Innovative Institutional Arrangements to Revitalize Rural Communities: The Case of Abaca Supply Chains in Rural Philippines

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Abstract

Economic stagnation is a key challenge to revitalizing rural communities in developing countries. However, most conventional stagnation-minimizing solutions were largely unable to also consider relevant institutional dimensions, and hence, were found to be inadequate. Institutions, being the ‘rules of the game’, govern and dictate the performance of social and economic activities. In the case of abaca supply chain in the rural Philippines, inefficiencies can be attributed to complexities inherent to the current institutional factors such as information asymmetry, multi-layer intermediaries in the trading system, and small and fragmented production units. These increase transaction costs which diminish economic welfare, thereby leading to low economic activity and rural stagnation. Some innovative institutional arrangements are highlighted in order to showcase their combined impact in improving the economic performance of the supply chain.

Key words: abaca fiber production and trading, business support groups, farmers’ cluster, institutions, institutional arrangements, new institutional economics, relational contract, rural community revitalization, rural stagnation, supply chain, transaction cost, vertical market linkage.

Introduction

Rural economic stagnation and poverty are two mutually enforcing phenomena that beset most developing economies. Nowhere is this classic case of a “double whammy” more evident than in the Philippine countryside.

Poverty in the Philippines is still largely a rural phenomenon. While rural poverty incidence declined slightly from 46.3% in 1988 to 42.5% in 2008, poverty incidence in urban areas dropped dramatically from 33.6% to 19.7% during the same period (Table 1) (National Statistics Office [NSO], 2006 and Reyes, 2003, 2010). Most rural poor depend on semi-subsistence agriculture for income and livelihood.

In terms of aggregate output and income, the rural-urban divide is also glaring. The average annual growth of gross domestic products (GDP) of the highly urbanized National Capital Region (NCR) registered 7% while mostly rural Autonomous Region of Muslim Mindanao (ARMM) only experienced 5% during 2002-2008¹.

Further, the GDP of ARMM was a mere 3% of NCR’s.

These statistics indicate stagnation of rural economies relative to urban areas². The literature offers an almost “inconvenient truth” why rural stagnation persists. Because of low levels of economic activity, productivity hardly improves, income steadily declines, and markets weaken, and all these, in turn, hamper economic development. This vicious cycle is what Nelson (1956) refers to as a low-level equilibrium trap where per capita income, which is close to subsistence requirements and where only a small percentage goes to net investment, is not growing.

Complexities inherent to rural Philippine setting exacerbate further the persistence of this low equilibrium trap (and hence, rural stagnation). Small-scale and fragmented farms, averaging 2.5 hectares, dominate the agricultural supply chains in the Philippines (Alave, 2011 and Brown, 2011). Hence, scale economy, which is directly related to farm profitability, cannot be realized or is limited, at best. When farm profits are dismal, farmers in

¹No statistics are available to compare cumulative GDPs between rural and urban areas.
²Succeeding reference to rural stagnation shall mean synonymously as rural economic stagnation.
the rural areas are unable to advance from semi-subistence to a market oriented production system. And since farmers also tend to shoulder higher (per unit) marketing cost because of small volume of produce, the incentive to market is low and farmers are therefore reluctant to invest in new technologies (Brown, 2011).

Further, contrary to a market-clearing equilibrium with costless adjustments, “market exchanges or transactions are not costless” (Coase, 1937 in Dorward, et al., 2009). These costs include the cost of information, negotiation, coordination, and enforcement of contracts (Kherallah, 2001). Small and fragmented production units in the supply chain incur high costs unless an effective institutional arrangement is imposed to minimize transaction cost (Kherallah, 2001). Given that most agricultural supply chains in the country are poorly integrated, tremendous transaction cost is incurred, and which in turn, makes these chains more inefficient.

This paper posits that institutions play a key role in achieving, at the very least, less inefficient outcomes of rural economic endeavors. Appropriate institutions and attendant institutional arrangements balanced with other development strategies free rural communities from economic malaise characterized by low-level equilibrium trap (and rural stagnation).

The paper has two major parts. It begins by providing the theoretical construct for analyzing the role of institutions in economic development. It relies heavily on emerging theories pertaining to institutions that are loosely categorized under New Institutional Economics (NIE). The second part, which draws from empirical evidences gathered from a supply chain improvement research and development (R&D) project coordinated by PCAARRD3, showcases innovative institutional arrangements to improve the supply chain of abaca fiber in the Philippines.

