NGOS' INITIATIVES TO ENHANCE SOCIAL SUSTAINABILITY IN THE SUPPLY CHAIN: POVERTY ALLEVIATION THROUGH SUPPLIER DEVELOPMENT PROGRAMS

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This research studies how nongovernmental organizations (NGOs) can implement supply-management practices for poverty alleviation. The research inductively builds a theoretical framework from a nested case study, which includes one NGO and six firms implementing supplier development (SD) programs. The framework suggests a set of resources that enhance the social sustainability of the supply chain without creating trade-offs between economic and social performance. This study has implications for decision-makers in firms and NGOs about the type of resources they need to develop, and the characteristics they should seek when choosing partners for undertaking collaborative initiatives in social sustainability.

Keywords: *sustainability; partnering; supplier management; case studies*

INTRODUCTION

Discussions of sustainable supply-chain management acknowledge that nongovernmental organizations (NGOs) might participate in a supply chain. But NGOs are typically identified as "nontraditional" members of the supply chain (e.g., Pagell & Wu, 2009) and viewed as agents to help for-profit supply chains become more sustainable. Yet NGOs have goals and supply chains of their own—something the previous literature has generally not considered. Therefore, this research explores how NGOs use traditional supply-chain management tools while collaborating with other chain members, including impoverished suppliers and for-profit buyers, to improve the social and economic sustainability of all chain members.

Social problems, such as poverty alleviation, sweatshops and child labor, negatively affect both the welfare of society and the productivity of firms in the supply chain. These problems are complex because their solution requires the involvement of governments, the private sector, and civil society organizations (Selsky & Parker, 2005). The private sector has struggled at leading these efforts (e.g., Lund-Thomsen & Lindgreen, 2014).

For instance, in the apparel industry, firms that source products from developing countries are required to adopt labor standards that promote social justice and human rights, and they have responded by joining industry consortia and implementing supplier audits and certifications (Mamic, 2005). However, these programs have been criticized for making supply chains less socially unsustainable, rather than more socially sustainable (Pagell & Shevchenko, 2014) and they did not prevent events such as the Rana Plaza tragedy (Lund-Thomsen & Lindgreen, 2014).

NGOs, working in the same space, can initiate projects that improve the social sustainability of supply chains and the communities where they operate (McDonald & Young, 2012). For instance, the Rain-

forest Alliance has conducted projects to train and certify poor producers to be incorporated into firms' supply chains that have resulted in reductions in child labor and improvements in poor producers' profits and women's access to labor opportunities (Rainforest Alliance, 2014). Similarly, Solidaridad has undertaken projects that have certified and incorporated poor farmers into agricultural supply chains for commodities such as livestock, cotton, soy, tea, and coffee (Solidaridad, 2014). NGOs and other not-for-profits are likely to take a leading role in the creation of socially sustainable supply chains.

We know that NGOs are often better placed than for-profits to address many issues of social sustainability, and we know that they manage their supply chains to do so. What motivates this study is how little we know about these phenomena. To begin to fill this void and contribute to the socially sustainable supply-chain literature, this paper explores how NGOs use their supply chains to alleviate poverty. The research answers the following research questions: (1) what resources do NGOs use when they undertake supply-management practices for poverty alleviation? And (2) what firm resources do NGOs seek when they undertake supply-management practices for poverty alleviation?

We used a nested case study analysis to inductively build a theoretical framework to answer these questions. We purposefully chose to study a supplier development (SD) project conducted by a single NGO working to alleviate poverty in Ecuador. We studied six SD programs conducted by the NGO that involved six buying firms and multiple suppliers. Focusing on a single NGO working in a single country allowed us to isolate NGO-level variables and focus on the deployment of resources in multiple supply chains.

This research provides a framework that explains how noneconomic actors use traditional supply management practices to create innovative, socially sustainable supply chains in contexts with no foreseen synergies between social and economic performance. The framework posits that the NGO resources of knowledge for localizing SD programs and a bridging capability are critical for designing and setting up the SD program. The NGO resources are complemented by the buying firm resources of knowledge transfer routines, logistical resources, and relational contracting based on procedural fairness that are critical to carry out the transactions and protect the value in the buyer–supplier relationship. NGO resources and buying firm resources are intertemporal complements that enhance a supply chain's social sustainability.

This research's primary contribution comes from identifying and conceptualizing the resources that NGOs should develop themselves and acquire from the buying firms in order to set up SD programs to alleviate poverty. The research also explains the dynamics across time between the identified resources and the SD programs.

The research also makes a contribution to the wider literature. By treating the NGO as the focal actor in the network, rather than as a "nontraditional" chain member, the research shows that traditional supply-chain management practices are successfully used by not-for-profit organizations to improve the social sustainability of both the community and firms operating in the community. In so doing, this research helps to open a pathway to further understand organizations and supply chains that have goals other than profit maximization. Previous research suggests that the achievement of truly socially sustainable supply chains entails the development of new practices and/or collaboration with stakeholders in creative ways (Klassen & Vereecke, 2012; Margolis & Walsh, 2003). This research suggests that fully understanding these practices and collaborations will require examining the supply chains of both for-profit and not-for-profit supply chains.

The remainder of the paper is structured as follows. First, we review the literature that shapes and explains the phenomenon of interest. Second, we describe and justify our research method. Third, the analysis and results are presented. Fourth, we return to the literature and discuss the relevance of our findings. Finally, we present our conclusions.

LITERATURE REVIEW

The literature review is structured in two parts. First, we describe how the topic of poverty alleviation fits into the literature on social sustainability. Second, we explore how business initiatives can be applied for poverty alleviation and how NGOs can engage in supply-management practices to alleviate poverty.

Social Sustainability and Poverty Alleviation

A socially sustainable firm makes profits without harming society (Carter & Rogers, 2008). The literature classifies social practices as either internal or external. Internal practices include providing safe and healthy working conditions and freedom of association for the firm's workers (Gimenez, Sierra & Rodon, 2012; Pullman, Maloni & Carter, 2009). External practices aim to control supplier behaviors and to foster social equity along the supply chain. External practices include auditing or certifying suppliers to avoid sweatshops and child labor, participation in consumer associations to promote customers' well-being, and engagement with stakeholders to foster the development of local communities (Gimenez et al., 2012; Pullman et al., 2009).

The literature has primarily focused on internal social practices (Miemczyk, Johnsen & Macquet, 2012). This is likely due to the challenges of implementing external social practices. First, most external social impacts extend beyond the responsibility of a single organization or supply chain. For instance, child labor and poverty alleviation are global issues that extend beyond the boundary of a single corporation, supply chain, or NGO; these issues pertain to the entire society. Second, the pursuit of social sustainability can be detrimental to a firm's economic performance because it diverts resources that could be used to increase profits (Margolis & Walsh, 2003). Consequently, firms tend to implement socially sustainable practices that mitigate the negative effect of their operations instead of initiatives that build truly socially sustainable supply chains (Pagell & Shevchenko, 2014).

Poverty alleviation is a social issue that firms tend not to address. However, poverty alleviation is a critical issue for firms that source products from developing economies where poverty rates in rural areas can reach 70 percent of the population (WorldBank 2011). Although there are cases in which individual firms have led the implementation of initiatives for poverty alleviation (e.g., Nestle and Unilever), this type of initiative typically requires resources that an average firm would not possess (Kolk & Van Tulder, 2006). NGOs as noneconomic actors are better equipped and their missions are better aligned with social matters such as poverty alleviation. Therefore, NGOs are in a better position to undertake poverty alleviation efforts where the synergies with the supply chain's economic performance are not evident (Margolis & Walsh, 2003).

Operationalizations of being poor and impoverished or at the bottom-of-the-pyramid (BOP) are often imprecise, which has led to scholars studying different populations under the same rubric (Kolk, Rivera-Santos & Rufin, 2014). In this research, BOP, poor, or impoverished suppliers are suppliers from rural and urban populations who live on between $US2 and $US3 PPP-adjusted a day. An income of more than $US2 per day exceeds the threshold for extreme poverty (WorldBank, 2010), but it is still insufficient to afford all basic food needs, making this population poor.

Poverty Alleviation through Supply Management Practices

People at the BOP usually pay higher prices for the goods and services they consume because they are isolated from main markets, suffer local monopolies, and lack the infrastructure to adequately store products (Prahalad, 2004). Prahalad argues that firms should create innovative operations and business models to allow these consumers to access better goods and services at a lower price. Firms would increase their profits and the poor would increase their welfare, a win–win scenario. However, the poor do not improve their capability to generate rents by buying cheaper products (Karnani, 2007) so it is suggested that a better mechanism for poverty alleviation is incorporating the poor as suppliers (Karnani, 2007; London, Anupindi & Sheth, 2010). Still, research has focused more on business initiatives where the poor are consumers (Kolk et al., 2014). Hence, Kolk et al. (2014) suggest that more research is needed about initiatives that incorporate the poor as suppliers, and where other stakeholders such as governments, NGOs, and local SMEs also participate in the initiative.

Firms can support poverty alleviation by incorporating poor producers into their supply chains (Karnani, 2007; Sodhi & Tang, 2014). However, firms find it very challenging to start such initiatives due to a lack of knowledge about the context of poor suppliers, the high transaction costs of doing business with poor suppliers, and the potential conflict between alleviating poverty and the firm's economic performance (London et al., 2010; Margolis & Walsh, 2003). Therefore, these projects are better suited to NGOs' missions and knowledge. However, NGOs generally lack the capacity to place the products of poor suppliers into the market. In this context, NGOs and firms can complement each other to undertake supply management practices that incorporate poor suppliers into supply chains.

