

MARKETING CONSTRAINTS ON RICE EXPORTS FROM VIET NAM

by

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ABSTRACT

The paper describes the spectacular growth of rice exports from Viet Nam during the period 1989 to 1997. From a situation of food shortages, the country is now the second largest rice exporter after Thailand. Export projections indicate that there is potential for further export growth in all but the most pessimistic scenarios. This potential is constrained, however, by the relatively underdeveloped marketing system. A few large state enterprises have access to capital and export licenses, but private traders and millers are generally small and medium enterprises with limited credit and no legal access to world markets. Recent policy changes to promote internal trade liberalization and competition between central and provincial state enterprises are encouraging, but need to be extended to allow private traders to export.

1. INTRODUCTION

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After decades of importing rice and following severe food shortages in 1987-88, Viet Nam exported 1.4 million tons of rice in 1989. At the time, this was considered a government intervention to dispose of public stocks and to generate needed foreign exchange during a time when foreign assistance from the Soviet Union was disappearing. Few observers could have predicted that Viet Nam would not only continue to export rice, but that exports would grow steadily, surpassing 3 million tons in 1996.

The most important factor behind this growth is the liberalization policies implemented in the late 1980s. Although the outlines of the *doi moi* (renovation) policies were approved by the Politburo in 1986, the first concrete measure was the partial dismantling of the system of collectivized agriculture in 1988, followed over the next few years by reforms to liberalize international trade, promote foreign investment, and decontrol prices and interest rates (Irwin, 1995; Plummer, 1995).

After an initial burst of inflation, the economy responded strongly to these reforms. Since 1991, annual real GDP growth has been 6-10 percent. The agricultural sector has also accelerated, growing 5.1 percent per year over 1988-1995 compared to just 2.8 percent per year over 1960-1987. This is an important achievement for a country with 80 percent of its population living in rural areas. Rice is the most important subsector in agriculture and has benefitted from policies to stimulate exports. Over 1989-1996, rice production grew 4.8 percent per year and rice exports grew 11 percent per year, allowing Viet Nam to become the third largest exporter in the world (Viet Nam, 1996).

Viet Nam may soon challenge Thailand as the largest rice exporter in the world, although this outcome is not inevitable. There are serious constraints to further expansion of the market share of Vietnamese rice exports, mainly related to marketing. Recent policy changes in March 1997 promoting internal trade liberalization and competition between central and provincial state enterprises have moved in the right direction, but further changes are needed to allow private enterprises access to world markets.

The objective of this paper is to evaluate the constraints to expanding rice exports from Viet Nam and the role that private traders and millers could play in this process. The paper is organized into seven sections. Section 2 describes the pattern of growth of rice production and exports. Section 3 looks at the potential of rice exports from Viet Nam. Section 4 analyzes the structure of the rice marketing system and its performance. Section 5 considers the policy, institutional, and infrastructure constraints to increased rice exports. Section 6 presents recent policy changes that address some of these constraints. Section 7 gives the conclusions.

2. PATTERNS OF GROWTH

The importance of rice in Viet Nam can hardly be exaggerated. Rice accounts for 64 percent of the planted area and is grown by 84 percent of the rural households. In terms of food consumption, rice contributes about three quarters of the calories in a typical Vietnamese family's diet (Viet Nam, 1996 and data from the Viet Nam Living Standards Survey).

The impressive growth of Vietnamese rice exports, from 1.4 million tons in 1989 to over 3 million tons in 1996, has been the result of favorable domestic and world market conditions. On the domestic side, Resolution 10 in 1988 allowed farmers to own agricultural equipment and large livestock, allocated cooperative land to farmers on long-term leases, and allowed farmers to sell their surpluses on the free market. In 1989, trade liberalization and devaluation in 1989 greatly improved the incentives for producing goods, including rice, for export. And Resolution 5 of 1993 strengthened land tenure and further liberalized agricultural markets (Cuc, 1995).

On the international side, after stagnant growth in the 1980's, world rice markets began to expand in the early 1990's. In 1995, world rice trade exceeded 20 million tons, compared to just 10-12 million tons during the mid-1980s (USDA, 1996 and USDA, 1994).

Rice export growth in Viet Nam has, however, been characterized by considerable variability. For example, exports in 1991 fell by 30 percent relative to the previous year, as the government limited exports in response to serious production losses caused by pests in the Mekong River Delta. The supply shock, estimated at over 480 thousand tons of paddy equivalent, was absorbed by exports reduction in order to ensure food security. In 1996, exports increased by almost 50 percent relative to the previous year, as the government raised the export quota in response to the bumper crop that year.

