet the income needs of upstream value chain participants (i.e., farmers). Nevertheless, VSS programs certainly seek to induce positive social and economic changes within producer communities. The 4C Association presents a Theory of Change (ToC) document that maps out its desired achievements. While the 2013 4C ToC (4C Association, 2013; valid during our field study) did not specifically mention "living income," it explained how "the ultimate impact contributed to will be improved quality of life through higher incomes amongst producers and an ecosystem that sustains coffee's livelihood" (p. 2). This aspiration is common among other VSS ToCs (e.g., Rainforest Alliance [Rainforest Alliance, 2021] and C.A.F.E. [Coffee And Farmer Equity] Practices [Starbucks, 2020]); thus, VSS programs consider themselves mechanisms for supporting a living income in the Global South.

4C is a sustainability standard developed by an industry-led, membership-based organization embraced by the mainstream coffee industry. Much of its appeal is its self-styled low entry and low visibility. The volume of 4C-verified coffee produced globally increased from around 600 thousand tonnes in 2010 to a peak of just over 2.5 million tonnes in 2015, or around 29% of global production (Grabs, 2018). In southern Sumatra, one of the world's largest *Robusta* coffee production sites, 4C-verified production units increased from nine units in 2012 to 29 units in 2017, before falling again to 14 in 2020 (Coffee Assurance Service [CAS], 2022). In these areas, coffee is an important part of the local economy and the single most important source of household income. Smallholders cultivate an average of two hectares and generally grow coffee as part of a diversified livelihood with relatively low use of external inputs (and correspondingly low yields; Bray & Neilson, 2018). Growers usually sell coffee to collectors, who pass it along to the exporters with warehouses in the main port of Bandar Lampung. Much of the international trade is controlled by commodity-trading firms (with head offices in the global north), who act as strategic suppliers for major branded coffee roasters. These commodity traders are largely responsible for introducing 4C to independent growers in Sumatra (by organizing them into "4C production units"). This continues the growing trend of global firms' upstream engagement in Indonesian coffee regions (Neilson, 2008).

Despite its dominance, "the implementation, monitoring and impact of the industry's inclusive 4C baseline verification system has hardly been investigated" (Panhuysen & Pierrot, 2018, p. 18). Review articles suggest that impacts on coffee-derived incomes are modest (Bray & Neilson, 2017; Oya et al., 2017). Most benefits are associated with target communities' pre-existing priorities (and the ability to leverage opportunities; Burivalova et al., 2017). However, participation can trigger knowledge-sharing and network formation that go beyond improving target commodity production to advance broader household livelihoods (Gotor et al., 2017). Thus, VSS' impact pathways on livelihoods are varied, context-dependent, and often unexpected. However, studies employing objective methodologies—particularly those focused on environmental indicators (e.g., Haggar et al., 2015)—push a "raw empiricism" (van Dijk, 2011, p. 102) that downplays the influential mediating role of local institutional environments and participants' agency (Bray, 2019). Subjective studies are needed to examine *why* producers continue with VSS, despite the limited empirical benefits (e.g., in yield and income).

Price incentives are often thought to attract producers into VSS (e.g., Snider et al., 2017). Price benefits *may* be present (Oya et al., 2017) and *may* lead to improved livelihoods (Jena & Grote, 2016). However, this often depends on local market conditions, which may even depress VSS premiums due to oversupply (Bose et al., 2016; Elder et al., 2012; Sick, 2008). After all, the

volume of coffee produced under VSS schemes significantly exceeds the volume actually sold as such (Panhuysen & de Vries, 2023). Furthermore, prices fluctuate due to global supply and demand, and even basic quality premiums will generally be far more significant than any VSS-related price premiums. However, earning a living income from a target commodity (e.g., coffee) is not only a function of price but of production volume and costs, which can be enhanced through improved farm practices. More importantly, VSS programs' living income strategies are fundamentally complicated by diversified household livelihood strategies (Bray & Neilson, 2018).