The collaboration between NGOs and firms has been widely studied in the literature of cross-sector partnerships. One of the dominant logics in this literature is that NGOs and firms have complementary resources that enable the creation of social value (Selsky & Parker, 2005). This logic generally relies on both the relational view and social capital theory (Hahn & Gold, 2014; Seitanidi, Koufopoulos & Palmer, 2010). The relational view was originally used to explain how multiple firms working together could achieve interorganizational competitive advantage (Dyer & Singh, 1998). More recently, the relational view has been applied to explain how NGOs and firms combine their resources to create new valuable resources for creating social value (Hahn & Gold, 2014; Selsky & Parker, 2005). Social capital is the brokerage opportunities that an actor has in its social network (Burt, 2005). At the organizational level, social capital theory has been used to explain organizational performance and acquisition of resources through social networks (Payne, Moore, Griffis & Autry, 2011). Similarly, in firm–NGO relationships, social capital theory suggests that NGOs will use their network position to scan and assess the resources that potential partners could bring to a partnership (Seitanidi

et al., 2010). Previous literature acknowledges that firms and NGOs could complement each other when implementing socially sustainable supply management practices, but how NGOs develop and implement such initiatives by cooperating with firms has been understudied. This paper aims to fill this gap.

METHODOLOGY

Existing theory in supply-chain management does not provide clear guidelines about how supply management practices can be implemented in the context of poverty alleviation. The participation of NGOs in sustainable supply-chain initiatives for poverty alleviation is a little-observed phenomenon that we would expect to see more often in the future. Because case studies allow for the identification of key variables and their relationship, they are suitable for studying an emergent phenomena in depth and are used in this research (Gibbert, Ruigrok & Wicki, 2008). The case study methodology allowed us to build a thorough description of the underlying reality of NGO poverty alleviation initiatives in supply chains.

Case Selection and Research Setting

The selected case study was an international project led by a multinational NGO with operations in Latin America, Africa, and Asia whose focus was on poverty alleviation through the economic development and inclusion of the poor. The NGO received funding from different institutions such as governmental agencies, development organizations, and multilateral banks. The NGO had more than 15 years of experience in projects aimed at the economic development and inclusion of the poor, but it had very little experience of working with the private sector.

The NGO's first private sector alliance was conducted with an international business council which the NGO approached with the aim of implementing business initiatives to help the poor. As a result of this alliance, the NGO implemented several pilot projects with the private sector. One year later, a multilateral bank funded the NGO to implement a project to use SD programs to transfer best production practices to poor suppliers. That is the project studied in this paper. This particular project was selected because it involved a single NGO and multiple buying firms; a suitable context to isolate NGO-level variables and to focus exclusively on how the NGO deployed their resources in multiple supply chains. Moreover, while the project operated in multiple countries, we also isolated institutional variables by only studying the SD programs implemented in Ecuador.

The project involved nine business initiatives in Ecuador. However, only seven of those initiatives were SD programs. The remaining two initiatives were aimed at developing distribution channels to deliver products for the poor. The seven SD programs entailed both successful and unsuccessful programs, buying firms from a variety of industries, and suppliers with diverse socioeconomic characteristics and productivity challenges. Our final sample included six of the seven SD programs. Thus, we used a nested case study design, where the unit of analysis was the SD program.

To implement the SD programs, the NGO used its contacts from the alliance with the international business council to attract firms. Firms were invited to participate in workshops to analyze their supply chains and determine how to incorporate poor producers as suppliers. The ideal firm to participate in the SD program was a firm (1) with a supply network with a high concentration of poor suppliers; (2) willing to invest money in SD programs with poor suppliers; and (3) willing to establish partnerships with poor suppliers. Once the NGO and a particular buying firm had agreed to work together, they defined the profile of the suppliers and the geographical regions. Next, the NGO visited the potential suppliers to understand their socioeconomic situation and any potential barriers to doing business with the buying firm, as well as to create ties with the leaders of each village. Then, the NGO worked with each buying firm in the design of the SD program to address the realities of suppliers from each geographical region. In some instances, such as corn and potato farming, the NGO and the buying firm first ran pilot SD programs. Finally, the NGO and the buying firms launched a training program for each supply chain focused on improving operational efficiency and creating mechanisms to facilitate transactions between the suppliers and the buying firms.

Previous BOP literature uses the terms *poor consumers* and *poor suppliers* to describe the beneficiaries of BOP initiatives (Kolk et al., 2014; London et al., 2010). In our study, we consider two types of poor suppliers living on less than $US5 PPP-adjusted per day: farmers with fewer than 5 hectares, and small family-owned businesses that employed poor people (see Table 1).

Data Collection

We created a case study protocol to guide the data collection process and enhance the internal and construct validity of the study (Yin, 2013). Our research is focused on identifying the resources needed from both the NGO and the buying firm for successfully implementing SD programs to alleviate poverty. Therefore, we designed the data collection in a way that allowed us to build a valid and reliable description of the process of SD implementation. The implementation started when the NGO decided to

TABLE 1

Sample Description

Unit of Analysis	Description of the SD Program	Poor Suppliers	Buying Firm (BF)
Dairy farming	The SD program involved a farmer-training program on milk storage and grass farming; and investments by the BF to create consolidation centers. The program included 1,085 dairy farmers from 18 cooperatives within 50 km of BF's production facilities. The total investment in the SD was $US128,000.	Dairy farmers had other sources of income besides milk (jobs in plantations and agricultural products); milk yields were low; farmers had an average of seven cows in production; they had access to school, hospitals, etc.; and they also had a medium degree of bancarization.	The BF was a cheese manufacturer that sourced its milk from medium dairy farmers (<20 hectares) and cooperatives of small farmers. It had $US17 million in sales.
Metal scrap collectors	The SD program involved a training program for the collection center managers and investment by the BF in the centers' facilities. The program included 27 scrap collection centers. The total investment in the SD was $US110,000.	Families living in urban areas engaged in the collection center business. Scrap was their main source of income. The family had some access to financial markets, health insurance, and children's education. Families possessed a few assets: pickups and small houses.	The BF was a steel manufacturer of ribs, pipes, and decks. It sourced scrap from local collectors and to a lesser extent, imported it; the BF had $US160 million in sales.
Corn farming	The SD program involved training in farming practices, technical assistance and the delivery of seeds and farming equipment by the BF. The program included 650 farmers with <5 hectares within 50 km of BF's facilities. The total investment in the SD was $US400,000.	Corn farming was the main source of income; fewer than 5 hectares of cultivable land per farmer; low yields per hectares (2 tons/hectares); no irrigation systems; one cycle of production per year during the rainy season; issues around property rights, tax ID and low bancarization.	The BF was a food processor: the BF grew the animal and sold the processed chicken, pork, beef, and seafood. It sourced corn mainly from local suppliers; it had $US649 million in sales.
Carpentry workshops	The SD program involved a worker-training program and the lease of manufacturing equipment. It included four workshops of fewer than 15 workers. The total investment in the SD was $US65,000.	Workshops had low capital endowments, low product quality and a high proportion of waste. Workers lived in urban areas with access to hospitals, schools, etc.; they manufactured pieces, parts, and furniture for the BF. There was a low degree of informal operations.	The BF was a furniture manufacturer and a retailer. It sold furniture for living rooms, dining rooms and kitchen cabinets. It had $US28 million in sales.

(continued)

TABLE 1 (continued)

Unit of Analysis	Description of the SD Program	Poor Suppliers	Buying Firm (BF)
Palm tree farming	The NGO approached the BF almost at the end of the project. The SD program included the supply-market research and supplier selection. The project timing constrained the implementation of the training program. The total investment in the SD was $US18,000.	80 percent of farmers had a land area of <5 hectares; and for 40 percent of them, the palm tree was the main source of income; there was irrigation and access to roads; farmers owned the land but had some issues with tax ID; high bancarization.	The BF was a palm oil processor. It exported the oil or distributed it locally. It had $US77 million in sales.
Potato farming	The SD program entailed a training program in farming best practices and the delivery of certified seeds. It included 300 farmers in six cooperatives. The implementation of the SD program was delegated to a trader. The total investment in the SD was $US92,000.	Potato farming was the primary economic activity; the land area was smaller than 5 hectares; the yields were low; the cooperatives had an irrigation infrastructure and were close to main roads; no tax ID; there were issues with land property rights; low bancarization.	The BF was a national chain of supermarkets. It had $US1,400 million in sales.

cooperate with the buying firm and finished when the suppliers delivered their products to the buying firm. The relational view and social capital theory were used to guide the data collection on organizational characteristics and interorganizational relationships during the SD implementation.

Data collection began in December 2011, and the last interview was conducted in July 2013. One of the researchers traveled to Ecuador to meet with representatives from the NGO and the buying firms. Follow-up interviews were arranged through videoconferences to obtain additional data. We interviewed 18 people and there were usually two rounds of interviews with each informant. The average interview length was 90 min (see Table 2). Interviews were recorded and transcribed. In addition, we gathered reports and brochures as secondary data for our analysis. To evaluate the results of each SD program, we relied on third-party assessments rather than interviewing the buyers or suppliers. These assessments usually described the socioeconomic conditions, demographics, production practices, and benefits achieved by the farmers and other suppliers after the SD program.