Rice Exports and Food Security

Export growth has been achieved without compromising food security. In fact, net availability of rice per person has increased 8 percent since 1989, from 142 kg per person in 1989 to 149 kilogram in 1996 (see table 1). Rice calories per capita have not only shown a positive trend, but have also exhibited greater stability than either paddy production or exports. Table 1 shows that the coefficient of variation of rice calories per capita (0.05) was less than half that of paddy production (0.12) and about one sixth that of rice exports (0.32). Rice exports have taken the burden of variability, apparently more for the purpose of stabilizing domestic consumption than for reasons related to international markets.

Quality of Rice Exports

The quality of exported rice has increased considerably since 1989. In the early 1990's, Viet Nam had a reputation for being an exporter of inexpensive low-quality rice, but over time the quality of its rice exports has increased. High-quality rice (5 percent broken and less) has grown from less than 1 percent of rice exports in 1989 to around 30 percent in recent years. Over the same period, lower-quality rice (35 and higher broken percentage) has declined from 88 percent to 9 percent of the total (see table 2). The increase in rice

quality was the result of improvements in processing in response to growing foreign demand.

Destination of Rice Exports

Rice export destinations vary substantially from year to year, as indicated by the large coefficient of variation in table 3. On average, over the period 1991 to 1996, one third of exports went to Asia. The second and third most important destinations were Africa (27 percent) and the Americas (24 percent). Exports to the Middle East have shown the strongest growth among all destinations, followed by Asia (see table 3).

The destination of rice exports also has important consequences for the quality of rice exports. Table 4 shows that for the period 1994-96, Asia was not only the main buyer of Viet Nam rice, but it was the main buyer of high-quality Viet Nam rice, while the Americas bought mainly 20 percent broken, and Africa imported mainly low quality rice (15-35 broken).

Domestic and International Prices

An analysis of domestic and international prices reveals three patterns. First, international prices are much higher than domestic prices. Even when comparing the prices of 35 percent broken rice, domestic prices are 22 to 62 percent lower than

Thai prices (see table 5). Second, the transmission of international prices to domestic prices is weak. Domestic prices are less variable than international rice prices, the coefficients of variation being 0.06 and 0.10, respectively (see table 5). Third, Viet Nam export prices have converged toward international prices. As the quality of rice exported from Viet Nam has increased, so have average export prices for Vietnamese rice. Table 6 shows that average export prices have increased from 65 to 79 percent of Thai 5 percent broken during the period 1989 to 1996. This is partly a reflection of the larger share of high quality rice in Viet Nam's exports. But even the prices of the same quality rice have converged. In 1994, 5 percent broken export prices for Vietnamese rice were 85 percent of corresponding Thai prices, but in 1995 and 1996, Vietnamese prices were 88-89 percent of Thai prices for the same quality.

3. POTENTIAL FOR FUTURE EXPORTS

What is the potential for further expansion of rice exports in Viet Nam? Some analysts suggest that even a level of 2 million tons export is not sustainable given the increasing domestic demand for rice in Viet Nam and the land constraints on intensive rice farming in the two deltas (see Valdecanas 1996 and Pingali *et al.*, forthcoming). Our analysis suggests a more

optimistic conclusion regarding the effect of domestic demand on rice exports. In this section, we discuss the prospects for domestic demand and production over the next 20 years.

Domestic Demand for Rice

The most important determinants of long-term trends in domestic demand are population growth, income growth, and urbanization. All three of these factors are likely to contribute to a slowing of the growth in domestic demand for rice.

Viet Nam's population is currently 75 million, with an annual growth rate of 2.1 percent. The growth rate, however, is expected to fall sharply over the next decade as a result of government policy and rapid economic growth. According to projections by the World Bank and the United Nations, the population growth rate will fall to between 1.2 and 1.6 percent for the period 2005-2010 and 1.2 percent for 2015-2020. By the year 2020, the population will reach 110 million according to the World Bank and 104 million according to the "medium variant" of the United Nations projections (Bos *et al.*, 1994 and United Nations, 1996).