### INSTITUTIONS AND ECONOMIC DEVELOPMENT: A THEORETICAL CONSTRUCT

Institutions, in the simplest and most accepted definition, refer to “the rules of game in a society” (North, 1990 in Donnelly, 2005). They are either formal (law, contracts, political systems, organizations and markets) or informal (norms, traditions, customs, value systems, and religions), and they oversee relationships among individuals or groups in order to offset uncertainty and risk (North, 1991; Menard and Shirley, 1995; and Kherallah, 2001). They determine the costs of transaction and production, and define incentives and sanctions affecting human behavior, and hence, shape economic performance (Doward et al., 2005; and North, 1991, 1992).

Institutions operate at two levels — macro (i.e., institutional environment) and micro (i.e., institutional arrangements). The former encompasses the fundamental ground rules that establish the basis for production, exchange, and distribution, and therefore, affects the performance and behavior of the economic actors (Kherallah, 2001). It is concerned with the structures in which economic decisions, actions, transactions, and flows are embedded and describes property rights, enforcement mechanism, human behaviors, and power relations in an economy (Kirsten, 2009). On the other hand, institutional arrangement refers to the structures, designed by parties to govern particular economic relationships, related to individual transaction and modes of managing transactions (Kherallah, 2001).

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3 The project titled, Supply Chain Improvement for Abaca in Catanduanes, Bicol Region (Phase 2): Development and Application of Supply Chain Management Models to Improve Chain Efficiency and Effectiveness was implemented by the Bicol University from October 2009 to December 2011 with a budget of PHP 1,147,633.
Institutions, transaction costs, and economic growth

Strengthening institutional arrangements improves the overall performance of agricultural supply chains, and therefore, contributes to the revitalization (and vibrancy) of rural economies. Revitalization alleviates rural stagnation by effecting growth in agricultural productivity, the main economic driver of the rural economy, and this translates ultimately to improvement in rural economic welfare.

Economic growth is driven fundamentally by two factors — accumulation of factors and total factor productivity. Using this conventional microeconomic view of development and adopting the explanation of Dorward, et al. (2009), capital accumulation and productivity growth shifts the supply and demand curves to the right, increasing the supply and demand, and the attendant consumer and producer welfare (Fig. 1).

Graphically, economic growth involves initially an outward shift in the supply curve (S1 moves to S2). This outward shift in the supply curve can be attributed to the improvement in productivity through technological development, and a fall in the prices of productive resources, among others. On the other hand, the expansion in demand can be due to increase in disposable income, increase population, changes in preferences, etc. (D1 moves to D2). These result in a new equilibrium with much greater volumes bought and sold (Q1 moves to Q2), a decrease in prices (P1 falls to P2) and large improvement in consumer and producer welfare (CS1 and PS1 increase to CS2 and PS2, respectively).

However, factor endowments and improvement in technology are not the only determinants of growth. In fact, the Nelson (1956) model of low-level equilibrium trap shows that, even if production techniques are not improved and even in the absence of a cash investment program, the economy may still escape from the trap if the socio-political environment is favorable. Similarly, if the institutional mechanisms in the agricultural supply chains are strong enough to enforce rules and minimize transaction costs, it is presumed that economic efficiency be improved.

Fig. 2 presents the two sets of supply curves for agricultural good x which are producer supply (S1 and S2) and supply to consumers (S1’ and S2’). The first set represents the supply at the farm level while the second is the supply actually purchased by the consumers. The difference between S1’ and S1, and between S2’ and S2 represent transaction costs (costs and risks of transacting business).

It can be deduced that consumer and producer welfare is reduced as transaction cost increases. It can also be implied that economic growth involves (1) an outward shift in the producer supply curves and (2) reduction in transaction costs per unit supply to consumers. The role of institution therefore

![Graph showing changes in supply and demand during economic development.](Adapted from Dorward, et al., 2009)
becomes relevant in minimizing the transaction costs and in facilitating economic growth.

Roles of institutions

This section discusses some specific roles of institutions (highlighted in the NIE literature) in driving economic growth. It serves as segue to a detailed elaboration of institutional arrangements forged in order to improve the performance of abaca fiber supply chain in rural Philippines.

