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Effects of Vietnamese Rice Price Controls Policy on Competition with Thailand
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INTRODUCTION

Vietnam and Thailand are the two top rice exporters who contribute around 50% of market shares in the international market. Therefore, any changes in their rice policies have a strong influence on the world market.

Currently, the strongest and most frequent impact on the Vietnamese rice industry is the Price Controls Policy that regulates the competition in the rice market. It restricts the volume of export rice in order to ensure national food security. In terms of economic efficiency, this policy keeps Vietnamese rice production under its full potential compared with the Thai rice industry. Many experts suggest that Vietnam puts more attention on national food security than necessary. This causes market distortion and weakens the Vietnamese competition with Thailand. Therefore, the authors will analyze the Vietnamese rice industry and the international rice markets in order to examine the impacts of Price Controls Policy on rice markets by observing changes in trade flows when applying different Price Controls Policy on Vietnamese rice. Furthermore, we find out which region has an advantage in exporting rice and enrich the policy maker's information set in evaluating the previous and future policies.

METHODOLOGY AND MATERIAL

In order to examine the effects of Price Controls Policy on the Viet rice, the Thai rice and the global rice market, the authors build and run a spatial equilibrium model. Due to the different characteristics of the rice production, Vietnam is divided into 3 geographical regions that are the North, the Center and the South. Thus, along with Thailand and the Rest of the World (R.O.W), there are 5 different geographical regions in the model. The data was collected in 2010 from various sources such as United State Department of Agriculture, Vietnamese General Statistics Office, Vietnamese Ministry of Rural Development and Agriculture, Vietnamese Food Association and Food and Agriculture Organization.

We assume 3 different scenarios in response if the price of export rice is changed as below:

- (1) Export price changed every week; corresponding export volume is 5 million tonnes,
- (2) Export price changed every month; corresponding export volume is 6 million tonnes,
- (3) Export price changed every three months; corresponding export volume is 8 million tonnes or more

The full constrained maximization problem is developed and can be written by MacAulay (2008):

Objective function :

$$NSR = p'_y Y - p'_x X - T'X$$

Subject to 3 conditions:

Firstly, supply and demand must be hold:

$$\begin{array}{ll} p_m \leq \lambda_m - \omega_{mn} y_m & \text{OR} \quad -\omega_{mn} y_m - p_m \leq -\lambda_m \quad (m=1;5 \text{ and } n=1 ;5 \text{ and } i=0 ;4) \\ p_m \leq v_m + \eta_{mn} x_m & \text{OR} \quad -\eta_{mn} x_m + p_m \leq v_m \end{array}$$

Secondly, supply and demand quantity must be balanced:

$$y_1 \leq \sum x_{(n+i)m} \quad \text{or} \quad y_m - \sum x_{(n+i)m} \leq 0$$

$$x_m \geq \sum x_{m(n+i)} \quad \text{or} \quad -x_m + \sum x_{m(n+i)} \leq 0$$

Thirdly, prices are related between markets taking into account the transfer cost to meet the condition of perfect competition (Samuelson, 1952)

$$p_m - p^m \leq 0$$

$$p_m - p^n \leq t_{mn}$$

RESULTS AND DISCUSSION

With known production, consumption, domestic price, transportation cost and elasticities of demand and supply function of the Vietnamese and the Thai rice industry, the model was solved by SOLVER in MS Excel. Three experiments were implemented by adjusting the Vietnamese rice export volume to 5 million tonnes, 6 million tonnes and 8 million tonnes to represent the alternative situations.

The results from scenario 1 and 2 are quite similar showing the Vietnamese export rice amount of 5 million tonnes and 6 million tonnes respectively which is much smaller than Vietnam's rice surplus. Therefore we will look at the results from scenario 3 to see what will happen if the price of rice is hardly changed, only 4 times per year.

Overall effects

The overall impacts of the policy on rice production are shown in table 1. The revenue for Vietnamese producers is about 243.513 billion VND. It is 20.519 billion VND higher than the revenue for Thai producers since the rice production in the three regions of Vietnam is greater than that in Thailand. However, in the scenario 2 the rice export volume of Vietnam is just 6 million tonnes which is almost half of the export volume of Thailand of 10.9 million tonnes. This reflects Thai rice's competitive power in terms of export quantity even though the Thai rice price is still higher than the Vietnamese rice price.

The Vietnamese Price Controls Policy has negligible effects on the world production and consumption resulting in a rise by 0.0043 per cent each and 0.02 per cent respectively. Nevertheless, the higher level of Vietnamese rice exports pushes the world rice price down by 0.02 per cent

Moreover, with the shadow price of the policy equal to zero in scenario 3, the less controlling on rice price contributes to clearing of the trade flow in any black markets which would occur in the case of scenario 1 and 2 which is associated with a shadow price of 45.56 VND/kg. This reflects the benefits to be obtained by more flexible on price of rice policy.