Urbanization tends to reduce per capita rice demand since urban households tend to have more diversified diets, consuming less rice than rural households. Huang and David

(1993) argue that urbanization is a major factor in the decline in per capita rice consumption in Asia, although its impact in Viet Nam has been modest. Although per capita rice consumption is lower in Vietnamese cities than in the rural areas (see Figure 1), the increase in the share of the population living in urban areas has been relatively slow. The U.N. Economic Commission for Asia and the Pacific (ESCAP) estimates that Viet Nam's urban population is growing at 3.7 percent per year (ESCAP, 1997). At this rate, Viet Nam's urban population would rise from 20 percent of the total in 1995 to 33-35 percent by 2020. Given the rural-urban difference in per capita rice consumption (35-50 kg in the upper quintiles), this urbanization would reduce per capita demand by 5 to 7 kg, or 3-4 percent of the current level. The impact of urbanization could be larger, however, if economic growth and deregulation accelerate the pace of migration to the cities.

The effect of income on rice demand in Asia is the subject of some debate. Ito *et al.* (1989) examined 24 years of national data from 14 Asian countries, concluding that rice was already an inferior good in seven countries and that income elasticities were positive but falling in five others. Huang *et al.* (1991) argued that methodological problems in that study led to underestimation of the income elasticities, but they confirmed

that the income elasticity of rice demand is negative in five relatively high-income countries (Japan, Singapore, Taiwan, Malaysia, and Thailand).

According to the Viet Nam Living Standards Survey (VLSS), per capita rice consumption in Viet Nam rises with income at low incomes, reaches a plateau, and then declines at higher incomes (see figure 1). In urban areas, the peak occurs at the 4th decile, implying a negative income elasticity at the mean urban income. Even among rural consumers, per capita rice demand declines at higher incomes, though not until the 10th decile. These relationships are important given that per capita gross domestic product has grown at over 6 percent per year over 1991-95 (Viet Nam, 1996).

Based on the trends in population growth, urbanization, and income growth, we develop low, medium, and high demand scenarios, shown in table 7. The population assumptions in the three scenarios are based on the low, medium, and high variants of the United Nations projections. The urban population is assumed to remain at 20 percent of the total in the low demand scenario, grow at 3.7 percent per year in the medium, and grow at 4.0 percent per year in the high. The income assumptions also vary across scenarios: we assume that per capita income grows at 6 percent in the low

and medium demand scenarios and at 4 percent in the high demand scenario.

The income growth assumptions are combined with household demand patterns in the VLSS to make projections of per capita rice demand over the period 1995-2020. The relationship between rice demand and income is based on the mean per capita consumption in urban and rural areas for each of ten categories of per capita consumption expenditure in the VLSS (the categories are defined by the expenditure deciles in the sample). The income of each household in the sample was projected assuming 1) that income growth is constant across households and 2) that households adopt the mean consumption level for their expenditure category. The results are then aggregated using the projected size of the urban and rural populations.

This method assumes that the cross-sectional patterns at one point in time are a valid representation of changes in demand over time as incomes rise and as household migrate to the cities. In addition, by using decile means, this approach may overestimate per capita demand in the later years of the forecast period. This is because rural and urban demand is implicitly assumed not to fall below the respective tenth decile levels, no matter how high income rises. Thus, the resulting

forecasts of exports are conservative. As shown in table 7, per capita rice demand rises slightly and then falls as households adopt more diversified diets. In the medium demand scenario, per capita demand begins to fall between 2000 and 2005, reaching 141 kg per capita in 2020. In this scenario, total rice demand is 14.7 million tons in 2020, implying an average growth rate of 0.9 percent per year. The average annual growth rate of rice demand is 0.6 percent in the low demand scenario and 1.5 percent in the high demand scenario.

Rice Production Potential

It is more difficult to evaluate the potential for further expansion of rice production. In the Red River Delta, the potential for area expansion is very limited. The Master Plan for the Red River Delta calls for large investments in dykes, irrigation infrastructure, and drainage, but the goal is to rehabilitate and maintain existing irrigated areas rather than expand the area under irrigation. The National Institute for Agricultural Planning and Projection (NIAPP) is pessimistic about area expansion, noting that each year 2000 hectares are absorbed by urban and industrial development around Hanoi and Haiphong. The Institute argues that cropping intensity can

and will increase, but that the additional sown area will be devoted to vegetables and other crops as farmers diversify production to meet the demand from urban consumers (NIAPP, 1995: 39). Thus, in the Red River Delta, any increase in paddy production will probably depend on improving yields rather than area expansion or intensification.