In general, “the role of institutions in economic activity is considered as being one of facilitating exchange” (Kirsten et al., 2009) that is coordinated (through reliable bringing together of buyers and sellers), low cost and encourages trust (e.g., contracts and enforcement mechanisms), and provides incentives (for investments and further exchanges).

Nowhere is this role apparent and critical than in agricultural supply chains in rural Philippines. Asymmetry of information, multi-layer and redundant intermediaries, and small and fragmented units of production typify these chains resulting in high transaction costs and large inefficiencies. Transaction cost minimizing institutional arrangements, therefore, become imperative.

Farmers and traders usually do not possess the same set of information for both to consummate “costless” yet optimal transaction. In most cases, the former lack price and market information crucial for negotiation, and thereby, making them hapless price takers. On the other hand, the buyers do not know where the source and quality of produce. Imperfect or incomplete transactional information asymmetry leads ultimately to higher transaction.

Information economics asserts that acquiring information leads to informed choices and increased level of utility, efficiency, and productivity (United Nations Economic Commission for Africa [UNECA], n.d.). The contrary leads to high risks and uncertainties. As a consequence, high transaction costs may even become a barrier to further information exchanges.

Another source of transaction costs is the presence of multi-layer intermediaries. This is typified by the redundant traders, a common feature of agricultural supply chains in less developing economies. These traders ‘free-ride’ and may oftentimes receive a greater share of the income. This kind of supply chain structure gives rise to a case where distribution of benefits from the production of a certain good does is commensurate to the effort exerted by the players.

Lastly, production units being small and scattered perpetuate subsistence farming which scarcely generates income for investment in improved production technologies. From a supply chain perspective, sourcing of inputs for small and scattered farms is costly and hence, resource allocation is inefficient. Volume of production is also limited which could also make distribution very inefficient.
INSTITUTIONAL ARRANGEMENTS AND SUPPLY CHAIN OF ABACA FIBER

Institutional arrangements designed and pilot-tested to address key challenges plaguing the abaca fiber supply chain in one rural area are highlighted to emphasize the proposition that institutions are integral to overall strategies to revitalize rural communities. A concise discussion of the abaca fiber industry and microeconomics of abaca farms is first provided in order to gain a better perspective of these challenges.

The abaca industry

Abaca (*Musa textilis*) is a tree-like herb belonging to the banana family (*Musaceae*). Its stalk is a great source of fiber that is considered superior over all fibers of its class because of its great strength and resistance to the action of water (Fiber Industry Development Authority [FIDA], 2012). Abaca fiber can be processed into cordage, pulp and specialty paper and fiber-crafts including hand-woven fabric.

Popularly known as Manila hemp, abaca fiber is one of the Philippines’ long-standing export commodities. In 2010, the Philippines contributed 90% of the total world supply of abaca fiber (FAOStat, 2012). Abaca fiber is major source of income for most farmers of Buenavista in the Municipality of Bato, Province of Catanduanes, the Philippines. A typical abaca farmer earned an average of Php 23,336 annually from fiber production in 2009 or about 33% of his total farm income.

Majority (32%) of the farmers have less than one hectare planted to abaca, while 26% own farms ranging 1.1 to 2.0 hectares (Torres, 2011). Average annual fiber production was 1,081 kilograms of fiber while the harvests of the majority (32%) of farmers range from 251 to 500 kilograms. Most farmers (56%) planted only *abuab*, a plant variety recommended by the Provincial Government of Catanduanes and FIDA. This variety has better tensile strength which is ideal for rope making. However, the remaining farmers still planted at least one traditional variety in combination with *abuab*.

Low productivity and poor quality of fiber harvests have been the perennial problems afflicting abaca farming. These, in turn, diminish farm profitability. Commonly cited reasons for

![Fig. 3. Abaca fiber trading and associated transactions costs before institutional innovations (Abamo, et al., 2011 and Mascariñas, et al., 2012).](image-url)

4 Buenavista is a small community in Catanduanes, Philippines, which served as the site of the supply chain project.

5 For the *abuab* variety, farmers were only able to harvest an average of 893 kilograms per hectare which was only 50% of its potential yield of 1,723 kilograms. Further, without proper drying and cleaning, fiber moisture content reached at least 20% which is way beyond the acceptable range of 12-14%.
these pertain to production (e.g., non-application of fertilizer, and non-adoption of proper thinning and weeding), harvesting (e.g., harvesting immature plants, and use of antiquated stripping method) and post-harvest (e.g., improper cleaning and drying procedures, and fiber adulteration) practices of the farmers.