We took several measures to enhance the quality of the collected data. First, data were gathered from multiple sources. This led us to disregard the final (seventh) SD program, as we were not able to collect data from the buying firm. Both primary and secondary data gathered from the NGO strongly suggested that this instance did not add new theoretical insights about our units of analysis. Consequently, saturation was reached with the sixth (of a possible seven) instance of observation. Second, the protocol targeted specific aspects of the phenomenon and increased the reliability of recalling past events (Miller, Cardinal & Glick, 1997). Finally, we created a case study database using NVivo software (QSR International, Victoria, Australia), which facilitated the retrieval of data during all stages of the coding and analysis (see Table 3 for a detailed description).

Data Coding

Data coding identified the level of poverty alleviation and the resources used and sought by the NGO in each instance of observation. The data to be coded were mostly qualitative and came from primary and secondary sources. Primary data included the transcripts from the recorded interviews, presentations by representatives of both the NGO and buying firms, and the researcher's field notes. Secondary data came from reports, brochures, and quantitative third-party assessments of each of the six individual SD programs. Two researchers initially coded the data independently. When there were disagreements between these two researchers, they were solved through sense-

TABLE 2

Informants per Instance of Observation

No	Informant		Instance of Observation
1	General manager	Buying firm	Dairy farming
2	Manager SD program	Buying firm	Dairy farming
3	NGO Advisor 1	NGO	Dairy farming; Corn farming
4	Recycling division director	Buying firm	Metal scrap collector
5	NGO advisor 2	NGO	Metal scrap collector; Carpentry workshops
6	CSR director	Buying firm	Corn farming
7	Purchasing manager	Buying firm	Corn farming
8	Business unit director	Buying firm	Corn farming
9	Supervisor SD program	Buying firm	Corn farming
10	Plant manager	Buying firm	Carpentry workshops
11	Quality control manager	Buying firm	Carpentry workshops
12	General manager	Buying firm	Palm tree farming
13	NGO advisor 3	NGO	Palm tree farming; Potato farming
14	General manager trader company	Buying firm-related part	Potato farming
15	NGO advisor 4	NGO	Potato farming
16	Regional director	NGO	Cross-instances view
17	Regional subdirector	NGO	Cross-instances view
18	Business council manager	Business council (NGO-related part)	Cross-instances view

making workshops led by a third researcher. At these workshops, three members of the research team discussed each disagreement until a consensus was reached.

Coding of Poverty Alleviation. People with better capabilities and lower transaction costs have more economic and social opportunities (Ansari, Munir & Gregg, 2012; London et al., 2010). Hence, we conceptualize poverty alleviation through two dimensions: the development of suppliers' capabilities and the reduction in transaction costs in the buyer–supplier relationship.

The development of capabilities was operationalized through operational efficiency because it is a measure of the suppliers' capabilities to better run their businesses. For the agribusiness instances, we used income and yield because they are indicators of how well farmers manage their crops. Workers were the targets in the carpentry workshop, so we used income and the level of waste reduction (less waste would mean that workers are more efficient in the use of materials) as a proxy of operational efficiency. For metal scrap collectors, we used the reported family income because indicators of their costs and level of productivity were not available (see Table 4).

Transaction costs are defined as the sum of coordination costs and transaction risks (Williamson, 1981). Coordination costs refer to the costs of exchanging information and utilizing it in the decision process, whereas transaction risks refer to the probability that the other parties in the transaction will avoid their agreed-upon responsibilities (Williamson, 1981). Coordination cost reduction was measured qualitatively by assessing the barriers or inhibitors to conducting a transaction. For instance, indicators of decreased barriers included whether the supplier had opened a bank account, obtained a tax ID, or developed mechanisms to deliver the output. To measure transaction risk reduction, we assessed the suppliers' commitment to the buyer–supplier relationship based on whether the suppliers remained in the relationship after the NGO project was over and the suppliers' expectations about the relationship in the future (see Table 4).

In summary, we coded poverty alleviation as high when the suppliers improved their operational efficiency and reduced their coordination costs and transaction risks. We conceptualized poverty alleviation as medium when operational efficiency was improved but either coordination costs or transaction risks were not reduced. Finally, poverty alleviation was low when operational efficiency did not improve and neither coordination costs nor transaction risks decreased.

TABLE 3

Synthesis of Research Design Aspects

Test	Case Study Tactic	Brief Description
Construct validity	• Multiple sources of evidence • Chain of evidence • Preliminary results were discussed with key informants	• The operationalization and measures of our concepts (e.g., poverty alleviation, transaction costs, relational capital) followed established measures in prior research. • The interpretations of concepts and patterns were based on triangulated data. • Cross-instance interviews were performed to enhance the data interpretation.
Internal validity	• Pattern matching • Addressed rival explanations	• Interpretation of concepts and patterns were contrasted across instances and against rival explanations.
External validity	• Use of theory • Replication logic	• Analytic generalization: the emerged concepts and patterns shed light on theoretical aspects of the noneconomic stakeholders' impact on socially sustainable supply chains. • Our interpretations were based on instances of diverse theoretical properties: different firm sizes, industry, supply chains.
Reliability	• Case study protocol • Case study database • Data coded and interpreted by several researchers	• The procedure of data collection was guided by a protocol, and data were analyzed and stored in a NVivo database. • One of the authors coded the data. Then, it was checked by a second one. Finally, sense-making work shops among three researchers were used to clarify divergent interpretations and reach consensus. • Instances' timelines were presented to NGO's representatives.

Source: Yin (2013).

Coding of Resources. We defined resources as all assets, capabilities, processes, information, and knowledge controlled by an organization (Barney, 1991). Resources are embedded in processes and routines (Eisenhardt & Martin, 2000). To disentangle resources from the processes and routines of the NGO's project, we wrote thick descriptions for each instance of SD based on the coded data. Then, the descriptions were summarized into chronological timelines of events and actions for each SD program (see Figure 1). The resulting sequence was presented to the NGO's representatives in order to check its validity.

The final timeline was categorized into three stages: the NGO initiating the project, the SD implementation, and the buying firm–suppliers' initial transaction (see Table 5). Then, the whole database of interviews, reports, presentations, field notes, and so on was classified into these three stages. For instance, the transcribed interview of the CSR director of the Corn Farming case was analyzed and every answer related to how they met the NGO, how the conversations were conducted, and what made them enter the project was categorized into the project's initiation stage. Similarly, every answer on who within the buying firm was delegated to run the project, the challenges during the implementation, the criteria for the selection of farmers, and the planning and execution of the SD program were categorized into the SD implementation stage. We followed this procedure for every document in the database in every instance of SD. After that, we elaborated a list of resources/codes from the literature on SD programs and supply management to facilitate the identification of assets, capabilities, information, and knowledge that the NGO and the buying firm contributed during the project (Miles