Enrolled farmers perceive VSS favourably, even when it only leads to *indirect* or non-economic benefits. For example, social capital has been associated with more active market participation, improved cooperative bargaining power, and a greater sense of identity among producers (Abe, 2009; Ruben & Fort, 2012), which can indirectly lead to health benefits and poverty alleviation (Seferiadis et al., 2015). In coffee-related case studies, social capital has been shown to facilitate technical assistance, farming equipment availability, and market management services (Karki et al., 2016), leading to more efficient practices and improved environmental outcomes. However, it is difficult to study perceptions of social capital; its appraisal is subjective, its effects on living income are indirect and difficult to measure, and its lived realities vary between producer populations. Therefore, few studies have attempted to specifically report on the subjective, localized experience of VSS.

Social capital is said to manifest as either *bridging social capital* or *bonding social capital* (Gittell & Vidal, 1998). However, as Claridge (2018) reminds us, social capital is not easily categorized and frequently presents along a continuum of these ideal forms. Bonding social capital refers to the strong connections that link people within relatively homogenous social groups (e.g., inhabitants of a Sumatran village, where Islamic prayer groups, farmer group meetings, badminton matches, and mutual contributions to ceremonial activity provide internal resources that assist villagers in getting by during times of distress or crisis). Bridging social capital links people across social groups (e.g., with coffee farmers in more distant villages, individuals in nearby cities, and perhaps with coffee drinkers, café owners, and regional coffee traders). In Sumatra, value chain social linkages are often multi-ethnic and maintained through common economic motives. Bridging social capital is considered more expansive and potentially provides external resources that can assist individuals in getting ahead. The World Bank (2000) distinguishes between bridging and *linking social capital*, with the latter including vertical relationships with more powerful actors. In our case, linking social capital might include networks with government representatives, coffee companies, development agencies, and non-governmental organizations. Indeed, most of the bridging social capital we identify serves a linking function. Such connections, however, present as patron-client relations, with a contradictory mix of exploitation and security (Scott, 1972).

The evidence for VSS schemes contributing to enhanced social capital is mixed and highly context-dependent. In Peru, for example, producers associated participation in VSS-linked cooperatives with social capital improvements (Ruben & Fort, 2012). Often, however, it is the way VSS interacts with pre-existing institutional structures in particular places that matters, even if the effects are difficult to predict. Strong pre-existing farmer cooperative social networks in Rwanda contributed to positive perceptions of Fairtrade (Elder et al., 2012), while Sick (2008) found that strong pre-existing community structures in Costa Rica resulted in a generally low regard for VSS services. Similarly, in Mexico, the strong prior participation of producers in organic cooperatives was put at risk when more top-down institutional structures were imposed (González & Nigh, 2005). Producer groups in Latin America possess relatively higher pre-existing organizational capacity than those in Indonesia. In Sumatra, Bray (2019) found the relative absence of producer cooperatives and government extension officers meant that they looked favourably upon the establishment of VSS. Moreover, farmer organizations in Indonesia rarely engage in policy advocacy or social agitation, and only sometimes with collective marketing. They are mainly vehicles to funnel government support resources. The VSS programs we observed in Sumatra were often built on these organizational foundations. Therefore, our study examines producer perceptions of VSS impacts on social capital when pre-existing groups have relatively weak organizational capacity.

This study contributes to the broader literature on VSS impacts on the livelihoods and incomes of smallholder producers in the Global South. We present the lived reality of VSS—as experienced by southern Su-

matran coffee growers—in relation with pre-existing institutional environments. We observed a non-linear relationship between value chain interventions and income generation. However, VSS can reshape and strengthen social capital within producer communities. VSS-related training activities can significantly enhance levels of social capital and networking to improve social resilience and open pathways for alternative income-generating activities. This has important implications for attempts to guarantee a living income for smallholder producers through value chain mechanisms.