In the Mekong River Delta, there is some scope for expanding rice land, according to the sub-National Institute for Agricultural Planning and Projection (sub-NIAPP). The conversion of fallow land into land for paddy production in the provinces of Long An and Kien Giang would increase the sown paddy area by 232 thousand hectares (sub-NIAPP, 1995). In addition, cropping intensity on existing rice land could be increased, largely through investment in flood control and drainage rather than irrigation *per se*. These effects would focus on the provinces of Minh Hai and Soc Trang on the southern coast, where dry-season salinity is a problem. The combined effect would be to increase sown paddy area by 500 thousand hectares, representing 7 percent of national sown area.

The potential for yield increases is more difficult to estimate. Average paddy yields grew 3 percent annually over 1985-1995 and have reached 3.7 tons per hectare. Even with

no change in sown area, this rate of yield growth would allow paddy production to increase faster than Viet Nam's population.

Historical rates of yield growth, however, may not be sustainable. Among the developing countries in Asia, yields grew just 1.2 percent annually over 1985-1995, suggesting that part of Viet Nam's yield growth represents a one-time response to decollectivization and market liberalization.

Pingali *et al.* (forthcoming) argue that further increases in Vietnamese yields may be difficult to achieve. For example, fertilizer use expanded rapidly over the 1980s in response to market liberalization, but application rates in the two main deltas are now similar to those in other irrigated regions of Asia. Furthermore, the high yields depend on labor-intensive cultivation methods that farmers may not be willing to continue as wage rates rise. Although the industrialized and newly industrialized countries obtain yields of 5.7 to 6.9 tons/ha, the only developing countries in Asia with higher yields than Viet Nam are China (6.1 tons/ha) and Indonesia (4.5 tons/ha). These two countries have much larger areas under irrigation: 93 and 72 percent, respectively, compared to around 56 percent in Viet Nam (Pingali *et al.*, 1997: 21).

In summary, there is little scope for expanding sown paddy area significantly so expansion in paddy production will increasingly depend on yield

improvements. Although yield growth has been relatively strong over the last ten years, it seems likely that this part of a one-time response to liberalization and improved incentives. If this is true, yield growth in Viet Nam will probably decline toward the yield growth rate of other developing countries in Asia.

In table 8, these conclusions are incorporated in the assumptions behind low, medium, and high rice supply scenarios. The low supply scenario assumes no increase in sown paddy area and just 1.2 percent yield growth over the forecast period. In other words, it is assumed that none of the projected growth in rice area in the Mekong Delta materializes and that yield growth falls immediately from 3 percent to the Asian average of 1.2 percent. The medium supply scenario assumes that sown paddy area grows 1 percent annually until 2000 and is constant thereafter, while yields grow at 2 percent per year until 2000 and 1.2 percent after that. The high supply scenario assumes that sown paddy area increases 1 percent per year until 2005 and is constant thereafter and that yields grow 2 percent annually until 2005 and 1.2 percent for the remainder of the period.

The result of these assumptions is that milled rice production rises from 14.1 million tons in 1995 to between 19 and 23 million tons in 2020. This implies an annual growth rate of 1.2 percent in the low supply scenario, 1.6 percent in the medium, and 1.9 percent in the high.

Rice Export Scenarios

Combining the three demand scenarios from table 7 and the three supply scenarios from table 8, we get nine projections of exportable rice surpluses, shown in table 9. In the most pessimistic scenario, low supply and high demand combine to keep exports in the range of 2.0 to 2.2 million tons over the forecast period. At the other extreme, the high supply/low demand scenario shows exports rising from 2.5 million tons in 1995 to over 9 million tons in 2020. In the medium supply/medium demand scenario, exports reach 6 million tons by 2020.

The validity of this exercise obviously depends on the reliability of the assumptions. One important limitation is that these projections assume that prices are constant. Trends in world demand and the behavior of competitors such as Thailand, India, and the United States will determine how realistic this assumption is. The large increase in Vietnamese exports in some of these scenarios could well depress world prices, dampening the export expansion. Nonetheless, it is clear from these projections that rice exports from Viet Nam have the potential to expand significantly in all but the most pessimistic scenarios.

Even if the cautionary comments about sustainability of production growth are justified, there is still scope for improvement in irrigation, adoption of modern varieties, and improved management of plant nutrients and soil. Furthermore, we believe that there is a too ready acceptance of the hypothesis that demand for rice in Viet Nam will grow at a rate higher than the population rate. In fact, the more important constraint on export growth may be related to the structure of the

marketing system and other constraints related to policy, infrastructure, and lack of investment in agricultural research. The next section addresses these issues.

