Strengthening the Linkages between Farmer Producer and Manufacturer in the Coffee Value Chain of Daklak

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Introduction

The agri-food value chain system includes primary production (farming), post-farm production, marketing and distribution services (domestic and international), and eventual recycling (Olga and Andrew, 2009). Actors in value chains are linked in a variety of sourcing and contracting relationships i.e. form of governance (Williamson, 1985 and 1999; Gereffi, et al 2001). There are two perspectives in the concept of governance of developing value chains, which are the transaction (cost) that focuses on the governance of transactions in vertical bilateral coordination between actors (Williamson, 1985 and 1999; Rindfleisch and Heide, 1997); and the power relationship leading to consequences of the distribution of value added (Kaplinsky, 2000). Vertical coordination refers to all possible economic arrangements involved in transferring resources between economic stages. For the most part, stakeholders in different stages of food production coordinate the transfer of inputs and outputs through open production, contract production, quasi-vertical coordination, or vertical integration (Martinez, Reed 1996).

This research work is concerned with ways of linking coffee farmer producers to manufacturer/exporter, and hence into the coffee value chains. Vertical linkages at different levels of the coffee value chain are critical for moving a product or service to the end market. In addition, vertical linkages represent conduits for the transfer of learning, information and technical, financial and business services along the chain (USAID).

Material and Method

Sampling
For this study, a two stage sampling scheme was employed. In the first stage, two districts of Daklak were chosen based on the areas devoted to traditional coffee growing (Krongpak and CuMgar) using purposive sampling (Patton, 2002). The second stage involved the random selection of about 183 coffee growers who planted Robusta, the most common kind of coffee in production and trading.

Data
Primary Data
Primary data was gathered through extended fieldwork incorporating a combination of interviews and observation. In-depth semi-structured interviews was conducted with coffee producers, local trader cooperative, and manufacturer/exporter between May 2016 and October 2016. Interviews contained a limited number of set, closed questions, designed to elicit basic quantitative data, and a range of open-ended questions guided by a checklist of discussion topics.

Secondary Data
Secondary data from statistical materials, research papers and government documents was also collected in this study. The data on production, area planted and yield in Daklak was collected and compiled partly from the survey in 2016. Moreover, officials of Vietnamese coffee companies and associations, owners of processing facilities and government officials with work related to coffee industry were consulted for the in views on overall problems of coffee sector.

The Pearson's chi-square test was employed to assess the statistical significance of farmer responses across the study sites.

Results

The vertical linkages are typically based on a written contract, which defines coordination activities between both parties to guarantee the production outcome, purchasing price, time delivery, payment method, and both parties' responsibility for risk in production and market price fluctuation.

According to different coordination in coffee production activities, there are three types of linkage. They are type 1 "informal model", type 2 "intermediary model", and type 3 "nucleus estate model". Results provided evidence that type 2&3 are more preferred as they are reaching higher rate of agreement. Contract compliance are also higher in type 2&3.

The most common benefits from coordination between coffee farmer and manufacturer/exporter are credit loan opportunities (24 %), risk management (36%), higher adaptation to climate change (34%), increased productivity (37.2%), and agricultural knowledge attainment (40%). The pricing disagreement (37.7%), capital shortage (35%), water scarcity (65.6%), small scale production (65%), lack of collective action in quality control (52%), and obsolete local infrastructure (71%) have still been the problems and crucial challenges for coffee farmer in order to secure their participation in this sector.

Fig 1. The coffee value chain of Daklak
(own observation)

Conclusion

Vertical linkages between farmers and agribusiness firms allow improved financing, risk-sharing, knowledge transferring process as well as market access. Moreover, quality control and contract compliance (causing price disagreement) are also needed in order to secure trust between farmers and firms in cooperation. If the manufacturers/exporters are really getting a large share of the benefit generated by coffee products by taking advantage of farmers' weak bargaining power, arranging production activities through farmers' groups can help considerably to overcome this problem.
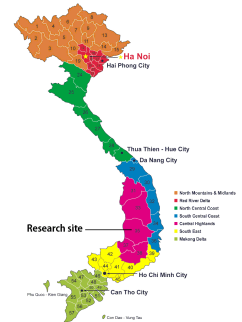