TABLE 4

Outcomes of the SD Programs

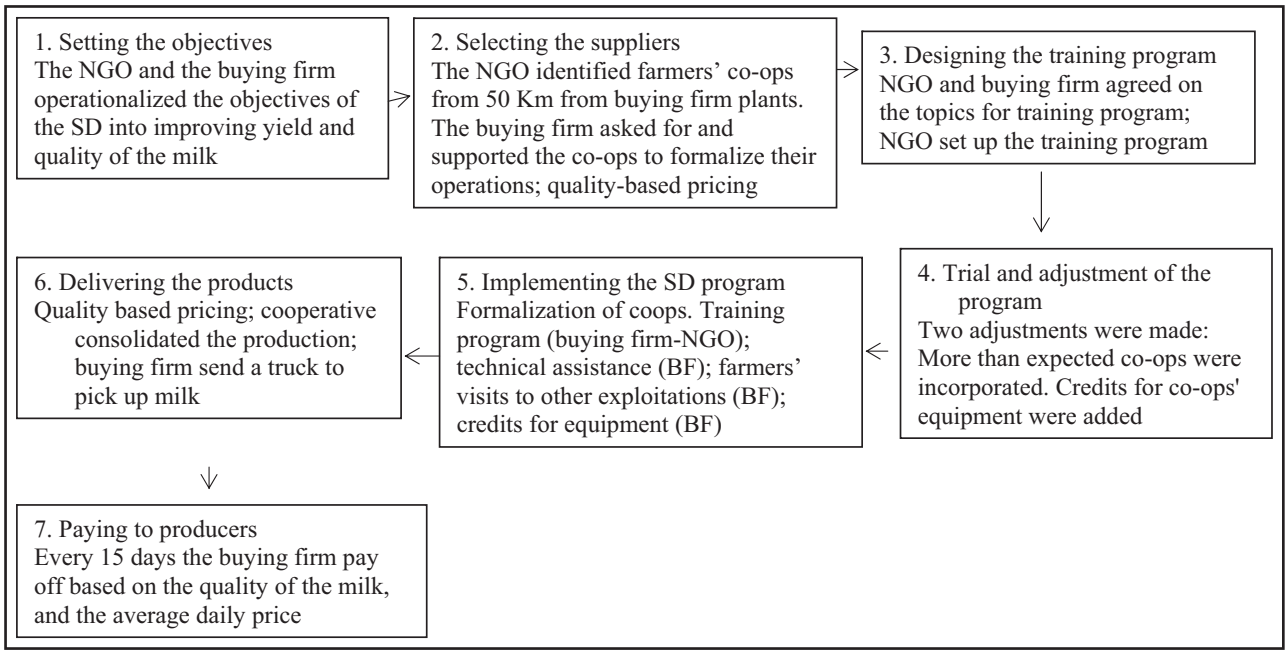
Unit of Analysis	Poverty Alleviation Outcomes
Dairy farming	Overall outcome: High poverty alleviation *Operational efficiency*: In average, farmers increased their productivity from 4.7 L/cow/day to 5.9 L/cow/day; and their annual income from 1,951 to 3,058 USD adjusted per inflation. *Coordination costs*: The cooperatives constituted consolidation centers; cooperatives were legally constituted (i.e., they had tax IDs and a formal structure). *Transaction risk*: The relationship with the buying firm was strengthened; it started with four cooperatives and grew to 18; the buying firm increased the volume purchased from cooperatives (reaching a 45 percent of the total supply of milk).
Metal scrap collectors	Overall outcome: High poverty alleviation. *Operational efficiency*: On average, the annual income of the enterprise increased from $US5,563 to $US17,168 adjusted per inflation. *Coordination costs*: The centers obtained environmental certifications. In addition to that permit, the businesses were within the formal economy. *Transaction risks*: Buying firm increased the number of collection centers (17–27). The SD program was established within buying firm's purchasing practices and became something regular.
Corn farming	Overall outcome: High poverty alleviation. *Operational efficiency*: On average, farmers increased their yield from 2 tons/hectares to 7 tons/hectares; and their annual income from $US678 to $US2,163 adjusted for inflation. *Coordination costs*: They were lowered; all farmers had a savings account, legalized their land property rights, and obtained a tax ID. *Transaction risks*: The farmers kept the relationship with buying firm; the program was replicated to other regions and more farmers were added.
Carpentry workshops	Overall outcome: Medium poverty alleviation. *Operational efficiency*: Reduction in 55 percent of waste of materials; the annual average salary of workers increased from $US2,450 to $US2,789 adjusted for inflation. *Coordination costs*: The degree of informal operations was already low. *Transaction risks*: Risks were not avoided; three workshops ended the relationship with buying firm.
Palm tree farming	Overall outcome: No results. The buying firm entered the project few months before its closing date. The process reached stage t, where both buying firm and NGO designed the SD program. The SD program was not implemented during the NGO project, but it set the ground for a firm-led SD program. However, there were no results about that initiative at the time of data collection.
Potato farming	Overall outcome: No poverty alleviation. *Operational efficiency*: Farmers did not improve their yields after the SD program. *Coordination costs*: Coordination costs remained high after the SD program: there was an absence of consolidation centers and formalization of operations. *Transaction risk*: Risks were not avoided. Few farmers delivered their production to the firms providing the SD. The buying firm–supplier relationship could not be sustained and it ended after the SD program.

& Huberman, 1994). Through this mechanism, we observed the resources from both the NGO and the buying firm that emerged in each stage of the project and in each instance of observation (see Table 6).

Data Analysis

The design is a nested series of instances of SD performed by a single NGO. Analysis started by addressing each instance, which is analogous to within-case

FIGURE 1
Illustration of Case Timeline (Dairy Farming Case)



analysis. This was followed by determining the patterns across instances, which is equivalent to cross-case analysis. The purpose of the within-case analysis was twofold: to deeply understand the underlying research phenomenon, and to build an explanation of how poverty was alleviated, or not, in each instance of SD. The purpose of the cross-case analysis was to compare and contrast the explanations of each instance in order to establish a replicated pattern of how poverty was alleviated across the SD programs (Yin, 2013).

Much like the coding, data analysis was initially performed by two researchers with disagreements being worked out through workshops led by a third researcher. The end result for each instance was a summary of the data that led us conclude whether poverty was alleviated or not, the timeline of activities and events for the specific SD project, a list of the resources supplied by the NGO and buying firm linked to the timeline's stages, and working propositions about the potential relationships between the resources and the poverty alleviation outcomes in that specific instance of SD (Yin, 2013).

Next, the cross-case analysis entailed comparisons of timelines, resources, and patterns of resource deployment across the six SD instances. The analysis started with classifying the resources deployed or sought by the NGO according to their utilization in each stage of the timeline. Then, we analyzed the common resources among the instances of poverty alleviation.

We followed a replication logic, where we kept the pattern that was consistently replicated across the instances of SD that were successful at poverty alleviation. Next, this replicated pattern was compared with the results of the instances of SD that did not lead to poverty alleviation, and we kept the resources that discriminated between the two outcomes. Finally, we compared the resulting framework with alternative explanations of poverty alleviation identified in the literature (this is further explained in the following section). This analytic strategy allowed us to build a theoretical framework of the resources that enhance the implementation of SD programs for poverty alleviation.

RESULTS

This section is structured in three parts. First, the resources provided by the NGO are described, then the resources provided by the firm are described, and finally alternative explanations for the phenomenon studied are addressed.

Resources Provided by the NGO

The resources described in this section emerged during the initiation stage (stage t) of the project timeline. The NGO provided these resources during the negotiation and they were instrumental in influencing managers to participate in the project. These resources are (1) knowledge for localizing the SD programs and (2) the NGO's bridging capability.

TABLE 5

Description of the Stages Where Observed Resources Emerged

Stage	Description
Stage t: NGO initiates the project	It started when the NGO approached the buying firms; entailing the negotiation between them, the commitment of the buying firms, the approach of the NGO to the suppliers; and it finished when both the NGO and the firms designed the SD program.
Stage t + 1: SD implementation	It started when the training program was implemented; it entailed the interaction between the NGO, the buying firms, and the suppliers during the training program; and it finished when the training programs were over.
Stage t + 2: Buying firms–suppliers' initial transaction	It started when the suppliers delivered the first production lot/order to the buying firm. In the instances of dairy farming, carpentry workshops, and metal scrap collectors this stage overlapped with stage t+1. This stage either ended when the suppliers quit the relationship or has continued to the present.

Knowledge for Localizing SD Programs. To reduce transaction costs and operational inefficiencies, they first need to be identified. The NGO had more than 15 years of experience in implementing projects with poor farmers in a variety of supply chains, such as cocoa, dairy, and tropical fruits. The NGO knew the context where the suppliers were embedded and how they operated giving the NGO a deep understanding of the poor farmers' reality. The NGO's knowledge was instrumental in poverty alleviation because it enabled both (1) targeting the specific problems that were affecting poor suppliers' operational efficiency and (2) identifying the suppliers' transaction risks. We conceptualize and refer to this knowledge as the NGO's *SD localization knowledge*, which refers to the application of the NGO's experience in developing projects with poor suppliers and supply-market knowledge in adapting each SD program to the individual supplier's reality (see Table 7).

Localizing an SD program entails designing and implementing it in a way that couples with the idiosyncrasies of poor suppliers. Firms could have the production and technology required to make farmers more productive, but they would not know how to transfer them to suppliers (see the following quote). For instance, the NGO knew that farmers tended to overuse pesticides and herbicides and suggested addressing this issue during the training program. Furthermore, the NGO knew how suppliers carried out transactions and advised buying firms to take actions to mitigate factors such as informal money lending or lack of a tax ID. The buying firm's technological capabilities were not sufficient for poverty alleviation. The NGO's localized knowledge contributed to the SD programs, enhancing the suppliers' operational efficiency and reducing transaction risks.

> Mostly the company has the knowledge . . . I think the company does have the technological knowledge on best practices, input production, increasing quality of production, and increasing volumes. They would know that. However, they wouldn't know how to bring that to small producers and low-income communities. I think this was one of the roles of the NGO, to make sure that the company actually contacted small producers and transferred their knowledge when small producers needed it. (NGO regional director)

NGO's Bridging Capability. In addition to localizing the SD program, the NGO was a bridge to resources for the poor suppliers and the buying firms. We observed two mechanisms by which the NGO bridged resources: (1) bridging between buying firms and sources for funding; and (2) creating/strengthening ties between poor suppliers and buying firms.

The buying firms' managers considered investing in SD programs for poverty alleviation as too risky. As one of the managers noted, the financial resources from the multilateral bank made the risk more bearable: "We are a small company, so we didn't have the resources to train 200 or 300 farmers. The advantage with the NGO was the economic resources that we could access for accelerating the training program" (SD program leader—Dairy farming instance). Due to its experience in fundraising, the NGO had ties—network resources—that were used to obtain the financing to implement the SD programs. The NGO was a bridge between the buying firms and sources of funding.