The persistence of the problems cited above points succinctly to the inadequacy of conventional “technical and technological” solutions. However, often missed in the search for sustainable solutions is the real possibility that very low incentives and high inefficiency dictated by some existing institutional dynamics shaping abaca production and trading perpetuated this low equilibrium (and poor performance) regime for small-hold abaca fiber farm enterprises.

The abaca supply chain is typified by a multi-layer system of trading (Fig. 3). From the farm, hanks of fibers passed through at least three channels (barangay¹, municipal traders and buying stations) before getting to the processors or grading and baling establishments (GBEs). Most farmers sold their harvest to barangay traders while others bring their fiber to municipal traders. Ultimately, the layers of intermediaries entailed additional transaction costs. Had the chain been efficient, the ratio of actual and potential (transaction cost = 0) supply chain costs should be equal to 1. In this case, however, the ratio reached 1.48 indicating an inefficient supply chain. The inefficiency contributed solely by positive transaction cost².

Despite the high costs associated with searching for and assembling of fiber, traders still opted to perform this function because it practically gave them good forecasts of possible sources and volume of fiber supply. They, in turn, used the information to negotiate or leverage their offer price to the farmers. Most often, farm gate prices remained depressed as a result of this uneven trade.

Trading of abaca fiber was also deemed crude as most (67%) farmers sold hand-stripped fiber “all-in” or unclassified. Although grading/classification of abaca fibers is well established in the industry, this was enforced only at the GBE level (Mascariñas, 2012). This “all-in” farm gate trading was prevalent because farmers were unaware of existing fiber grading system and the attendant appropriate pre-grading procedures. Farmers usually ended up with a trader’s offer price which was lower than what could have been obtained had the fiber been “classified” or graded³. Traders also imposed a shrinkage cost equal to 10-25% per hank (Mascariñas, 2012) to cover any potential losses after the purchase. This is evident of a “moral hazard” ⁴ since the farmers have no means of verifying whether the agents are offering a price lower than the market price. Further reduction in the offer price, reflected as the shrinkage cost, is hardly verifiable.

The interplay of information asymmetry and multi-layer trading, therefore, resulted in very low incentives for and high inefficiency in abaca production and trading. This limited farmers’ access to productive assets and premium markets and hence, made them reluctant and unable to improve production and post-production methods. In which case, low equilibrium trap persisted.

Innovative institutional arrangements

The central thesis that underpins the search for and forging of innovative and appropriate institutional arrangements to address the key challenges facing the abaca supply chain in the Province of Catanduanes draws from the fundamental social and economic functions of institutions elucidated in Section 2.2. The Abaca Supply Chain R&D Project Team realized that among these functions, “coordination (a process encouraging parties to take common or complementary actions necessary to achieve individual goals) and enforcement (an activity conducted to ensure compliance)” (Dorward et al., 2009) are key to restructuring the system that governs abaca production and trading in the province. Three inter-linked innovative institutional arrangements designed by the stakeholders in coordination with the project team are highlighted below.

Business Support Group (BSG)

A moribund umbrella association called the Catanduuanes Abaca Industry Development Board (CAIDB) which functioned originally as a multi-sectoral policy council was revitalized

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¹ A barangay is the smallest administrative division in the Philippines and is the native Filipino term for a village, district or ward.
² Transaction costs incurred along the chain include rent-seeking fees (e.g. bribe and illegal toll fees locally known kotong).
³ Grades I, G, S3, and M1 are priced at Php 45, 40, 25, and 23, respectively, while ungraded fiber commands prices ranging from Php 20 to 30.
⁴ Moral hazard is an asymmetric information problem where the agent’s behavior is not observable by the principal, or if it is observable by the principal, it is not verifiable (Macho-Stadler, 2001). In the case of the abaca trading under study, the farmer is the principal in need of the service of the trader (the agent) in marketing his fibers.
Table 2. Members of the BSG and their roles.