2. Methodology

At the start of our study in 2015, seven firms in southern Sumatra were listed as 4C managing units. We approached these firms to facilitate access to 4C-enrolled farmers. Of these, only three participated—"Firm A," "Firm B," and "Firm C" (two multinational commodity traders and one multinational coffee roaster). Two other firms discontinued the program before the field survey commenced (late 2016), and two were unwilling to participate. The firms provided lists of more than 6,000 4C-enrolled producers, all of whom had been involved in a 4C production unit for at least two years. Five 4C units across three districts were selected for the study. Villages with a minimum of ten 4C-enrolled producers were randomly selected; we then randomly selected individual producers within the villages to participate in the survey. The exact number of respondents sampled from each 4C unit was calculated using i) proportionality to the total number of households and ii) representative distribution across the three districts. The sample selection is presented in Table 1.

Table 1 Distribution of Respondents

Company	District			Total
	Tanggamus	Lampung Barat	Muara Enim	
Firm A		96 (1,100)	202 (2,000)	298
Firm B	112 (1,000)	98 (1,600)		210
Firm C	50 (300)			50
Total	162	194	202	558

Note. Numbers in brackets indicate the approximate total number of producers (these numbers fluctuate yearly).

A total of 558 participants completed our survey, which consisted of 40 questions about household background, knowledge of the program, producer group function, attitudes towards training and agricultural practices, and general outlook on coffee production. Eight enumerators from the University of Lampung were recruited and trained before commencing the surveys. Enumerators consulted the household member most familiar with coffee farming and the 4C program. Only five percent of survey respondents were women. In practice, men do dominate coffee-farming activities in the region, but women are far more involved (especially in the harvest) than this might suggest. However, men are overrepresented in formal training activities and farmer organizations. This paper also draws on a combined six months of qualitative fieldwork between 2015 and 2017. During this fieldwork, we revisited most of the survey villages to conduct semi-structured key interviews with heads of villages, heads of farmer groups, traders, enrolled and non-enrolled producers, extension officers, and other community members.

3. Perceptions of Sustainability Programs in Southern Sumatra

South Sumatra and Lampung—Indonesia's two largest coffee-producing provinces—have become target areas for firms implementing sustainability initiatives. Such initiatives often attempt to improve yield, supply and quality (and hopefully, indirectly, improve farmer incomes). In 2017, 23 of Indonesia's 29 4C production units were located in these two provinces. 4C had a significantly higher uptake than other VSS like Rainforest Alliance and Utz. While 4C units can be managed by a variety of organizations (including plantations, farmer cooperatives, and producer associations), all the managing entities in southern Sumatra were large firms (commodity traders or roasters) that worked with smallholder farmers. On average, each 4C unit consisted of 1,500 farm households, coordinated through smaller farmer groups (*kelompok tani*) of about 20 to 40 members. Compliance was encouraged by Internal Control Systems (ICS)—normally young employees who the company referred to as "agronomists"—that farmers associated with the firms' agricultural extension agents. Firms usually targeted pre-existing, government-endorsed farmer groups by approaching farmer group heads (*ketua kelompok*), but occasionally established new groups with government approval. For its part, the govern-

ment rarely provided agronomic training or services beyond occasionally offering state-subsidized fertilizers via farmer groups. Despite the relative absence of state support, coffee is the single largest income source in these highland villages. In this milieu, technical support for coffee farmers was now dominated by private sector firms, often linked to 4C units.

It is theoretically possible to comply with VSS code requirements and pass the 4C audit without attending training. Nevertheless, farmer training (on topics ranging from agronomy to environmental management to record-keeping) was a core aspect of interventions in southern Sumatra. Firms generally provided training through farmer groups three to six times each year, usually in the lead-up to and during the harvest season and before an external audit. Since government officers were sometimes invited, there was some confusion amongst producers as to whether the training was part of VSS, a firm-specific development program, or a government initiative. In accordance with local cultural and religious sensibilities, training sessions were highly ceremonial (*upacara*), with each member greeting others with a handshake as they entered the room or garden. This was followed by a brief prayer and formal welcome addresses by senior figures. This format mimics government-led activities and highlights the importance of the outward social form in rural Indonesia (despite delaying the core training activity). Some participants even left after the formal opening, before the substance of the training began. Some firm-based actors derided this emphasis on ceremony as unproductive small talk (*basa-basi*). In other development contexts, similar practices have helped foster social capital (Cilliers & Wepener, 2007). The frequency and depth of training varied widely between companies. Firm C farmers' greater 4C awareness (Table 2) was not correlated with a greater appreciation of the training; rather, it reflected Firm C's tendency to merely train farmers to prepare for the audit.