4. MARKET STRUCTURE AND PERFORMANCE

A 1995-1996 survey of farmers, traders, millers, and state owned enterprises by the International Food Policy Research Institute (IFPRI) found that, while the rice production system in Viet Nam is almost entirely dominated by the private sector, state owned enterprises still play a substantial role in rice marketing. State owned enterprises, including those of the central government (VINAFOOD) and those of local governments (provincial food companies), are the main beneficiaries of the rice export quota policy and the associated export licencing system. The private sector plays an essential role, however, in procuring rice from farmers, supplying rice to exporters, and distributing rice within the country. In the complex web of links characterizing the rice marketing system of Viet Nam, five main features can be identified. First, the private sector is key to the functioning not only of the production system, but also of the marketing system. Second, in spite of its importance in the distribution system, the private sector is largely underdeveloped and regionally unbalanced. Third, trade and market information are highly localized.

Fourth, credit constraints have serious implications for procurement activities, storage, and investment. And finally, the marketing costs of the state owned enterprises are considerably higher than those of private traders. Each is discussed in turn.

Key Role of the Private Sector

In 1995, each agricultural household in Viet Nam was producing enough rice to feed almost 9 persons. Since the average agricultural household in Vietnam has 5 members, there is a surplus available for marketing. The extent of commercialization of paddy farmers in Viet Nam can be measured by the marketed surplus ratio, defined as the volume of sales as a proportion of production. The marketed surplus ratio in the two main producing regions of Viet Nam is over 50 percent in all seasons (see table 10). The marketed surplus is greater in the Mekong River Delta (72 percent) than in the Red River Delta (62 percent). Other regions are less commercialized. The average marketed surplus in the North Mountains and Midlands region, for example, is under 20 percent.

Paddy marketing is dominated by private traders, who purchase about 96 percent of total marketed surplus from farmers (see table 11). Millers and state owned enterprises also buy from farmers, but their contribution is minor in every region and season.

In addition to buying most of the marketed surplus from farmers, private traders are also the main suppliers of rice to state owned enterprises in the Mekong River Delta. The marketing systems in the north and south differ in the ultimate destination of rice purchased by state owned enterprises. In Red River Delta, state owned enterprises supply domestic consumers, while in the Mekong River Delta their rice sales are mainly in the form of exports (see IFPRI 1996, chapter 4, section 5).

Underdevelopment and Regional Imbalance of Private Sector

Private-sector traders and millers in Viet Nam are, for the most part, small. In spite of the existence of some large traders and millers in the south, the average throughput is still quite small when compared to that of the state owned enterprises. The latter have an average monthly rice sales of over 4,000 tons compared to about 33 tons for traders and 171 tons for millers (see table 12).

In the Mekong River Delta and North East South, the marketing system is more developed than in the rest of the country. Wholesalers in the Mekong River Delta, for example, sell 91 tons of rice per month on average, while the average is only 32 tons in the Red River Delta. Medium-sized millers sell about 1.75 tons of rice per month in the Red River Delta and about 38 tons in the Mekong River Delta. Moreover, there are more large millers and polishers in the Mekong River Delta and North East South than in the Red River Delta. Even these large millers, however, are small relative to state owned enterprises. In the Mekong River Delta, for example, the polishers have average monthly sales

of 800 tons, while the state owned enterprises in the same region have average sales over 5,000 tons.

A similar pattern is found in the total value of assets of different types of marketing agents. The assets of state owned enterprises average \$1.6 million, while those of private traders are worth \$2900 on average and those of millers \$31 thousand.

Local Nature of Trade and Information

Even though Viet Nam has an aggregate rice surplus, many regions have rice deficits. The Red River Delta and the Mekong River Delta have surpluses of 0.42 and 4.74 million tons, respectively, but the other five regions have rice deficits totaling 2.17 million tons. These regional deficits are met through inter-regional trade.

Domestic trade flows by private sector and shipments of rice by state owned enterprises are the main mechanisms for distributing paddy within the country. State owned enterprises tend to dominate long-distance trade within the country. A small number of state owned enterprises are responsible for about half of the 2.17 million tons of rice traded between regions in Viet Nam. In contrast, private traders are rarely involved in rice trade transactions at more than 400 km distance. Over 90 percent of the paddy procurement and rice sales take place within 100 km of the traders' residence.

The local nature of marketing is also reflected in the limited information of marketing agents regarding rice markets outside of their immediate

surroundings. Most agents indicate personal contacts as the main source of information for prices and regulations affecting their business. Even though half of all wholesalers own a telephone, access to broader and more formal market information is very limited. By and large, private marketing agents ignore price movements and distribution channels in regions other than their own.