Furthermore, the NGO created or strengthened the ties between poor suppliers and the buying firms. For instance, the NGO visited the potato farmers' village, established links with their leaders, and put them in contact with the buying firm. The NGO took similar actions in the case of palm tree farming. We observed that this NGO capability was also applied to strength-

TABLE 6

Resources/Codes Identified across Instances and Along the Project

	Stage t: NGO Initiates the Project	Stage t + 1: SD Implementation	Stage t + 2: Buying Firm–suppliers' Initial Transaction
Dairy farming	*NGO*: Ability-based trust, boundary spanning, social capital, access to funding, support *BF* adaptation, business perspective, supply intelligence *BF*: Dependence on item, competitive priority, corporate values	*NGO*: Collaboration commitment *BF*: Buyer–supplier socialization, production know-how, experience in SD, internal integration, interorganizational trust, strategic purchasing, technical assistance, transfer know-how, top management support, experience on collaborative relationship	*BF*: Long-term orientation, positive attitude to supplier, commitment with suppliers, transparency, logistics, quality-based purchasing, fairness, supplier's proximity, quick payment system
Metal scrap collectors	*NGO*: Boundary spanning, social capital, business perspective *BF*: Dependence on item, slack, competitive priority, power	*NGO*: Collaboration commitment *BF*: Buyer–supplier socialization, experience in SD, internal integration, strategic purchasing, investment in suppliers' assets, top management support, experience on collaborative relationship	*BF*: Long-term orientation, positive attitude to supplier, commitment with suppliers, transparency, logistics, fairness
Corn farming	*NGO*: Boundary spanning, social capital, support BF adaptation, business perspective, supply intelligence *BF*: Dependence on item, slack, competitive priority, CSR, corporate values, power	*NGO*: Collaboration commitment *BF*: Buyer–supplier socialization, production know-how, experience in SD, internal integration, interorganizational trust, strategic purchasing, technical assistance, transfer know-how, top management support, experience on collaborative relationship	*BF*: Long-term orientation, positive attitude to supplier, commitment with suppliers, transparency, logistics, fairness, supplier's proximity
Carpentry workshops	*NGO*: Boundary spanning, social capital, access to funding, support *BF* adaptation, business perspective *BF*: Outsource, power	*NGO*: Collaboration commitment *BF*: production know-how, assets-lease, internal integration, interorganizational trust, investment in suppliers' assets, top management support	*BF*: Commitment with suppliers, quality-based purchasing, supplier's proximity, transparency
Palm tree farming	*NGO*: Boundary spanning, social capital, access to funding, business perspective, supply intelligence *BF*: Dependence on item, power	*NGO*: Collaboration commitment *BF*: Top management support	*BF* did not reach this stage
Potato farming	*NGO*: Boundary spanning, social capital, support BF adaptation, business perspective, supply intelligence *BF*: Slack, CSR, power	*NGO*: Collaboration commitment *BF*: Internal integration, interorganizational trust, delivery of seeds, strategic purchasing, top management support	*BF*: Logistics deficiencies, quality-based purchasing

TABLE 7

Resources for the Implementation of SD Programs

Resources	Definition	Exemplar Quotes
NGOs knowledge for localizing SD programs (stage t)	This refers to the application of the NGO's experience in developing projects with poor suppliers; and knowledge about the supply market to adapt SD programs for coping with suppliers' reality.	The company has the technological knowledge, background and staff for doing this [the SD program]. I think in terms of knowledge transfer, the knowledge input from the NGO was to make sure that the existing knowledge of the company was actually put in use for the producers in low-income communities. (NGO director for Latin America) . . .we accepted and began to work on a project in which we had the corn know-how, and they [the NGO] supported us in the aspects of setting the training topics, how to gather the farmers for the training program, and how to work with them in general. (CSR director—Corn farming instance)
NGO bridging capability (stage t)	This refers to the NGO's ability to apply its network resources and knowledge about poor suppliers to join previous disconnected actors and to strengthen the relationship between the buying firm and poor suppliers.	The advantage of the NGO was their support in getting economic resources. This helped us to accelerate the process of training our suppliers. Additionally, they helped us to get other type of resources for implementing best practices with the farmers. (Manager SD development—Dairy farming instance) We gave advice to the companies. We connect them with sources of funding, donations, multilateral banks, development banks for the business initiatives. (NGO regional subdirector)
Organizational routines to transfer know-how (stage t + 1)	This refers to buying firm's organizational processes to transfer know-how. It includes technical assistance to suppliers; suppliers' visits to buying firm's facilities; and suppliers' events.	We organize several events a year in one of our plantations. One of the main events is the *golden ear,* where we set up demonstrative plots so the farmers could see, ask questions and learn farming best practices. In those events, we also teach them our technological packages, which include nutrition, and reproduction materials. At the end of the event we deliver prizes for the farmers with the highest yields. (Supervisor SD program—Corn farming instance) Our job is not to buy scrap; our real deal is to support the consolidators. My business is not to buy tons from the consolidators; my focus is to see what they need; to understand why they are collecting fewer tons; and in the case of any incidence I sent my supervisors to the zone to understand what's happening in the market. (Recycling division director—Metal scrap collectors instance) Through September 2012, there are 33 demonstrative farms in 15 cooperatives. The company offers direct and indirect support to 1,085 farmers and has selected a group of farmers for a guided visit and training abroad. (Extract from a company report—Dairy farming instance)

(continued)

TABLE 7 (continued)

Resources	Definition	Exemplar Quotes
Logistical resources in the buyer–supplier relationship (stage t + 2)	This refers to the logistics assets and infrastructure of the buyer–supplier relationship that ease the delivery of products to the buying firm and the payment to suppliers; it includes warehousing, information technology and buying firm assistance.	The transaction with the cooperatives work in this way: every farmer carries the milk to the cooperative's consolidation center. Then, we go with our trucks and pick it up from every center and carry it to our plant. (Manager SD program—Dairy farming instance) In the business of potato farming, it was very difficult to consolidate the production in one place. The trader coordinated a date for sending a truck and picking up the cooperative's production. In this case, the cooperatives didn't have warehouses. We thought at some point to support the creation of a warehouse within the cooperative but there weren't the minimum production volume to make it work. (NGO advisor—Potato farming instance)
Relational contracting based on procedural fairness (stage t + 2)	This refers to the relational attribute of the buying firm to display transparent, ethical, unbiased and representative deals to suppliers; it entails an open and transparent process of delivery, and an unbiased pricing for the products.	We manage a quality-based pricing system in order to determine a fair price. We consider the fat, protein, CCS, UFC, the milk temperature, which allow us to pay fair prices and higher than the industry average. (Extract from a Sustainable report—Dairy farming instance) We offer technical assistance throughout the whole year, we guarantee the purchase of all their production volume according to the official price. (Purchasing manager—Corn farming instance)

ening existing ties between the buying firms and the poor suppliers. For example, in the corn farming case, the NGO set up a mechanism so the buying firm could strengthen their relationships with poor farmers. Similar actions were implemented by the NGO in the case of the carpentry workshops and dairy farming.

Consequently, the NGO consistently applied the bridging resource to implement the SD programs for poverty alleviation. We conceptualize this resource as a capability because it reflects a set of the NGO's organizational processes that utilize its knowledge of poor villages to join disconnected parties and to strengthen weak connections between parties. We call this resource a bridging capability.

This bridging capability reduced the buying firms' transaction costs when dealing with poor suppliers (see Table 7). First, the buying firms were connected with sources of funding reducing the cost of coordinating the training programs (see the following quote). Second, the bridge between buying firms and poor suppliers reduced the coordination costs of searching for each other in order to undertake a cooperative buyer–supplier relationship.

> I think we brought certain things to the table that they didn't have that were very specific to our background as a development organization. I think for some companies this was the fact that we brought the multilateral bank that was able to provide some seed funding. These were not large amounts but were often enough to boost the company upward to the side of wanting to do this project. (NGO regional director)

Resources Provided by the Firms

The NGO contributed both knowledge for localizing SD programs and the bridging capability to all of the instances. Yet the results across the six instances were not the same. The buying firm-related resources were also needed to reduce poverty. The buying firm-related resources were conditional to the NGO's resources. Managers decided to invest in the project only after they became aware of the funding from the multilateral bank and/or the business case for the project was made. This section presents those buying firms-related resources that enhanced the SD program outcomes. These resources emerged in stages t + 1 and t + 2.

Knowledge Transfer Routines. In all six instances, the SD program included a training program to improve the operational capabilities of the poor suppliers. One of the conditions of the multilateral bank for funding the project was that a third party had to implement the training program. This did not mean that the NGO and the buying firms' personnel could not be involved in the training program. However, the funding could not be used to remunerate the buying firms' personnel. In every instance, the NGO and the buying firm decided the topics to include in the training program and selected a suitable third party to run it. The use of third-party providers caused tension within the buying firms for corn farmers, dairy farmers, and metal scrap collectors, because these buying firms already had routines to transfer production know-how to their suppliers, and they would have preferred to spend the money on their own resources. However, the NGO and the buying firms found ways to complement the third-party training program with the buying firms' routines.

The training programs included field activities and workshops. For instance, corn farmers had training sessions on farming best practices, dairy farmers were trained about animal reproduction, milking routines and grass farming, and potato farmers received field training on best practices in soil preparation, and crop management (see Table 7). Furthermore, for the metal scrap collectors and corn and dairy farmers, the training was reinforced through additional supply management practices of the buying firms such as assessment and technical assistance. The assistance the corn farmers received included technical visits from the buying firm personnel and the provision of certified seeds, production inputs, and light equipment for cropping. The buying firm also arranged events for the corn farmers where they could observe best farming practices and interact with other farmers (see Table 7).