<table>
<thead>
<tr>
<th>Members</th>
<th>Roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provincial Government of Catanduanes</td>
<td>(a) Provide over-all leadership and coordination thru the Provincial Agricultural Services Office; (b) Provide assistance in the conduct of training and reproduction of IEC materials; (c) Provide equipment to the farmers such as stripping device/ machine and other post-harvest support facilities; and (d) Provide other logistic support.</td>
</tr>
<tr>
<td>Local Government Office of Bato</td>
<td>(a) Provide technical backstopping in trainings thru the Office of the Municipal Agriculturist; and (b) Monitor the project within its territorial jurisdiction.</td>
</tr>
<tr>
<td>Bicol University</td>
<td>(a) Provide technical support in the conceptualization, planning and implementation of appropriate interventions; (b) Design and provide expertise in the conduct of training programs; (c) Conduct process documentation and other relevant research in support of project implementation; and (d) Assist in the design of information, education and communication (IEC) materials to showcase and promote the interventions.</td>
</tr>
<tr>
<td>Fiber Industry Development Authority</td>
<td>(a) Provide technical assistance to farmers on the proper culture, management and protection of abaca; (b) Provide training on fiber production, fiber extraction, fiber grading and classification, fiber processing and handicraft making; (c) Provide marketing assistance to abaca farmers; (d) Encourage farmers to use the recommended equipment; (e) Make available information, education and communication (IEC) materials for reproduction.</td>
</tr>
<tr>
<td>Catanduanes State College</td>
<td>(a) Identify the training needs and assist in the conduct of trainings of the abaca farmers; (b) Assist in the design of IEC materials to showcase and promote the interventions; (c) Conduct research in support of the abaca industry; and (d) Assist in the monitoring of the implementation of the interventions to the abaca industry.</td>
</tr>
<tr>
<td>Department of Trade and Industry</td>
<td>(a) Conduct value-adding and market promotion activities for abaca-based products of abaca farmers.</td>
</tr>
<tr>
<td>Department of Science and Technology</td>
<td>(a) Assist in the technology-transfer activities for value-adding of abaca; and (b) Provide assistance in accessing funding assistance for the project.</td>
</tr>
</tbody>
</table>

and transformed into a business support group. Composed of representatives from the local government units (LGUs) state universities and colleges (SUCs) and national (regional) government agencies (NGAs), the “new” CAIDB’s primary role is to ensure the sustainability of other institutional arrangements by performing actively certain functions pertaining to policy making, technical assistance, equipment support, value-adding and market promotion activities, and technology transfer (Table 2).

As a business support group, it provided an institutional environment that facilitated efficient exchange of information, integration of activities for more complementary services, and horizontal and vertical arrangements among abaca players. One of its mechanisms was the stakeholders’ consultation that assessed complementarities among its members’ abaca industry development programs. It helped tremendously in validating and aligning the various abaca projects of member-agencies to the needs of the industry. For instance, the Catanduanes State College (CSC) reoriented their Abaca Development Program to complement the rationale and goals of the Supply Chain project of PCAARRD. Further, the baseline survey of the project helped verify the abaca industry situation of the FIDA.

Through a series of multi-stakeholders’ forums, beneficiaries and other partners were easily identified. These also served as platforms conducive for stakeholders to voice out their concerns. Further, these assisted the CAIDB and the project in identifying entry points for development assistance, performance indicators, and training needs of the farmers. These not only encouraged farmers to participate in the supply chain project but more importantly, influenced the project’s implementation strategies.

The CAIDB was pivotal in establishing horizontal arrangements, i.e., farmers’ cluster, a form collective action (often mentioned in the NIE literature) that arises when people collaborate on joint action and decisions to accomplish an outcome that involves their interests and well-being (Sandler, 1992 in Kirsten, et al., 2009). It assisted the abaca farmers of Buenavista pool their resources to jumpstart and sustain the cluster (as their collective strategy to overcome limited economies of scale and opportunism). It also worked as support mechanism in facilitating farmers’ access to premium markets. For one, it coordinated a series of consultations that laid the grounds for forging a link and in enforcing the relational contract between the cluster and Manila Hemp Trading Corporation (MHTC). Lastly, it facilitated grants to the cluster from the LGU of Bato, e.g., counterpart fund of P60,000 and donation of a tricycle hauler for abaca fiber.

As a business support group, the “new” CAIDB proved to be an innovative institutional arrangement for facilitating exchange among actors of the abaca industry in the Province of Catanduanes. It also paved the way for the succeeding institutional arrangements to take off.

**Farmers’ cluster**

Clustering is a form of horizontal arrangement that organizes farmers into groups within a defined geographical area. It is founded on the concept of community-based enterprise in which members act as a group in exercising ownership and control of the enterprise.