In Sumatra, the firm-led 4C VSS process was weakly embedded in the producer community. In our survey, 50% of respondents were unsure whether they had been 4C-verified (Table 2), reflecting either poor communication of the training's purpose or the incidental nature of 4C in the firm's farmer engagement. The respondents often believed that they were participating in a company training program. Therefore, the subsequent survey questions asked about their experience with "the program."

We investigated the organizational processes through which individuals and groups became enrolled in their 4C unit. The farmer group is the basic social unit of producer organizations in rural Indonesia. Groups have a formal head, often male, who is the key conduit of information (and resources) between member households and outside actors (i.e., a mediator of linking capital). Most participating households were introduced to the program by these heads. This created a high degree of organizational continuity with previous government interventions, even if the government provided limited training (Table 3). Firm A's representatives used a government-provided list of farmer organizations to ascertain interest in 4C program participation, despite many groups "existing on paper only" (an expression widely used by industry and government stakeholders in Sumatra to refer to a group that is only mobilized to access resources). Firm C was especially reliant on pre-existing heads for information delivery and farmer recruitment. Firm B's activity in Tanggamus drew upon a 25-year history of direct farmer engagement.

Table 2 Involvement with 4C and Training

Indicator	All Districts	Firm A		Firm B		Firm C
		ME	LB	T	LB	T
Producers aware that training was part of a 4C program	50	49	36	55	47	72
Perceived a distinction between coffee company and 4C	16	7	23	27	20	18
Received training as a result of the program	97	95	100	100	100	98
Frequency of training events (times per year)	3.4	2.1	2.4	5.9	5.3	2.3
Total time attending training (hours per year)	14.9	10.3	9.6	26.3	20.7	8.9
Household had received training from the government before 4C	32	30	70	4	49	2

Note. % of respondents from group unless otherwise indicated; ME = Muara Enim; LB = Lampung Barat; T = Tanggamus

Table 3 Coffee-Related Social Networks

Indicator		All Districts	Firm A ME	Firm A LB	Firm B T	Firm B LB	Firm C T
Who introduced you to the program?	Head of farmer group	47	59	47	15	35	96
	Company ICS	37	28	39	64	40	2
	Farmer group member	12	12	13	8	18	8
	Other	4	1	1	13	7	2
Main coffee buyer	Direct to firm	36	26	9	62	72	0
	Local trader	63	74	90	38	28	100
	Co-operative	1	0	1	0	0	0

Note. % of respondents from group; ME = Muara Enim; LB = Lampung Barat; T = Tanggamus

Farmer relations with trader networks (generally traditional collectors) constituted another form of linking capital in rural communities (Table 4). However, Firm B established exclusive trade relationships with *collective businesses*—hybrid, vertically-integrated extensions of the firm that amalgamated cooperatives and local traders (farmers perceived these as intimately aligned to Firm B). Firm A's local buying stations were generally less successful at reaching the farm-gate level, while Firm C made no attempts to do so. The persistence of local traders—some of whom were also farmer group heads—can be largely explained by their important patronage roles within communities, particularly in relation to finance.

Eighty-five percent of respondents claimed that their farm practices had changed after receiving training, with many highlighting increased use of protective clothing and equipment. Indeed, all 4C units distributed protective masks to households, and two-thirds of all respondents reported receiving some kind of material assistance (Table 4). Many producers compared 4C interventions to previous government programs (known locally as *proyek*) that had distributed free or subsidized fertilizers via farmer groups. Meaningful change from such proyek, however, remains low and its patronage may have even diminished the possibility for real political change (Li, 2016). In the case of 4C, tangible material assistance solidified the patronage relationships between non-local actors, farmer group leaders, and individual farm households. The delivery of such "gifts" was often highly ceremonial, publicly enforcing a strong expectation of reciprocity. In contemporary rural Indonesia, the ubiquitous proyek was a technical and apolitical intervention to "channel funds to favoured members of the rural elite, and to discipline villagers who are told to wait patiently for state largesse to come their way" (Li, 2016, p. 82). Similarly, surveyed households described how 4C program participation reinforced social relationships that might deliver (tangible and intangible) future benefits. Participating farmers believed that downstream buyers involved in VSS programs would improve transparency, with many expecting higher