The complementary nature of these practices became evident when we contrasted the cases of corn farming, dairy farming, and metal scrap collectors against carpentry workshops and potato farming. The buying firms in the first group of instances (corn farming, dairy farming, and metal scrap collectors) had a set of organizational processes that supported the transfer of knowledge of production know-how. Conversely, buying firms in the second group of instances (carpentry workshops and potato farming) did not have such processes. The buying firms in the first group of instances had better results in terms of the suppliers' operational efficiency suggesting a pattern between these organizational processes and suppliers' operational efficiency.

For example, in the case of dairy farming, the buying firm had a technical assistance program, where veterinarians conducted regularly scheduled visits to the farmers to assist them with animal reproduction and health-related problems. In the case of metal scrap collectors, the buying firm had industrial marketing routines which provided the collectors with market information so they could offer better deals and increase their collected volume of scrap. However, in the second group of instances, buying firms had scarce resources and they relied on ad hoc visits or unstructured mechanisms, where a community leader was delegated to follow up the training program. The lack of organizational follow-up processes in these instances impeded the momentum for improving suppliers' operational efficiency.

The routines described above are similar to the activities defined in the SD literature as operational knowledge transfer activities (Modi & Mabert, 2007), but the activities in our data are not strictly operational. Consequently, we use a broader label and name them knowledge transfer routines. We conceptualize this resource as an organizational routine because the buying firms that possessed these resources were able to deploy them repeatedly to consistently improve suppliers' operational efficiency (see Table 8). This resource emerged during the SD implementation (stage t + 1) of the timeline, often during the suppliers' training program. Knowledge transfer routines were associated with the improvement of suppliers' operational efficiency.

However, we observed that the buying firms with knowledge transfer routines had either limited access to suppliers or the scope of their practices alone was insufficient for the suppliers' reality. In some instances, buying firms were able to implement SD programs with a few farmers' cooperatives but that would have not been enough for their sourcing needs. In other instances (e.g., metal scrap collectors), they could only partially address the suppliers' problems. Consequently, even in the instances where buying firms had knowledge transfer routines, the NGO's resources were required because they amplified the buying firms' routines by including more suppliers and/or broadening their scope. Therefore, we conclude that knowledge transfer routines complement the NGO's resources and enhance suppliers' operational efficiency.

Logistical Resources in the Buying Firm–Supplier Relationship. Once the training program was implemented, the management of high numbers of low-volume transactions was a key issue in all instances. Purchasing 100 tons from one supplier is not the same as purchasing one ton from 100 suppliers; the buying firm receives 100 smaller batches and makes 100 payments. In successful instances, this situation was addressed in the SD implementation and transactions stages (stages t + 1 and t + 2) either through

TABLE 8

Synthesis of Constructs per Case

Instances/ Constructs	NGO's Knowledge for Localizing SD Programs	NGO's Bridging Capability	Knowledge Transfer Routines	Logistical Resources in the Buying Firm–Supplier Relationship	Relational Contracting Based on Procedural Fairness	Poverty Alleviation
Dairy farming	The NGO provided supply-market analysis to identify cooperatives around buying firms' facilities. They also supported the buying firm to set the conditions for selecting cooperatives.	The NGO connected the buying firms to multilateral banks; this tie was further exploited to get refundable credits for farmers; support strengthening ties between the farmers and the buying firm.	The buying firm had a technical assistance program where farmers were trained on enhancing the quality of the milk, grass farming; and a investment program on cooperatives' facilities.	The buying firm had established milk runs with standardized procedures for collecting the product and assessing the quality prior its load on the truck.	Transparent and unbiased mechanisms for delivery: open, quality-based pricing; payment on time; open communication with farmers.	High
Metal scrap collectors	The NGO guided the buying firm to address the socioeconomic aspects that were affecting suppliers' operational efficiency.	The NGO connected the buying firm to multilateral bank to fund the training program.	The buying firm had regular suppliers' events and had a reverse marketing program to support collectors.	Investment in truck scales, platforms to facilitate the handling of scrap.	Exact-weight pricing; market-wise prices.	High
Corn farming	The NGO advised the buying firm on how to approach poor farmers, and how to adapt their knowledge transfer routines	The NGO connected the buying firm with the farmers; and bridged the buying firm with multilateral bank.	The buying firm had standardized procedures to deliver seeds and small equipment to farmers;	Warehouses close to farmers; ERP systems to coordinate payments to suppliers.	The price and the conditions for production delivery were based on the Agricultural	High

(continued)

TABLE 8 (continued)

Instances/ Constructs	NGO's Knowledge for Localizing SD Programs	NGO's Bridging Capability	Knowledge Transfer Routines	Logistical Resources in the Buying Firm–Supplier Relationship	Relational Contracting Based on Procedural Fairness	Poverty Alleviation
	for hundreds of farmers: they appointed farmers leaders within each village.		suppliers' events; farmers' visits to buying firm's agricultural facilities.		Ministry regulations.	
Carpentry workshops	The NGO guided the buying firm to address the socioeconomic aspects that were affecting suppliers' operational efficiency.	The NGO connected the buying firm to multilateral banks.	Bare interaction; buying firm had none systematic activity on knowledge transfer.	No logistical challenges. There were few suppliers selected (four workshops); and they were close to the buying firm's factories.	Open and transparent payment and production-delivery conditions.	Medium
Palm tree farming	The NGO provided supply-market analysis to identify farmers' cooperatives.	The NGO connected firms with cooperatives and multilateral bank.	Not applicable. The NGO project's deadline impeded the implementation of the SD program.			No results
Potato farming	The NGO provided supply-market analysis to identify cooperatives around buying firm's facilities. They also supported buying firms to selecting cooperatives.	The NGO connected the buying firm to multilateral banks; and to suppliers.	Bare interaction with farmers; no established mechanisms to transfer knowledge to farmers.	Absence of warehouse, consolidation centers or any logistical resource; slow payment process.	Lack of transparency in transmitting prices information to farmers. There was also uncertainty about the rejection of defects per lot.	NO poverty alleviation

adapting existing or investing in new logistical resources.

For instance, the dairy farming buying firm had established routes for picking up milk from cooperatives in a 50 km radius around their plants. The new dairy farms could easily be added to existing routes. Additionally, the buying firm also invested to create or enhance consolidation centers (i.e., tanks or laboratories) where the buying firm would send their trucks every two days to pick up the consolidated milk.

In the case of corn farming, the buying firm had a warehouse close to the poor farmers' region and each farmer was within 50 km of the warehouse. Moreover, the buying firm allied with a local bank to open a special account for the corn farmers to ease payments. In the case of the metal scrap collectors, the buying firm invested in truck-weighing scales and trailer platforms at each supplier to facilitate the handling of scrap and the delivery to the buying firm's production facilities (see Table 7). On the other hand, the buying firm in the potato farming instance did not invest in logistical resources. The company lacked warehouses, information systems, or any other asset that could be adapted to collect or receive the production from suppliers, or to make prompt payments to suppliers. Because the cooperatives also lacked warehouses, the buying firm coordinated with a cooperative's representative to send a truck to collect the production of the village. However, farmers had different harvesting times, so when the truck arrived, it could only be loaded with a few farmers' production, not filling the truck. Finally, farmers had to wait 15 days after delivery to receive payment when their peers who sold to local intermediaries received payment at time of delivery.

Warehouses, information technology systems, and transportation are logistical resources provided by the buying firm that supported the buying firm–supplier relationships. Previous research defines these resources as logistics-related assets (Olavarrieta & Ellinger, 1997). We follow this logic and define logistical resources as assets, infrastructure, and information technologies that facilitate production or delivery to the buying firm and payment to poor suppliers (see Table 7).

Coordination costs were critical at both the SD implementation (t + 1) and the buying firm–suppliers transaction (t + 2). The NGO bridging capability was instrumental for initiating the project, but this capability did not enhance the transaction between buying firms and suppliers, which takes place in stage t + 2. It was only when the buying firms contributed logistical resources to the buying firm–supplier relationship that the coordination costs were reduced to a point where transactions were beneficial for both buying firms and suppliers. Consequently, poverty alleviation was dependent on these logistical resources because they reduced the coordination costs.

Relational Contracting Based on Procedural Fairness. The NGO and the buying firms mitigated certain transaction risks during the SD implementation by selecting suppliers with property rights, updated tax IDs, or environmental licenses. However, the weaknesses of supply-market institutions offered little enforceability of suppliers' commitments to provide their production to the buying firms. Moreover, the NGO could not advocate for exclusive buying firm–supplier relationships, because the terms of the multilateral funding ensured that poor suppliers were free to sell their production to anyone. In this context, earning the commitment of the suppliers was critical for the buying firms.

To build a strong relationship with poor suppliers, it was necessary to overcome two main challenges. The first challenge was related to the previous treatment of suppliers, who were mostly minorities or people who traditionally had been excluded from economic activities and subject to discrimination or had received unfair treatment. The presence of the NGO ensured fair, inclusive, and respectful treatment of the suppliers. Although managers were warmer in some instances than in others, the overall treatment to suppliers was appropriate.

Although the NGO presence helped to create stronger relationships, there was still a second challenge: suppliers perceived the processes of the transactions to be unfair. Some settings lacked an open, unbiased mechanism to determine the weight of the batch delivered by the suppliers or a clear and understandable pricing mechanism for the products. The fairness of the transaction needed to be addressed by the buying firms.

