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STUDY THE CONTRIBUTIONS OF AGENTS TO THE RICE VALUE CHAIN OF VIETNAM

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Abstract

This study was designed to analyze the contribution of agents to the rice value chain of Vietnam and to propose solutions for improving the competitiveness of Vietnam's rice industry. For this, a descriptive research design was adopted. The data was collected from agents participating in the rice value chain (farmers, traders, millers, food companies, and retailers) through standardized questionnaires. The research findings from this study would form the basis for proposing solutions to develop VietNamese rice.

Keywords: Value chain, Rice industry, Competitiveness, Vietnam

INTRODUCTION

In recent years, our country's agricultural production has achieved outstanding achievements, including the rice industry. Vietnam's rice always ranks high in the world. Currently, Vietnamese rice has been exported to 135 countries and territories around the world; and for the first time, Vietnam surpassed Thailand to become the world's leading rice exporter. However, at present, the rice industry is still facing many challenges and competition in both domestic and international markets. Besides, the degree of integration of Vietnam increasingly deep and wide, bilateral and multilateral agreements signed and implemented will open up great opportunities for Vietnam's rice industry to penetrate difficult markets such as the US, Japan, and the EU...But there will also be challenges such as concerns about quality, food safety and product positioning on the market of countries, technical barriers in developed countries. This study was

conducted to analyze the contribution of agents in the rice value chain, through making recommendations to contribute to improving rice capacity of Vietnam.

RESEARCH METHODOLOGY

A descriptive research design was adopted. The study population comprised of agents participating in the rice value chain (farmers, traders, millers, food companies, and retailers). Primary data were collected through direct interviews with questionnaires for 350 actors involved in the rice value chain. After filtering unreliable observations, 329 observations were left (good response rate is 94%), namely:

Table 1: Survey sample statistics

No.	Research areas	Number of observations	Structure
1	The North region (Red river delta)	119	36,2%
2	The South region (Mekong Delta)	121	36,8%
3	The Central region (Central Coast)	89	27,0%
Total		329	100%

Source: Survey results from 329 rice farmers in Vietnam

Based on that analysis, the author calculates the contributions of actors in Vietnam's rice value chain.

ANALYSIS AND FINDINGS

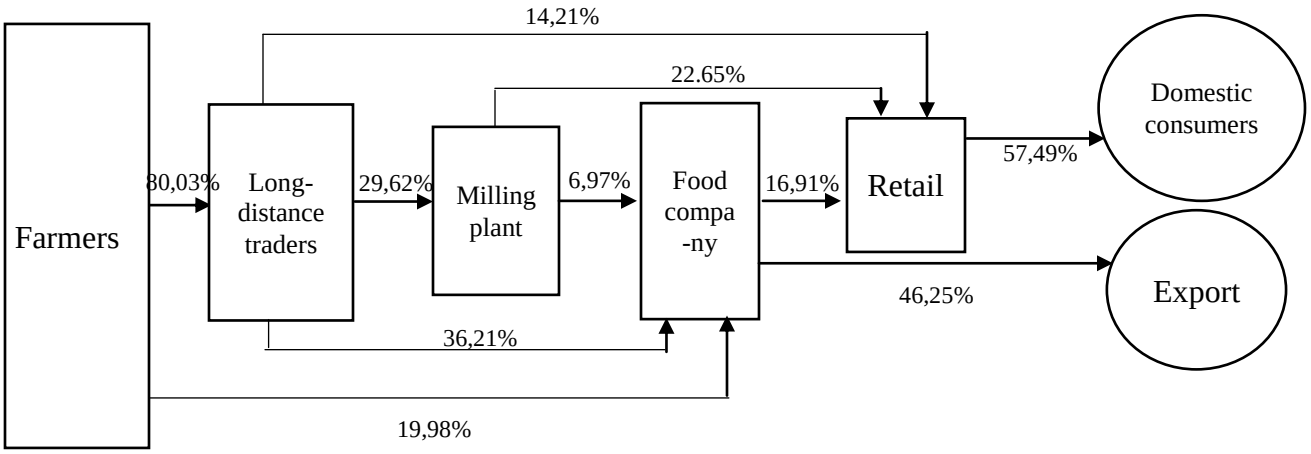

Figure 1: Schematic diagram of rice value chain nationwide

Production costs, revenue,value-added and net value added of rice farming households

According to the primary data from the survey results, in 2018, nationwide farmers produced rice in the winter-spring and summer-autumn seasons. Accordingly, the cost accounting, determining the profits of producers are also calculated based on the investment costs in these two seasons. Costs of rice production by households can be divided into Intermediational Cost (CPTG) and Incremental Cost(CPTT) ..