Table 4 Perceptions of Program Benefits

Indicator	All Districts	Firm A ME	Firm A LB	Firm B T	Firm B LB	Firm C T
Perceived a positive impact on family as a result of the program	85	74	90	99	90	76
Perceived improvement in transparency of roll-out partner	92	83	100	100	100	100
Reported higher prices due to program involvement	80	55	89	97	94	89
Reported a yield increase following training	68	59	62	89	76	56
Reported material assistance from the program, either to farmer group or individuals	67	42	66	99	67	100
Learned a significant amount of new information	71	81	72	68	82	12

Note. % of respondents from group; ME = Muara Enim; LB = Lampung Barat; T = Tanggamus

price premiums to eventuate. Indeed, this was an important motivating factor for many farmers to participate in VSS.

Producers were willing participants in the trainings targeted at coffee production. Coffee underpinned their "hanging in" livelihood strategies (based on the typology of Dorward et al., 2009, p. 136) and was particularly important when off-farm employment opportunities were limited. The 4C audit's flexible traffic light system was not considered overly prescriptive, and producers could select which program elements to adopt. As long as they avoided unacceptable practices (red lights), they would continue to receive support and sometimes market access (despite little progress toward modernising farm practices). Farmers were *encouraged* to increase labor allocation to coffee, but were under no *obligation* to do so (and many did not). They maintained a low-input/low-output strategy for coffee production. As one producer explained, "we get some help but we don't have enough money to change traditional ways. We really want to update our farming practices, but we can't afford it." Most of the household respondents reported positive outcomes from program participation (with some variability across firms and locations). This included perceptions of improved transparency and prices—program participation seemed to engender heightened familiarity with, and trust in, the firms. However, yields and prices were primarily influenced by factors beyond program control (e.g., global supply and demand, and weather fluctuations). When asked about positive experiences in the in-depth interviews, producers cited the importance of regular meetings. They generally reported positive experiences from trainings and that their knowledge had improved (Table 4). A stark exception was Firm C, where 88% of respondents in this relatively remote region claimed to have only learnt a little (illustrating the wide range of training provisions between providers, all of whom successfully passed the 4C audit).

4. Sustainability Programs, Social Capital, and Patronage

The overwhelmingly positive perception of 4C programs in southern Sumatra is somewhat at odds with more tangible assessments of (the lack of) yield increases in both southern Sumatra (Ibnu et al., 2015; Neilson et al., 2019) and beyond (Bray & Neilson, 2017). We suggest that most producers who reported a positive impact from program involvement were responding to impacts that transcend direct yield-related benefits or direct gains in coffee income. Rather, they primarily reflected improvements in social capital and strengthened forms of social organization. Unsurprisingly, these benefits were especially lauded by farmer group heads who benefited most from enhanced patronage, but they also extended to individual group members.

Putnam (1993) argues that "social capital tends to be undervalued and undersupplied by private agents ... [and this] means that social capital, unlike other forms of capital, must often be produced as a by-product of other social activities" (p. 170). In southern Sumatra, 4C training appears to constitute one such "other social activity." Social capital is "an asset through which people are able to widen their access to resources and other actors" (Bebbington, 1999, p. 2021). Training programs and shared learning platforms have been linked to the promotion of knowledge networks, transforming attitudes, and enhancing reciprocity, trust, and common-good values (Gupta et al., 2003; Seferiadis et al., 2015). The promotion of learning networks and knowledge exchange helped extend social networks in southern Sumatra's 4C-enrolled communities. While producers valued these factors, it was difficult to quantify their appreciation of social capital indicators like trust and knowledge exchange. Bonding social capital was developed through farmer group membership, while bridging capital was developed through knowledge exchange and the strengthening of farmer groups by reinforcing existing patronage-based social networks (linking capital) with potential benefits beyond the VSS intervention.