The lack of fairness resulted from the absence of resources to make the transaction unbiased, transparent, and representative for both the buying firms and suppliers, rather than because managers aimed to take advantage of suppliers. For example, in the case of potato farming, suppliers delivered the product without knowing how much they would be paid. They knew the price only after the product was delivered to the truck of the buying firm. Sometimes the price was favorable, but at other times the buying firm's price was lower than that offered in alternative markets. Furthermore, suppliers did not know in advance the percentage of the batch that would conform to the quality standards. This was the opposite of the case of dairy farmers where the buying firm established a clear and open mechanism for pricing the milk. The price was fixed according to the official price published by the Ministry of Agriculture and the buying firm had a quality-based premium that allowed farmers to receive an additional 2–3 cents per litter. Fur-

thermore, farmers could also see how much milk they were delivering and they knew in advance the parameters for rejecting poor-quality batches (see Table 8 for more illustrations). Table 8 shows that the buying firms that managed their transactions in a procedurally fair manner were also the buying firms to which suppliers were more committed.

Previous research describes buyer–supplier relationships as procedurally fair when procedures and criteria for decisions are unbiased, representative, transparent, correctable, and ethical (Luo, 2008). The observed buying firm–supplier relationships that were successful in achieving poverty alleviation were also procedurally fair. For instance, the criteria for pricing and rejecting batches were tangible and verifiable so that suppliers could easily determine the condition of their products and how much they would receive for them. Furthermore, as formal written contracts are useless in these supply markets, buying firms governed the relationship through relational agreements based exclusively on trusting that both parties would comply with what was agreed. Consequently, the governance in highly committed relationships was relational and based on procedural fairness. We considered procedural fairness as a resource because it is a behavioral trait displayed in the buying firm–supplier relationship.

Exploring Alternative Explanations

An alternative explanation would be that poverty alleviation was achieved in the instances where suppliers initially had higher incomes and lower transaction costs, which would mean that the theoretical framework would only apply for the least poor suppliers studied. Before the SD program, farmers in the agricultural instances were poorer and had higher transaction costs than suppliers in the nonagricultural instances. Nevertheless, the results show that poverty alleviation was achieved in both agricultural and nonagricultural situations, suggesting the findings are robust to a range of initial poverty conditions. Furthermore, we checked the national production trends for the various crops and observed that the slope of growth was higher for the farmers involved in the SD programs than the country's average. This allows us to discard an exogenous shock that improved the country's overall production as an explanation for the results.

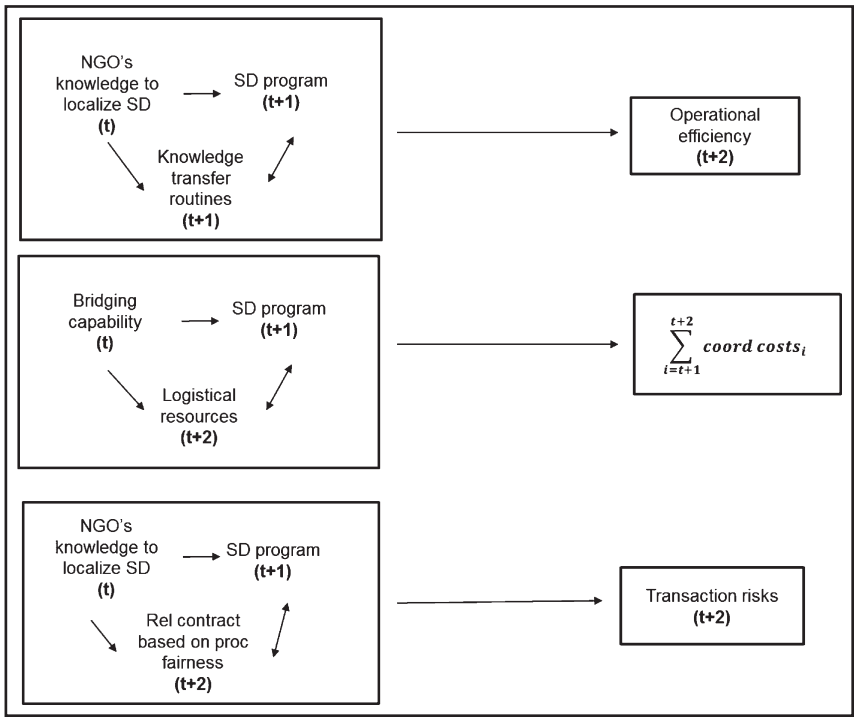
Additionally, buying firms might have cooperated with the NGO mainly to obtain the legitimacy benefits that such a partnership offers without actually tightly coupling their resources with the NGO's (Meyer & Rowan, 1977). If this was the case, then the buying firm's resources should be sufficient to achieve the synergy between economic and social performance in the context of poverty alleviation. In the metal scrap collector instance, the buying firm had developed suppliers without the intermediation of the NGO. However, the NGO still contributed to broadening the scope of the assistance to these suppliers, which enhanced the social sustainability of the supply chain. In this instance, the NGO's resources were less synergy sensitive, illustrating that buying firms can to some extent achieve synergy between social and economic performance. Unilever and Nestle have been able to achieve similar synergies (Nespresso, 2014; Unilever, 2014). However, in the other instances where poverty was also alleviated, the buying firm perceived the SD program as too risky and costly to do on its own. The buying firms in these instances only engaged in SD after the NGO contributed its resources, and synergy was only achieved after both entities had contributed resources. This indicates that the complementarity between the NGO's and the buying firms' resources might be contingent on other factors such as perceived legitimacy benefits. This is a limitation of the study that future research should take into account.

DISCUSSION

The resources identified in this research indicate the role that both NGOs and buying firms have in the process of incorporating poor suppliers into supply chains. The NGO resources were critical for designing and setting up the SD program to meet the needs of the supply-market reality. The buying firm resources were critical to carry out the transaction and protect the value created in the buyer–supplier relationship. The resources provided by each organization serve different purposes at different stages of the process; they are intertemporal complements that enhance poverty alleviation through supply management initiatives (see Figure 2).

This research provides a framework that explains how noneconomic actors contribute to the creation of innovative, socially sustainable supply chains using traditional supply management practices. Previous literature has either suggested that firms must develop relational capabilities to manage stakeholder pressures (Klassen & Vereecke, 2012; Matos & Silvestre, 2013) or that collaboration with nontraditional members such as NGOs might be a key component of sustainable supply chains (Pagell & Wu, 2009). However, the literature has not contemplated the possibility that nontraditional chain members could be actively engaged in sustainable supply-chain projects themselves. This research contributes by identifying and conceptualizing the resources that allow NGOs to design and set up SD programs that alleviate poverty. Hence, we put forward the following propositions:

FIGURE 2
Theoretical Framework of the Resources for Implementing SD Programs for Poverty Alleviation



Proposition 1: NGOs enhance the operational efficiency and reduce the transaction risks of poor suppliers through their SD localization knowledge.

Proposition 2: NGOs reduce the coordination costs of transacting with poor suppliers through their bridging capability, which connects suppliers with buying firms, and buying firms with funding sources.

The idea that NGOs span holes in the supply networks of developing economies has been acknowledged in previous research (Hahn & Gold, 2014). For instance, scholars from business and society define bridging organizations as those which extend ties among organizations from different domains and allow the coordination of collective actions to cope with social problems that go beyond the scope of single organizations (Brown, 1991; Westley & Vredenburg, 1991). This type of organizational form emerges either as a joint effort of a set of organizations or as the role adopted by a specific organization (Arenas, Sanchez & Murphy, 2013; Westley & Vredenburg, 1991). Similarly, social network scholars use the term tertius iungens (i.e., the third who joins) to describe a strategic and behavioral orientation toward connecting members of a given social network (Obstfeld, 2005). In both cases, these conceptualizations depict the bridging phenomenon as something that an organization with certain structural network properties such as betweenness, centrality, or a node bridging a structural hole does. Our conceptualization of bridging capability adds precision to the understanding of this phenomenon.

Prior research on SD programs was instrumental for our interpretation process as our coding/resource list was built on this literature. Supplier development programs are supply management practices that are usually studied within the realm of lean supply management, quality management, or continuous improvement programs (Modi & Mabert, 2007). Typically, the main objective of these practices is improving the production performance and quality of suppliers (Krause, Handfield & Tyler, 2007). Additionally, SD programs have also been studied as mechanisms to expand sustainability practices along the supply chain (Gimenez & Tachizawa, 2012). Although the relational aspects of the SD programs such as relational social capital and relational norms of governance have been found as suitable mechanisms to govern transactions (Krause et al., 2007), this type of practice had not been studied from the perspective of NGOs, nor had its impact on social outcomes been assessed. Our results contribute to the SD literature, suggesting how SD programs can be deployed by NGOs for poverty alleviation purposes.

Our theoretical framework depicts the relationship between SD programs and poverty alleviation

(Figure 2). First, managers committed their resources to the project only after they realized the contribution of the NGO. Thus, the commitment of the NGO's resources lead to the commitment of a buying firm's resources. Second, both the NGO and the buying firm created a third element—the SD program—which was designed to enhance the operational efficiency and reduce the transaction costs of poor suppliers. However, this third element was effective only when it was implemented jointly with the NGO and buying firm's resources (see Figure 2). This suggests that the effectiveness of this type of project rests on the complementary effect between these NGO and buying firm resources. This complementary effect entails a dynamic relationship between the NGO's resources, the buying firm's resources, and the SD program. Therefore, enhancing poverty alleviation is about the dynamics between (1) the NGO's knowledge to localize the SD program and its bridging capability; (2) the buying firms' knowledge transfer routines, logistical resources, and relational contracting based on procedural fairness; and (3) the SD program. Based on these arguments, we develop the following propositions:

Proposition 3: Operational improvement of poor suppliers is achieved when a buying firm's knowledge transfer routines interact with the SD program and the NGO's SD localization knowledge.