Credit Constraints

As in the case of the value of assets, there is a remarkable difference in scale of credit available to the private sector and to state owned enterprises in Viet Nam. In the Mekong River Delta, for example, wholesalers and medium millers report having debts of less than \$5,000 on average, while large miller-polishers report debts of \$75,000. State owned enterprises in the same region, however, have average debts of about \$5.8 million. As shown in table 13, most of the credit for traders comes from informal sources, such as friends and relatives (37 percent) and moneylenders (17 percent). For millers, two thirds of all credit comes from banks.

Credit constraints are common to all types of marketing agents, both private and public. The extent of these constraints is reportedly very high: credit requirements vary between three and ten times the actual credit available. The interest rate that private marketing agents were prepared to pay for access to additional credit is close to the market rate, whereas the rate state owned enterprises were willing to pay is below the market rate (see table 13, and IFPRI 1996, chapter 4, section 9).

The credit constraints assessment by marketing agents is reflected in their very short-term storage behavior. Holding stock of rice for more than two weeks is rare among private sector agents, and only large millers and polishers can afford an average holding period of more than two weeks. The average holding period for traders is less than a week. State owned enterprises can afford to store rice for longer periods, with an average holding period of about four weeks in the Mekong River Delta (see table 15).

The main components of grain storage costs are the deterioration of the commodity and the foregone interest on the revenues that could have been obtained by selling the commodity at harvest. If the private sector does not have easy access to credit, private storage will be greatly diminished.

Marketing Costs And Profitability

Based on information collected by the IFPRI Survey, the marketing costs of the state owned enterprises are considerably higher than those of private traders. Unit costs of state owned enterprises in the Mekong River Delta and the Red River Delta range from 4 to 16 times the corresponding costs in the private sector (see table 16). This inefficiency of the public sector is a reflection of barriers to entry that prevent private traders from competing with state owned enterprises in rice exports and long-distance trade.

Data from the IFPRI Survey provide a decomposition of retail rice prices into the unit costs and profits in production and marketing (see table 17). These results show that marketing costs are lower in the Red River Delta (\$19 per ton) than in the Mekong River Delta (\$33 per ton). Moreover, the gross margins (including costs and profits) of marketing agents in the Red River Delta are lower than in the Mekong River Delta both in absolute terms (\$53 versus \$88) and as a percentage of retail price (17 percent versus 29 percent). On the other hand, the total unit costs of production and marketing are higher in the Red River Delta than in the Mekong River Delta, being about 71 percent of retail price in the Red River Delta and 51 percent of retail price in the Mekong River Delta. Finally, unit profits of marketing agents and farmers are higher in the Mekong River Delta and this is particularly true for farmers.

The higher marketing costs in the Mekong River Delta are a reflection of a more complex marketing system characterized by higher transportation, labor, and depreciation costs. This complexity, however, does not result in an exploitation of farmers or consumers, as often is implied in policy discussions in Viet Nam. Farmers earn higher profits in the Mekong River Delta than in the Red River Delta, both in absolute terms and as a share of retail price. At the same time, rice consumers are better off in the Mekong River Delta because the retail price is lower than in the Red River Delta.

5. POLICY, INFRASTRUCTURE, AND RESEARCH CONSTRAINTS

Earlier we argued that Viet Nam has the potential to challenge Thailand as the leading rice exporter. This potential, however, is constrained by the structure of the marketing system with its still largely underdeveloped private sector and inefficient public sector. If Viet Nam is to acquire and maintain world rice leadership, several constraints to the development of the marketing system will have to be alleviated. This section examines the constraints originating from restrictive policy, poor transportation system, and weak investment in research.

Restrictive Policy

Government policy has retarded the development of the rice marketing system in three main ways. First, the government has adopted a rice export quota policy and allocated the quota exclusively to state owned enterprises, effectively prohibiting the private sector from engaging in rice exports. From economic theory, we know that an export quota represents an implicit tax on domestic producers. In 1996, for example, this implicit tax was 21 percent, equivalent to a rent of \$166 million enjoyed by exporters (see table 18). The licencing system as implemented in Viet Nam reduces the incentives to improve performance. Prohibiting the private sector from getting exposure to international markets may limit the ability of Viet Nam to exploit the opportunities for increasing market share and to acquire the flexibility needed to operate in world markets.

Second, until recently, the central and local government restricted the trade from the south to the north of the country in a variety of ways including

regulations against inter-provincial trade, police road blocks, and taxes. The most visible outcome was a persistent gap between rice prices in the north and south that could not be explained by transportation costs alone. In 1995, for example, less than half of the north-south price differential could be explained by transportation and marketing costs. Almost 60 percent of the price differential was the result of policy restrictions that effectively prohibited or discouraged private trade.