According to van Dijk (2011), "in order for a resource to be of use, someone must be *aware* of its existence; *perceive* it as useful; and be able and willing to *access* it" (p. 107). While this is easily applied to the distribution of goods via enrolled farmer groups, it is somewhat more difficult to apply to producers' perceptions of social benefits (not necessarily articulated as social capital). Training helped trigger the latent linking social capital of producer groups. The knowledge-sharing elements of the 4C program (delivered by relatively well-resourced agronomists) were well-received by respondents. Producers were integrated into an extended knowledge exchange network, which shaped further improvements in producers' linking social capital. The network allowed producers to share specific issues they were facing on-farm (e.g.,

pest management concerns, disease outbreaks, or expected coffee prices). ICS agronomists assisted where possible and relayed information to those tracking the success of the training program against corporate policy goals. Thus, the training program's "knowledge network" linked producers with global actors, and provided access to technical knowledge that remote Indonesian farm households had been previously excluded from.

When the groups were established (or new training activities were introduced to existing groups), the farmer group head and company agronomists organized a meeting to present the structured training plan. It was seen as a collective effort to improve coffee production (even if it was less enthusiastically acted upon). Following Cilliers and Wepener (2007), we observed material improvements simply through physical attendance at such meetings. A sense of belonging and trust was created through shared experiences, civic literacy, environmental and social awareness, and an ethos of equity through social development and transparency. The very act of organizing training activities reinvigorated (and in some cases established) farmer group activity (regardless of any subsequent application of improved agricultural methods or yield improvements). It generated both bonding and bridging social capital. According to respondents, program involvement enhanced potential future involvement in development programs initiated by the government, private sector, and NGOs (linking social capital). One Sumatran villager (a group leader) shared that involvement in the 4C program created new social networks and facilitated the chance to obtain paid work well beyond the coffee sector (on a government-funded infrastructure project).

Producers spoke positively about this activation of their linking social capital. It was a perceived departure from their previous networks, which were dominated by state-based patronage that seemed designed to systematically prevent the empowerment of local social institutions. The Sumatran coffee farmers deeply valued bonding social capital (with immediate friends and family in the rural community), which was strengthened by the 4C program. However, the opportunity to expand social circles at 4C-associated training events (i.e., bridging and linking capital) was seen even more favourably. Producers adopted a "substantive perspective" (van Dijk, 2011, p. 108) toward the social networks and capital they had been previously unaware of or unable to access. The 4C training program, enhanced price transparency, bridging social capital, and high-quality knowledge networks were seen as a considerable improvement to the previously poor agricultural extension in the region.

4C's traceability requirements and the apparent need to work through farmer groups empowered strategically situated actors (farmer group heads), some of whom effectively upgraded from farmers to collectors. The 4C program interacted with existing patronage networks (and forms of linking social capital). Farmer group leaders—usually village elites who were critical information conduits for both the government and private firms—were especially supportive of the 4C program (which helped them improve their social and material well-being through a reinvigorated farmer group). All the firms re-enforced the importance of farmer group heads as community leaders and, when direct sourcing occurred, we observed group leaders assuming important roles as supply coordinators for 4C-verified coffee. The interventions never significantly disrupted existing coffee trade networks, though one firm did establish a local buying station for a period. In this case (and with Firm B's collective business suppliers), group leaders transformed into medium-scale businesses with considerable wealth accumulation. Group leaders sometimes even disparaged producers who opted out of 4C, declaring, "if they don't want to join, they don't have to, they can leave. … But they are the ones missing out!" Other group leaders frequently referred to enrolled producers as "*berani"* (brave or courageous), implying those who shied away from program participation were not.