Intermediation costs are defined as expenses used to purchase imported elements in production activities, including seed costs, pesticide costs, fertilizer costs, fuel costs,... Intermediation costs per kilogram of rice of farmers in Summer-Autumn crop were 2,420.49 VND/kg higher than Winter-Spring crop is 2,333.54 VND/kg. In two seasons, fertilizer cost accounted for the highest proportion in the intermediation cost structure, the proportion of this cost decreased gradually from Winter-Spring crop (accounting for 26.13%) to the Summer-Autumn crop (accounting for 25.28%).

In terms of incremental cost, in Winter-Spring crop, to produce 1 kg of rice, farmers have to spend about 1,380.52 VND/kg in Winter-Spring crop and Summer-Autumn crop of 1,849.36 VND/kg, this is an additional cost to the household's production, which includes: cost of family labour, hired labour costs, machine rental expenses, machinery depreciation costs, which rental costs accounted for the highest proportion in both seasons respectively 15.74% and 18.16%. This figure is consistent with the assessment of many farmers, the weather conditions in the Winter-Spring crop are always more favourable than the Summer-Autumn crop so the cost of the Winter-Spring crop is always lower than that of the Summer-Autumn season.

Table 2: Revenue and rice production costs of farmers

Items	Winter-spring crop		Summer-autumn crop	
	Average	Density	Average	Density
Intermediational Cost	**2.333,54**	**62,83**	**2.420,49**	**56,69**
Seed costs	538,50	14,50	463,12	10,85
Costs of plant protection drug	770,84	20,75	815,09	19,09
Fertilizer costs	970,49	26,13	1.079,57	25,28
Fuel costs	53,72	1,45	62,71	1,47
Incremental Cost	**1.380,52**	**37,17**	**1.849,36**	**43,31**
Hired labour costs	434,85	11,71	608,75	14,26
Machinery rental expenses	584,62	15,74	775,28	18,16
Cost of family labour	315,37	8,49	408,33	9,56
Machinery depreciation costs	45,68	1,23	57,01	1,34

Total Cost (CPTG+CPTT)	**3.714,06**	**100,00**	**4.269,85**	**100,00**
Revenue	6.872,63		6.178,32	
GTGT (Revenue – CPTG)	4.539,09		3.757,83	
GTGTT (GTGT-CPTT)	3.158,57		1.908,47	

The analysis results in Table 2 also show that, the value-added (VAT) of households generated in the Winter-Spring crop (4,539.09 VND/kg) is higher than the Summer-Autumn crop (3,757.83 VND/kg) as 781.26 VND / kg, whereby the net added value (VAT) of the Winter-Spring crop (3,158.57 VND/kg) is also higher than that of the Summer-Autumn crop (1,908.47 VND/kg) of 1250, 1 dong/kg.

Describe the rice value chain

Based on the proportion of product distribution to the output objects of each factor, the nationwide rice value chain diagram is formed that includes many factors directly involved with functions such as inputs (Seedling agent, agricultural supplies), production (farmer), traders (long-distance traders), processing (millers), trade (enterprises, retailers) and consumption in and foreign. Besides, the value chain also has the presence of supporting agents such as local agricultural extension, credit institutions, local governments, related departments and sectors.

Table 5: Distribution of output through the agents in the value chain

Agent (A)	Subjects selling output products of A	Proportion of output distributed to the objects (%) *	The corresponding ratio in the value chain (%) **
Farmers (100%)	Long-distance traders	80,03	80,03
	Enterprise	19,98	19,98
	Total	100,00	100,00
Long-distance traders	Milling plant	37,01	29,62
	Enterprise	45,24	36,21
	Retail	17,75	14,21
	Total	100,00	80,03
Milling plant	Enterprise	23,54	6,97
	Retail	76,46	22,65
	Total	100,00	29,62
Food companies	Retailers	26,78	16,91
	Export	73,22	46,25
	Total	100,00	63,16

Retails	Domestic consumers	100,00	57,49
Consumers (100%)	Total domestic consumption	57,49	100,00
	Total export consumption	42,51	

Note: * The share of output distribution output is calculated based on the following formula:

$$\%\ distribution\ of\ agent\ A\ for\ output\ agent\ ith = \frac{output\ sold\ for\ the\ agent\ ith}{The\ total\ output\ of\ the\ input\ of\ the\ agent\ A} * 100\%$$

** The corresponding ratio in the value chain is the percentage (%) of the rice flow consumed through the agents calculated based on the total ratio of input rice from the previous factors (except farmers) with a weight of products sold by each agent.