Table 1: The overall effects of price controls policy

		Scenario 1	Scenario 2	Scenario 3	Changes	
		(1)	(2)	(3)	(2)/(1)	(3)/(2)
Rice export of VN	000 tonnes	5,000	6,000	7,221	20	20.35
Rice export of Thailand	000 tonnes	11,912	10,912	10,545	-8.4	-3.35
Vietnamese rice price	VND/kg	8,398	8,398	8,441	0	0.52
Thai rice price	VND/kg	8,446	8,446	8,444	0	-0.02
World rice price	VND/kg	8,813.5	8813.5	8,811	0	-0.02
Shadow price	VND/kg	45.56	45.56	0	-	-
World rice consumption	000 tonnes	507,253	507,253	507,359	0	0.02
World rice production	000 tonnes	544,537	544,537	544,559	0	0.004
Rice production in VN	000 tonnes	27,792	27,792	27,839	0	0.17
Rice production in Thailand	000 tonnes	26,403	26,403	26,402	0	-0.01
Vietnamese consumption	000 tonnes	21,430	21,430	21,344	0	-0.40
Thai producer revenue	VND mill.	222,994	222,994	222,926	0	-0.03
VN producer revenue	VND mill.	243,513	243,513	245,127	0	0.66

Source: Results of the Spatial Equilibrium Model

Trade flows

The detailed trade flows among the five regions are given in Table 2 in the case of scenario 3. The North and Central are two deficit areas being able to produce 6.882 million tonnes and 5.014 million tonnes respectively, whereas the South is a surplus region and ships 504 thousand tonnes to the North along with exports of 7,221 million tonnes into foreign markets. 726 thousand tonnes of rice from the rest of the world will be shipped to the Central region to meet its demand. In Thailand, the total supply of 26.402 million tonnes, 15.856 million tonnes of rice are for domestic consumption and the rest is reserved for export.

Table 2: Trade flows (thousand tonnes)

From/To	North	Central	South	Thailand	R.O.W	Total supply
North	6,882	0	0	0	0	6,882
Central	0	5,014	0	0	0	5,014
South	504	0	8,218	0	7,221	15,943
Thailand	0	0	0	15,856	10,545	26,402
R.O.W	0	726	0	0	489,592	490,319
Total demand	7,386	5,740	8,218	15,856	507,359	544,559

Source: Results of the Spatial Equilibrium Model – Scenario 3

Effects on Thai rice

As can be shown in table 3, it is easy to see a fall in Thai rice by 0.02 per cent in price and 3.55 per cent in export amount. The producer's revenue therefore falls slightly by 0.03 per cent equivalent to \$US3.6 million.

Table 3: Effects on Thai rice

	Change(+/-)	Change(%)
Export volume (million tonnes)	-366	-3.35
Rice price (VND/kg)	-2	-0.02
Rice production (million tonnes)	-1.67	-0.01
Producer revenue (\$US million)	-3.60	-0.03

Source: Results of the Spatial Equilibrium Model

Regional effects in Vietnam

The model results thus provide a demonstration that by less control on the rice price this would cause a negligible rise in the domestic prices by an addition of 44 VND per kg in each region. However it is not the same in the percentage changes with the highest increase in the South (0.52 per cent) and the smallest increase in the North (0.46 per cent)

Table 4: Regional effects in Vietnam

	Scenario 1 and 2	Scenario 3	Change	
			+/-	%
Rice price in the North (VND/kg)	9,490	9,534	44	0.46
Rice price in the Central (VND/kg)	8,919	8,963	44	0.49
Rice price in the South (VND/kg)	8,398	8,441	44	0.52
Rice producer revenue (\$US bill.)	243,513	245,127	1,613	0.66
Shadow price (VND/tonne)	45.56	0		

Source: Results of the Spatial Equilibrium Model

Comparison between Vietnam and Thailand

The significant changes between Vietnamese and Thai rice are indicated in Table 6. The Vietnamese rice price is 47.8 VND/kg less than the Thai rice price in scenario 2. However, the result suggests that the Vietnamese rice price increases 43.1 VND/kg as a result of less controls on rice price and is now only 3 VND/kg less than the Thai rice price. It is obvious that the dual effects of increased output and price of Vietnamese rice and decreased output and price of Thai rice places encourages a comparative advantage for Vietnamese rice

Table 6: Comparison of rice price between Vietnam and Thailand (VND/kg)

	Vietnam	Thailand	Compare
Scenario 2	8,397.9	8,445.7	-47.8
Scenario 3	8441	8444	-3
Change	43.1	-1.7	

Source: Results of the Spatial Equilibrium Model

CONCLUSION AND OUTLOOK

The less control on export rice price, the more benefit on the Vietnamese economy and the more competitive for the Vietnamese rice in the international markets without having negative effects on the national food security goal.

The rice price will increase in two domestic markets but contrary to the international market.

The direct beneficiaries are the rice farmers, accounting for more than 70% of the population, and the rice export enterprises while the losers could be the urban poor and rural householders who do not farm rice due to higher domestic price of rice. However, the extra revenue of 1613 million VND could be a source of compensation to the losers

The effects of price controls policy are quite small on its competitor, the Thai rice industry, and the consumption and production effects on the rest of the world are also small

The noticeable point is that within the Vietnamese rice industry, scenario 3 could raise the volume of rice exports to 7.221 million tonnes (that is, by 20.35 per cent compared with the case of controlling export price of rice every month)

Although there are factors not included in the model, it does expose a relatively accurate picture of the effects of Price Control Policy from Vietnam on its rice production and a competitor's rice production, such as Thailand. From this it is possible to see how Vietnamese rice competes with Thai rice. From the results gained through the spatial equilibrium model, the volume of Vietnamese rice exports is larger than it was and the Vietnamese rice prices would be raised. It is clear that the less control on rice price until relaxation, the more the comparative advantage of Vietnamese rice. However, the Vietnamese rice industry also needs other more appropriate policies to be able get stable and sustainable growth.

It is important to recognise that these results are not predictions for rice production as a whole, but in order to predict there is a need to combine other factors such as policies of other countries, the global economic context, the weather conditions, infrastructure and the other crops. The simulations are therefore designed to show the effects of a change in Price Controls Policy when all other factors are held constant and to examine consequences for the endogenous variables within the model. However, the authors highly recommend that the export price of rice should be adjusted at least in every 3 months or more for a better competitiveness of Vietnamese rice as a world.

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