Proposition 4: Coordination costs of transacting with poor suppliers are reduced when a buying firm's logistical resources interact with the SD program and the NGO's bridging capability.

Proposition 5: Transaction risks with poor suppliers are reduced when a buying firm's contracting based on procedural fairness interacts with the SD program and the NGO's SD localization knowledge.

Previous research suggests that the supply-chain management field would benefit from studies addressing how partnerships create extended value in the supply chain (Priem & Swink, 2012). Resource-based theories are used in supply-chain research to explain how firms leverage their internal and supply-chain resources to achieve competitive advantage (Barney, 2012; Hult, Ketchen, Cavusgil & Calantone, 2006; Crook & Esper, 2014). Our paper describes "how" and "why" NGOs use their own resources and leverage a firm's resources to enhance social sustainability in the supply chain. The logic of resource-based theories also works in a broader sense of value creation, including how noneconomic actors identify, orchestrate, and allocate resources to achieve their organizational goals. Consequently, our research also contributes to the supply-chain management literature by addressing how partnerships create extended value.

The identification of these resources has two main implications for the literature on cross-sector partnerships and BOP. First, our research incorporates the suggestions made by previous research (Ansari et al., 2012; Kolk et al., 2014; Sodhi & Tang, 2014) and proposes a theoretical framework of the resources used to undertake supply management practices for poverty alleviation. We contribute by specifying how NGO-led initiatives can create business models in which poor suppliers are integrated into supply chains. Second, previous research has suggested that business relationships in this context should be managed through informal mechanisms of socialization and social capital (Hahn & Gold, 2014). Our research adds precision by indicating that relational forms of governance based on procedural fairness contribute to reducing the transaction risks in buyer–supplier relationships.

CONCLUSIONS

This research provides evidence of the resources applied by NGOs to implement programs that enhance the supply chain's social sustainability without creating trade-offs between social and economic outcomes. It has also identified the buying firm resources that complement the NGO in the process. Accordingly, based on our results managers will need to take into account the following when considering such partnerships. First, engage with partners who can connect the firm with a pool of resources that it cannot presently access. Second, resources will need adaptation to the local context before undertaking any supply management initiative with poor suppliers. Third, invest in knowledge transfer routines and logistical resources in order to successfully integrate poor suppliers. Finally, govern buyer–supplier relationships through relational mechanisms based on procedural fairness.

This research is not free of limitations. Our research design included a multinational NGO, six buying firms, and suppliers operating in the same country. This increases our framework's internal validity, but it also weakens the generalizability of the results. Future research examining different NGOs or countries could add the "when" and "where" to our theoretical framework. Furthermore, our results should be tested in a larger empirical setting; future researchers should undertake field experiments in which the variables observed in this study would be measured quantitatively. These limitations also constitute specific opportunities for broadening our knowledge about the topic. We end this research with the presentation of four lines of future inquiry that can be pursued after this research: NGO-related, buying firm-related, supply-related, and context-related lines of research.

NGO-Related Future Research

The results suggest two main paths for future research on the supply chains of NGOs and other nonprofits. First, future research should build directly on this study. The antecedents, evolution, and outcomes of the bridging capability are topics that deserve more attention. Prior to quantitative measurement of this construct, more exploratory research is needed to better understand its underlying dimensions. Future research should address questions such as how this capability is developed and what contextual factors trigger the development of such capability.

The second pathway for future research is much broader. The research helps to lay the foundation for future research on the supply chains of organizations that do not have profit maximization as their primary motivation. This research shows that NGOs can make use of traditional supply-chain management practices. However, it is likely that because NGOs have different orientations, they would use other practices or have different outcomes from previously identified practices. Future research needs to explore this possibility. And in so doing, it is possible that practices that are used by NGOs and the like could also be used by for profits to help them become sustainable. The study of the supply chains of these "nontraditional" supply-chain members is then an area that deserves study on its own and which might also contribute to making traditional for-profit supply chains sustainable.

Buying Firm-Related Future Research

The focal organization of this research is the NGO, and our main focus is on poverty alleviation. Nevertheless, buying firms are profit-driven organizations and the poverty alleviation projects they engage in have to be business-sound. The analysis offers some qualitative insights about the benefits of poverty alleviation for the buying firms. In the successful instances of poverty alleviation, buying firms increased both the number of poor suppliers used and the volume purchased from these suppliers. This reduced their lead times and increased their control over the supply network. Still, future research should analyze the specific mechanisms of value capture for buying firms from this type of initiative.

To achieve social sustainability, buying firms use both financial and intangible resources, such as organizational capabilities and knowledge, to complement NGOs resources. However, this research did not address the conditions under which these resources could be combined. For instance, there might be institutional forces, firm–NGO cultural differences, or inconsistencies in organizational structures that need to be addressed. Future research should also study the contingencies that allow the combination of resources between these organizations.

Supply-Related Future Research

In most instances, the NGO project entailed the disintermediation of traders in the supply chain. This could be interpreted as a zero sum game, where the benefits of the poor suppliers are losses for the traders eliminated. From the data collected, we speculate that the organizations directly and negatively affected by these projects were international traders. Ecuador is a country with a production deficit in the products considered. Therefore, what the buying firms now buy from local poor suppliers is likely no longer bought from these traders who sourced internationally. Future research should analyze the net effect of this type of initiative on the whole supply network.

Moreover, the use of SD programs for poverty alleviation opens the door to explore other supply-chain practices that can be adapted for social issues. For instance, future research might study how ERP systems or any other IT-enabled coordination system could enhance the supply chain's social sustainability. Information technology could improve the transparency and openness of the processes, which could enable procedural fairness in buyer–supplier relationships.

Finally, an unavoidable question is what happens to poor suppliers after the NGO initiative ends. Our research suggests that relational contracting capabilities based on procedural fairness are associated with reduced transaction risks. This implicitly suggests that these firm capabilities are the basis of long-term relationships. However, it is unknown whether poor suppliers are better off under long-term relationships with the buying firm or whether their new capabilities would be better off in the market. Future research should address this issue via longitudinal studies in which suppliers can be traced.

Context-Related Future Research

Two issues in the regulatory environment of Ecuadorian agricultural supply chains, which are common in Latin American economies (Romig, 2011), might affect the generalizability of the results: government-price fixing and international trade barriers such as quotas and tariffs. On the one hand, trade barriers are added to the costs of importing raw materials and put pressure on local producers to develop local suppliers. On the other hand, government-price fixing fosters the emergence of black markets led by traders who generally offer lower prices than the fixed price, which discourages managers from undertaking long-term agreements with suppliers. Our results are embedded within this tension and it is unknown what the buy-

ing firms would have done if this tension was not present. Consequently, future research should consider the tension between government-price fixing and trade regulation on the decision of managers to engage in supply-chain projects with poor suppliers.

Finally, based on the 2014 corruption index of Transparency International, Ecuador is slightly more corrupt than the global and Latin American median country. Ecuador has a score of 33, the global median is 38, and the Latin American median is 36 (Transparency-International, 2015). Although corruption increases the costs of doing business (Yermo & Schoreder, 2014), the lack of institutions is the major barrier to implementing projects that incorporate poor suppliers into supply chains (De Soto, 2000). Corruption-associated costs are general to all business activities and not specific to businesses with poor suppliers. Previous studies on BOP initiatives have labeled the lack of institutions as *institutional voids* (Parmigiani & Rivera-Santos, 2015). Parmigiani and Rivera-Santos (2015) have suggested that managers should find mechanisms to fill these voids. They also suggested that alliances between the private sector, public organizations, and NGOs are a mechanism to cope with them. Consequently, an interesting future line of research is the interaction between the resources identified in this research and the environmental dynamics of institutional voids.

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APPENDIX
Case Study Protocol

RESEARCH PURPOSE

The aim of research of this project is to study the development of buyer–supplier relationships in contexts of poverty alleviation through partnerships between firms and NGOs. Specifically, the research questions we would answer are as follows: how firms and NGOs cooperate to develop SD programs for poverty alleviation? What resources do enable the development of such cooperation and such programs?

CONCEPTUAL FRAMEWORK

- Relational view
- Social capital theory

THEMES TO GATHER INFORMATION ABOUT

Antecedents of the NGO

- Activities of the NGO prior the project
- Connections of the NGO and previous allies

Complementary resources

- The role of the NGO during the creation of value in the project
- Reasons for the firm to join the program
- Cultural, values, visions about the cooperation with the firm (and the NGO)
- Coordination and follow-up of the project
- CSR (if any) policy of the firm
- Purchasing practices of the firm related to the category of products in question or similar suppliers

Social capital

- Trust and mutual understanding between the firm and NGO
- Communication channels between the firms and NGOs
- Connections developed along the initiative

About the initiative

- Challenges and barriers for implementation
- Total cost
- Total material purchased
- Length of the initiative
- Transaction costs avoided
- Operational results of the suppliers