Third, preferential access to credit given to state owned enterprises discriminates against the private sector, limiting its capacity to expand procurement activities and invest in storage and transportation to develop a modern distribution system. The removal of barriers to entry and exit would increase competition and the efficiency of the marketing system.

Poor Transportation System

Shipping rice out of the country is a very expensive operation in Viet Nam. This is due partly to the high fees associated with port operations and partly to poor port infrastructure. Most of the rice export shipments are made out of Saigon Port. Even though its relative importance has been declining, over 70 percent of rice exports still pass through this port.

When a foreign ship loads rice at Saigon Port, it has to pay channel and pilots dues for the 48 miles of the channel linking the port to the South China Sea. Tonnage dues, berth dues, port charges, and other fees in Viet Nam contribute to shipment cost almost twice as high as in Thailand. In addition to

high port charges, the loading rates are still very low: about 1,000-2000 tons per day compared to over 3,000 tons per day in Bangkok. Since most rice exports are sold free-on-board (FOB), these costs are built into the FOB price of Vietnamese rice exports, helping to explain the lower price Viet Nam receives for a given quality of exported rice.

Two infrastructure problems also affect rice shipment. The first is the lack of proper navigational aids to allow safe night passage in the channel from Ho Chi Minh City to the South China Sea. This limits the number of hours per day that can be used to move the cargo in and out of the port, increasing the demurrage costs, which are about \$6,000 per day.

The second infrastructure problem is the lack of adequate port facilities other than Saigon for domestic shipments. Can Tho port is located in the middle of the Mekong River Delta and would therefore be the natural candidate for taking some burden off the congested Saigon port. Currently, however, the Can Tho port can easily accommodate only small vessels of about 5,000 tons. Even though the rice throughput in Can Tho doubled between 1994 and 1995 to 126,000 mt, this represents only 3 percent of rice exports.

Under-investment in Research and Extension

In Viet Nam, there are about 7000 agricultural scientists working in various research institutions and universities. According to one well-known agricultural researcher in Viet Nam, "virtually every Vietnamese agricultural scientist does

something with rice" (Xuan, 1995: 27). Whether or not this rice focus leads to a breakthrough is a matter of debate, but it is an indication of the importance given to rice research. The reputation of provincial and district leaders often depends upon the performance of rice production in their jurisdiction. That has created a receptiveness toward new high yielding rice varieties and an incentive for rice scientists in Viet Nam to collaborate with international agricultural research centers, such as the International Rice Research Institute (IRRI).

Despite the central role of rice in policy and agricultural research, the government's financial support of agricultural research has been weak. About 60-70 percent of the research budget is used for salaries and other operating expenses. The investment per researcher was about 3,000 US dollars in 1995, only one tenth of that of other countries in the region. As a result, the availability of equipment for scientific research relies mainly on foreign grants. Institutions are forced to engage in income generating activities with immediate returns. On occasion, this has meant the release of new varieties without sufficient testing.

Rice research in Viet Nam has made some important contributions in spite of its resource constraints. Several areas represent major challenges for rice research in Viet Nam. With

practically all arable land being farmed in the two major deltas, understanding the sustainability of intensive farming systems becomes critical to Viet Nam's food security and its position as a major rice exporter. The intensive cultivation of the two deltas puts significant stress on the environment through soil erosion and salinization. Some observers predict that Viet Nam may reach a yield plateau (Pingali *et al.*, forthcoming). An important area for further research is the combination of cropping patterns, pest management, and nutrients management that will minimize adverse environmental impact.

An equally difficult and related challenge is that of continuously raising yields. The experience with hybrids from IRRI and China is promising, but widespread adoption will depend on solving problems related to seed multiplication, improved grain quality, and capacity building.

Third, in order to increase export earnings, Viet Nam could develop a capacity to produce high-value rice varieties. Early experiments with Japonica rice have given promising results. Further study will also be needed to develop fragrant varieties such as Jasmine that could be profitable to produce and market internationally.

Finally, research efforts directed to improving postharvest technology could reduce losses through better techniques of

drying paddy during the wet season and milling technology capable of processing different types of paddy.