The cluster formed in Buenavista initially involved 29 farmers who have been farming abaca for 28 years, on average. Most (84%) of its farmer-members maintain abaca plants with two harvest cycles per year. It encouraged coordinated actions among farmers to satisfy the fiber buyer’s demand for stable/regular delivery of graded fibers. For instance, it enabled them to coordinate their harvest to deliver sufficient volume of graded fibers on a regular basis. During a six-month period (March to September 2011), it was able to deliver ten times with an average of 682 kilograms per delivery. During the peak season (March to May), average delivery amounted to 737 kilograms while during the lean season (June to September) was 599 kilograms.

Clustering also addressed high (per unit) marketing costs by consolidating larger volume of fiber harvest. This coordinated action minimized...
the marketing cost of fiber per kilogram from 19 centavos in 2009 to only 4 centavos today.

Coordinated action among cluster members was not instantaneous but rather a process of collective learning and unlearning. The members went through a series of capacity building activities such as training on fiber grading and classification, post-harvest methods, bookkeeping and financial management, and business and strategic planning. Value reorientation seminars and entrepreneurship training were also organized to emphasize, among others, the importance of establishing trust and good reputation as prerequisites to relational contracts.

The series of training were supplemented by team building activities, and vision, mission, goal, and objective (VMGO) setting. All these were meant for the members to internalize the essence of collective action and mutual support in achieving the goals of the cluster, and put an end to the opportunistic behavior and free-riding attitude among some members.

Farmer clustering indeed proved to be an effective mechanism in building human capital and instilling behavioral changes. It fostered a sense of proximity and affiliation among the members which in turn, facilitated the efficient transfer of knowledge and helped ensure knowledge acquisition among farmers.

Most importantly, the cluster’s capacity building activities empowered the farmer-members to articulate well their concerns in the appropriate venues organized by CAIDB. What used to be a small, almost unheard voice became unified and recognized by the other important players in the abaca fiber trading business.

**Market linkage and relational contract**

Vertical coordination is a favorable trading scheme between abaca fiber producers and buyers alike. The arrangement is bound by a relational contract that stipulates the expectations from both parties, incentives for fulfilling the expectations, duration, and in some cases, penalties for non-compliance. This may also be referred to as direct market linkage where the presence of intermediaries (e.g. traders) is eliminated thereby minimizing transactions cost along the supply chain.

A market linkage between the Buenavista cluster and Manila Hemp Trading Corporation (MHTC) was forged through a relational contract (Fig. 4). This is an informal agreement that was established as a result of a series of consultation between the two parties with the assistance from the CAIDB.

Forging direct market linkage also acted as a management tool that addressed various risks normally faced by farmers in selling their fiber. Through a relational contract, farmers were assured of market and price. On the other hand, MHTC was assured of a stable supply of graded fibers.

The relational contract contained specific

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15 Includes topics on cleaning and pre-classification of tuxy according to sheaths as well as different grades and technical descriptions (sheath source of each grade, color of fiber, and texture).
16 Farmers are trained with post-harvest activities (cleaning and drying) to ensure that the fibers will be of good quality (e.g. low moisture content and absence of contaminants).
17 Further, price setting is generally transparent, fair and based on accepted norms for grading/classifying fiber.
Table 3. Efficiency analysis of the abaca supply chain before and after establishment of the institutional innovations