Table 3 shows that the rate of product flow at the input agent of the chain (farmer) and the output of the chain (consumers) is always guaranteed to be 100% of the output of the whole chain. At the time of research, the country's rice products are consumed in both domestic and export markets, which the total rice consumption in the domestic market accounts for about 57.49%, exports account for up to 42.51% with markets like Philippines, Malaysia, USA, Australia.

The results in Figure 1 show that the rice value chain is operated through many market channels, but there are 4 main market channels that transference large rice output and create high added value for the whole chain. Specifically:

Channel 1: Farmers => Long-term traders => Food companies => Exports. This channel includes 4 participants to help distribute large product flow and plays an important role in the export market, accounting for 36.21% of the whole rice production. After harvesting, farmers sell most of the output to long-distance traders (80.03%), then the product will be dried and milling into rough rice to resell to food companies in the city. Can Tho Street, namely Song Hau Food Company. Next, the company continues to put polished rough rice into finished rice and export to foreign markets (Philippines, Malaysia, USA, Australia ...)

Channel 2: Farmers => Long-term traders => Millers => Retail => Consumers. This is the domestic market channel, accounting for 29.62% of the total rice production in the chain. After buying rice from farmers, in addition to selling to food companies, traders also distribute rice to millers (29.62%). The mill will mill and polish into finished rice and redistribute it to local and external retailers. In the end, the retail agent is the target of redistributing all purchased products to the final consumers (accounting for 22.65%).

Channel 3: Farmers => Long-term traders => Retail => Consumers. Similar to channels 1 and 2, however, in this channel, besides selling products to food companies and millers, long-

term traders also sell rice to retail agents to redistribute to consumers. This is the domestic market channel, accounting for 22.65% of the total rice production in the chain.

Channel 4: Farmers => Food companies => Exports. This is the consumption channel with an important role in the export market. The survey showed that 19.98% of rice production sold by farmers to food companies, then food companies conducting milling and polishing created the finished rice and exported to markets in the Philippines, Malaysia, USA, Australia,...

Value-added and net value added of agents participating in the rice value chain

Among the agents participating in the main market channel, each agent will create different value-added (GTGT) and receive different net value added (GTGTT). According to the survey results, the distribution of value-added and net value added of agents in the main market channels of the rice value chain is presented in detail in Table 4.

Table 4: Value-added and net added value of actors in the main market channels of the rice value chain

Calculation unit: VND / kg

Items	Farmers	Traders	Factory	Food company	Retailer	Total
Channel 1: Farmers - Traders - Food companies - Exporters						
1. Saleprice	5725.04	7115.74		8832.11		21672.89
2. CPTG	2368.23	5725.04		6917.15		15010.42
3. GTGT	3356.81	1390.70		1914.96		6662.47
4. CPTT	1593.62	558.12		1825.31		3977.05
5. GTGTT	1763.19	832.58		89.65		2685.42
6. %GTGTT	65.66	31.00		3.34		100.00
Channel 2: Farmers - Traders - Factories - Retail - Consumers						
1. Saleprice	5725.04	6913.75	8846.79		9678.24	31163.82
2. CPTG	2368.23	5725.04	6913.75		8706.15	23713.17
3. GTGT	3356.81	1188.71	1933.04		972.09	7450.65
4. CPTT	1593.62	696.80	970.21		475.92	3736.55
5. GTGTT	1763.19	491.91	962.83		496.17	3714.10
6. %GTGTT	47.47	13.24	25.92		13.36	100.00
Channel 3: Farmers - Traders - Retail - Domestic consumers						
1. Saleprice	5725.04	8703.17			9678.24	24106.45
2. CPTG	2368.23	5725.04			8706.15	16799.42