Table 1. Farmer characteristic

Categories	N	Minimum	Maximum	Mean	Std. Deviation
Age	183	20.0	67.0	44.601	10.0345
Ethnic group	183	1.0	2.0	1.240	.4285
Education	183	.0	3.0	2.230	.7499
Total member	183	2.0	13.0	4.754	1.3300
Total labor	183	1.0	7.0	2.579	1.0499
Male labor	183	1.0	5.0	1.995	1.0027
Total land	183	.300	7.500	1.55958	.877479
Coffee land	183	.300	7.500	1.47215	.824629
SCP land	183	.300	4.000	1.39456	.641211
SCP experience	183	1987.0	2014.0	2006.705	4.7810
Certificate	183	1.0	4.0	2.705	1.0379
Capital	183	5000.0	130000.0	51923.770	23080.82

Source: survey 2016

Table 2. Contract attributes and compliance

Categories	Type 1 (n=47)	Type 2 (n=60)	Type 3 (n=76)	Total (N=183)	χ²	P-value
Length of contract						
Short term (1crop)	18 (9.8)	19 (10.4)	40 (21.9)	77 (42.1)	6.417	0.040
Long term	29 (15.8)	41 (22.4)	36 (19.7)	106 (57.9)	6.417	0.040
Provision of input	8 (4.4)	21 (11.5)	38 (20.8)	67 (36.6)	13.709	0.001
Extension advice	23 (12.6)	42 (23.0)	51 (27.9)	116 (63.4)	5.813	0.055
Agreement						
on procurement quantity	14 (7.7)	32 (17.5)	43 (23.5)	89 (48.6)	9.134	0.010
on price	11 (6.0)	23 (12.6)	31 (16.9)	65 (35.5)	4.141	0.126
on quality	11 (6.0)	31 (16.9)	41 (22.4)	83 (45.4)	12.366	0.002
Procurement						
at farm	19 (10.4)	6 (3.3)	11 (6.0)	36 (17.9)	17.662	0.000
at procurement point	28 (15.3)	54 (29.5)	65 (35.5)	147 (80.3)	17.662	0.000
Quality control						
during the production	39 (21.3)	34 (18.6)	50 (27.3)	123 (67.2)	8.399	0.015
at the harvest	8 (4.4)	26 (14.2)	26 (14.2)	60 (32.8)	8.399	0.015

Source: survey 2016

Table 3. Benefits from coordination

Categories	Type 1 (n=47)	Type 2 (n=60)	Type 3 (n=76)	Total (N=183)	χ²	P-value
Credit	3 (1.6)	19 (10.4)	22 (12.0)	44 (24.0)	10.937	0.004
Productivity	12 (6.6)	29 (15.8)	27 (14.8)	68 (37.2)	6.016	0.049
Risk management	13 (7.1)	28 (15.3)	25 (13.7)	66 (36.1)	4.696	0.096
Adaptation	6 (3.3)	22 (12.0)	34 (18.6)	62 (33.9)	13.560	0.001
Knowledge attainment	9 (4.9)	28 (15.3)	37 (20.2)	74 (40.4)	11.956	0.003
Market infos and access	16 (8.7)	17 (9.3)	7 (3.8)	40 (21.9)	12.676	0.002

Source: survey 2016

Table 4. Problems and constraints

Categories	Type 1 (n=47)	Type 2 (n=60)	Type 3 (n=76)	Total (N=183)	χ²	P-value
Difficult practice to adopt	4 (2.2)	6 (3.3)	15 (8.2)	25 (17.3)	4.117	0.128
Pricing disagreement	14 (7.7)	27 (14.8)	28 (15.3)	69 (37.7)	2.638	0.267
Capital shortage	8 (4.4)	26 (14.2)	30 (16.4)	64 (35.0)	9.181	0.010
Lack of collective action	26 (14.2)	39 (21.3)	31 (16.9)	96 (52.5)	8.088	0.018
Small production scale	35 (19.1)	36 (19.7)	48 (26.2)	119 (65.0)	2.626	0.269
Water scarcity	38 (20.8)	43 (23.5)	39 (21.3)	120 (65.6)	12.690	0.002
Infrastructure	37 (20.2)	39 (21.3)	54 (29.5)	130 (71.0)	2.413	0.299

Source: survey 2016

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