<table>
<thead>
<tr>
<th>Supply chain actors/players</th>
<th>Before (\text{a}) (Php/kg)</th>
<th>After (\text{b}) (Php/kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Supply Chain Revenue</td>
<td>30.18</td>
<td>31.30</td>
</tr>
<tr>
<td>Less:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply chain costs:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Farmers:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber Production &amp; marketing costs</td>
<td>4.45</td>
<td>3.84</td>
</tr>
<tr>
<td>Transaction cost</td>
<td>1.08</td>
<td>0.90</td>
</tr>
<tr>
<td>Sub total</td>
<td>5.52</td>
<td>4.73</td>
</tr>
<tr>
<td>Cluster:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber Procurement &amp; marketing costs (including shrinkage)</td>
<td>-</td>
<td>1.88</td>
</tr>
<tr>
<td>Transaction cost</td>
<td>-</td>
<td>0.16</td>
</tr>
<tr>
<td>Sub total</td>
<td>-</td>
<td>2.04</td>
</tr>
<tr>
<td>Barangay Traders:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber Procurement &amp; marketing costs</td>
<td>5.46</td>
<td>-</td>
</tr>
<tr>
<td>Transaction cost</td>
<td>3.02</td>
<td>-</td>
</tr>
<tr>
<td>Sub total</td>
<td>8.48</td>
<td>-</td>
</tr>
<tr>
<td>Municipal Traders:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber Procurement &amp; marketing costs</td>
<td>2.00</td>
<td>-</td>
</tr>
<tr>
<td>Transaction cost</td>
<td>1.95</td>
<td>-</td>
</tr>
<tr>
<td>Sub total</td>
<td>3.95</td>
<td>-</td>
</tr>
<tr>
<td>GBE:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fiber Procurement &amp; marketing costs</td>
<td>6.87</td>
<td>5.54</td>
</tr>
<tr>
<td>Transaction cost</td>
<td>3.02</td>
<td>2.43</td>
</tr>
<tr>
<td>Sub total</td>
<td>9.89</td>
<td>7.97</td>
</tr>
<tr>
<td>Total Supply Chain Costs</td>
<td>27.84</td>
<td>14.75</td>
</tr>
<tr>
<td>Supply Chain Surplus (Profit)</td>
<td>2.34</td>
<td>16.55</td>
</tr>
<tr>
<td>Potential Supply Chain Cost</td>
<td>18.78</td>
<td>11.26</td>
</tr>
<tr>
<td>Profit/Surplus Margin</td>
<td>7.76%</td>
<td>52.88%</td>
</tr>
<tr>
<td>Supply Chain Inefficiency</td>
<td>1.48%</td>
<td>1.31%</td>
</tr>
</tbody>
</table>

Source: NSO (2012)
\(\text{a}\) – Abamo, et al. (2011)
\(\text{b}\) – Mascarinas, et al. (2011)

With direct trading, farm profit per kilogram of fiber increased by 33% (from Php 25 per kg to Php 33 per kg). This was due to the improvement in price of fiber to Php 40-45 per kilogram and the reduction in shrinkage cost by 56%.

Vertical coordination led to open communication between the two parties and hence, facilitated exchange through successful enforcement of contract. A good indicator of success is the repeated transactions mentioned in Section 3.3.2. The relational contracting now present between Buenavista cluster and MHTC terms of trade agreed by both the Buenavista cluster and the MHTC. The terms of trade included the following provisions: (1) all fibers (irrespective of grades) are accepted as long as these are of good quality (i.e., 12-14% moisture content and free of contaminants); (2) no minimum volume is imposed; (3) delivery should be at least once a month; and (4) 50% of the transportation costs is shouldered by MHTC. The relational contract also specified incentive mechanism where an additional Php 3-6 per kilogram will be added to the base price for every kilogram beyond the 500 kilogram-mark.
approximates a trust-based relationship. This epitomizes a relationship that minimizes the cost of transaction, and therefore improves the efficiency of the abaca fiber supply chain.

In the final analysis, these three interlinked institutional arrangements improved the efficiency of the entire abaca supply chain in rural Catanduanes (Table 3). The inefficiency ratio was reduced from 1.48 to 1.31, and thereby, increasing tremendously the margin across the entire chain.

**CONCLUSION**

Implications for addressing development challenges in revitalizing rural economies

Developing countries are not wanting of policy prescriptions and development strategies to revitalize their respective rural economies. These, singly or in combination, seek to address numerous and complex challenges related to economic stagnation confronting most rural areas. Yet the low equilibrium trap phenomenon persisted, driving a wedge further in the living standards between rural and urban dwellers. And rural out-migration commences and eventually, triggers the emergence of various dysfunctional urban consequences.

What the abaca supply chain case highlighted was the need to also frame the analysis of and solutions to inefficiencies in agricultural production and marketing from the perspective of institutions. Appropriate institutional arrangements reinforce technological solutions to low agricultural productivity and specifically, inefficiencies of agricultural supply chains.

Development solutions to rural economic stagnation and poverty also need to be “institutionally informed”. However, given a myriad of institutional arrangements being espoused as effective solutions, the challenge is to search and understand the institutional arrangements that can redound to viable and sustainable economic performance of particular rural communities.

**REFERENCES**