3. GTGT	3356.81	2978.13	972.09	7307.03
4. CPTT	1593.62	852.10	475.92	2921.64
5. GTGTT	1763.19	2126.03	496.17	4385.39
6. %GTGTT	40.21	48.48	11.31	100.00
Channel 4: Farmers - Food companies - Exports				
1. Saleprice	6627.17	8832.11		15459.28
2. CPTG	2368.23	6917.15		9285.38
3. GTGT	4258.94	1914.96		6173.90
4. CPTT	1593.62	1825.31		3418.93
5. GTGTT	2665.32	89.65		2754.97
6. %GTGTT	96.75	3.25		100.00

Note: (3) = (1) – (2); (5) = (3) – (4); (6) = (5)/$\Sigma GTGTT$

The results in Table 4 show that farmers are the factors that are always highly appreciated for the contribution of value-added throughout the chain. Value added by farmers in the market channels is quite high, ranging from 3356.81 to 4258.94 VND/kg. In the fourth channel (sold to food companies), the farmer generated the highest value-added of 4258.94 VND/kg and received the highest net value added of 2665.32 VND/kg of rice, accordingly, the percentage of net value-added distribution of the farmer in the fourth channel is the highest, accounting for 96.75%. In the remaining channels (sold to traders), the value added by households was 3356.81 and the net value added received was 1763.19 VND/kg lower than the fourth channel.

Long-distance traders: It is an important product distribution agent for both domestic and export markets, helping to consume about 80.03% of the rice output of households. Traders are agents that distribute rice to many factors in the value chain, whereby the added value that this factor creates ranges from 1188.71 - 2978.13 VND/kg, corresponding to the net added value received as from 491.91 - 2126.03 VND / kg of rice. Channel 3 is the channel of traders that creates the highest added value and receives the highest net added value, the distribution of the net added value of traders in the channel is the highest, accounting for 48.48%. Meanwhile, in the second channel, traders generate the lowest added value of 1188.71 VND/kg, instead of milling into rice and selling; traders only sell dry rice to the mill and receive only the net value-added distribution is 13.24%.

Milling plant: As a factor associated in processing and present in the 2nd channel. After buying the dried rice from traders, the mills conduct milling and polishing to make the finished rice and redistribute it to the retail agent. The value-added generated by the mill in this channel was 1933.04 VND/kg but due to the high loss cost, the net added value was only 962.83 VND/kg

and the value-added distribution ratio that the net received by milling mills in the channel is 25.92%.

Food companies: In channels 1 and 4, the food companies are the agents that contribute to the value-added of products through milling and polishing. Since then, the finished rice has achieved export quality. The value-added the company created on channel 1 was 1914.96 VND/kg and received a net added value of 89.65 VND/kg. Accordingly, net value-added distribution ratio of food companies in the channels is very low with rate at channel 1 of 3.34% and channel 4 of 3.25%.

Retail: In the domestic market, retail is the agent that brings rice products to the final consumers. This factor is present in channels 2 and 3 of the value chain. Accordingly, the value-added created by the retail agent in the channels is 972.09 VND/kg and the corresponding net value added is 496.17 VND/kg of rice. The rate of distribution of the net value added of retail in channel 2 is 13.36% and in the third channel is 11.31%.

Summary, according to an analysis of the distribution of value-added, the net value added of factors through 4 market channels shows that the 2nd and 3rd market channels are two channels with value-added and net value-added highest. However, the distribution of benefits of the factors in the channel is not equal, in particular, in the first channel, the households who receive the most benefits; the net added value is up to 65.66%. The distribution of benefits among factors in channel 3 is beneficial for rice growers and traders with the distribution ratio of two agents of 40.21% and 48.48%, respectively. In channel 1, although the value-added generated by the actors is quite high, the net added value is the lowest compared to the remaining channels, reaching only VND 2685.42 / kg of added value. Market channel 4, although the added value and net added value are still low compared to 2 and 3 market channels, in this market channel, there is much potential for development. This is the market channel generating the most profits for farmers compared to the remaining market channels, creating conditions to increase income for rice farmers.

RECOMMENDATIONS

To improve the competitiveness of Vietnam's rice industry, from the research findings, the author proposes some recommendations as follows:

First, the government needs to open more training courses on rice caring techniques for people to help them access more modern techniques.

Secondly, for households, they also need to access to market requirements for rice products.

Thirdly, households also need to improve their professional knowledge and techniques to respond.

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