Individual members obtained material opportunities from the program if they maintained good relationships with group leaders. Indeed, a "moral atmosphere" (Jakimow, 2018, p. 47) for all to reap benefits from program involvement (known colloquially as "*bagi-bagi"*) "permeates development encounters" in Indonesia (Jakimow, 2018, p. 47). *Bagi-bagi* suggests an imperative to share program-derived benefits between implementers and beneficiaries. While benefits were perceived by all participants, they were distributed through group leaders, who were empowered as gatekeepers to enhanced social networks. Importantly, it was the *act* of participation that brought benefits, not the *consequence* of participation. Extension programs alone cannot provide a living income for smallholders; they require strong local institutions that build on local knowledge (McKenzie, 2013; Postigo, 2017). For example, training is anchored in farmer groups, which

require political stability and formal support from the government (to increase the chance of impact). Nevertheless, these groups' (mostly) democratic elections presented some opportunities for social mobility, which is otherwise rare among the rural poor. These democratic, collective activities to mobilize latent social capital may also have offered a "voice upgrade," that is, "an increased capacity for inclusive negotiations within the value chain" (Gradin 2016, p. 363). The positive perception of transparency certainly hints at this.

5. Conclusion

Participants maintained positive perceptions of their involvement, even when sustainability programs were unable to induce agricultural practice change, yield improvements, or significantly increase price premiums. Therefore, standard impact assessments may underestimate, or even systematically ignore, what farmers actually value about program involvement. Our attitudinal survey and village-level interviews indicated that positive perceptions principally revolved around the use and strengthening of existing institutions (farmer groups), the development of social capital, access to new networks, and improved resilience for enrolled producers. Previously marginalized producers were enrolled into new social networks by 4C production units, training programs, compliance verification, and (in some instances) supply chain relationships. However, benefits were unevenly distributed and excessive time demands may eventually become burdensome.

Such programs can activate the latent social capital of producer organizations. Sustainability training can provide a proactive response to changing vulnerabilities; this, combined with a person's freedom to choose their degree of engagement, is crucial for improving livelihoods (Scoones, 2015). The 4C training actively sought to build human capital, albeit in a specific, on-farm endeavour. From a producer's perspective, the strengthening of social capital is arguably most important. Firms have proved adept at rapidly establishing farmer groups across the study area. This provides bridging and linking capital to producer groups and challenges the idea that social capital development is necessarily a slow and laborious process (McKenzie, 2013). The improved utilization of social networks should be seen as an asset that allows producers to widen their access to resources (Bebbington, 1999). However, it seems unlikely that firms would be willing to continue these programs without increased production returns, especially given that addressing supply uncertainty is a key rationale for them.

We explored how 4C programs have been integrated into existing social structures in Sumatra. Producer perceptions of program benefits likely diverge significantly from how the standards organizations and firms see their own programs. Farmers framed their participation through their prior engagements with government *proyek,* reinforced social structures of pre-existing farmer groups, and the enrolment of village elites as conduits of information and material benefits. Producers experienced enhanced access to material supports (e.g., tarpaulins, protective equipment, and agricultural inputs). While producers did not expect livelihood transformation (or even significantly altered livelihood strategies), the 4C program did strengthen pre-existing social structures that enhanced livelihood resilience.

The development of social capital occurred primarily through firm-centric networks that evolved from pre-existing farmer groups. They adopted earlier cultural norms while orienting toward knowledge exchange about good agricultural practices and sustainability code compliance. However, rural households did not improve their incomes through coffee production. Rather, the 4C program formed new social networks and improved community social capital. This had far-reaching and hard-to-predict knock-on benefits.

Our approach has important implications for attempts to embed the concept of a "living income" within VSS schemes and other commodity-centric value chain interventions. The subjective experience of VSS highlights the limitations of ostensibly objective measures of well-being. While laudable, such attempts to develop and apply living income benchmarks are often frustrated by difficulties predicting broader, unintended effects (both positive and negative), their commodity-centric focus (which struggles to account for diversified livelihoods), and the deeply subjective accounts of what constitutes a living income.

Note

[a] Hanung Ismono passed away in July 2023. His vital role in this study and his dedication to improving the livelihoods of Indonesian smallholders remain an inspiration to us.

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