6. RECENT POLICY CHANGES

There have been positive signals during the last year in Viet Nam that suggest that the government is moving in the right direction. With regard to policy, new directives issued in March and May 1997 eliminate some restrictions and establish the basis for a more competitive marketing system. Decision 140/TTg of March 8, 1997 liberalized internal trade, stating that "licenses and controls on domestic food transport are abolished, as are food taxes for wholesale activities among different regions, in order to create a unified and free flow of distribution of food dictated by the demand and supply in the market". Decision 141/TTg of March 8, 1997 and decision 312/TTg of May 10, 1997 increased the quota to 3.5 million tons for the period March-December 1997. It also decentralized the allocation of the export quotas, with one third of the quota going to centrally-controlled state owned enterprises (VINAFOOD) and two thirds going to provincial state enterprises. Private traders are still not allowed to export directly, but this is an important step towards reducing the implicit tax of the quota and weakening the market power of VINAFOOD.

With regard to infrastructure, the government has approved several investment projects that will improve the rice marketing system. The approval of a project to improve Can Tho port will increase annual handling capacity from the current 180,000 tons to 600,000 tons by the year 2000. Current plans call

for the port to be able to handle between 1.5 and 2.0 million tons per year by the year 2010 (Saigon Times, May 14, 1997).

With regard to research, both improvements in rice quality and rice yield are currently being pursued. Some recent success with Japonica rice has been achieved on small plots in northern Viet Nam, close to Hanoi. In 1996, a small quantity of Japonica was exported at a price of US\$800-1,000/ton, four times the value of ordinary Vietnamese rice (Saigon Times Daily, April 23, 1997). Similar experiments with fragrant rice in the South are also pursued. Hybrid rice was cultivated on 100,000 hectares in 1996 with an average yield of 7 tons per hectare. Genetic research methods have also been applied to breeding and some hybrid combinations (2 or 3 lines) are currently under field investigation.

7. CONCLUSIONS

The remarkable success of Viet Nam agriculture and rice exports in particular in the past eight years is undeniable. A country for many years beset with persistent food shortages has converted itself into a major rice exporter, while simultaneously increasing domestic per capita consumption. Some analysts have argued that Vietnamese rice export growth is not sustainable because of the probable growth in domestic demand for rice. Our analysis indicates that Viet Nam's exportable surplus can continue to grow, due to the slowing population growth and to the likelihood that per capita demand

will stabilize and slowly decline. We argue that, even under conservative assumptions, Viet Nam could rival Thailand as the leading rice exporter within 10-20 years.

This potential is constrained, however, by a still underdeveloped marketing system, characterized by a large number of small-but-efficient private marketing enterprises and a small number of large-but-inefficient state owned enterprises. The access of these private traders and millers to credit and information is limited. Physical and institutional infrastructure constrain the development of an effective and modern marketing system. Restrictive policies continue to prevent open competition in the rice exports and, to a lesser degree, in internal marketing. Recent policy changes are encouraging, but need to be extended to allow the private sector to participate in rice exports. The sustainability of Viet Nam's success as a rice exporter depends, to a large degree, on the development of a competitive and adaptable marketing system.

Table 1. Rice Production, Exports, and Availability per Capita

Year	Paddy Production (000 mt)	Equivalent Rice Production (000 mt)	Rice Export (000 mt)	Population (000 persons)	Gross Availability of Rice per Capita (kg)	Net Availability of Rice per Capita (kg)	Rice Calories per Capita
1989	18996	10557	1372	64774	163	142	1360
1990	19225	10684	1452	66233	161	139	1337
1991	19622	10905	1016	67774	161	146	1399
1992	21590	11999	1960	69405	173	145	1387
1993	22837	12692	1649	71026	179	155	1491
1994	23528	13076	1986	72509	180	153	1467
1995	24963	13873	2020	74090	187	160	1534
1996	26317	14625	2953	75705	193	154	1478
Average	22135	12301	1801	70189	175	149	1432
C.V.	0.12	0.12	0.32	0.05	0.07	0.05	0.05
Growth	5.1%	5.1%	11.1%	2.3%	2.8%	1.8%	1.8%

Source: Computations based on data from the General Statistical Office.

- Note:
1. Equivalent rice production is derived from paddy production using a milling conversion factor of 0.65 and a losses factor of 0.145.
 2. Gross availability per capita is equivalent rice production divided by population.
 3. Net availability per capita is equivalent rice production minus exports divided by population.

Table 2. Share of Rice of Different Qualities

Quality	1989	1990	1991	1992	1993	1994	1995	1996	Growth	Mean	C.V.
	(percent)										
5% or less	0.3	3.3	7.5	19.0	25.6	44.8	30.5	28.9	78.7	20.0	0.77
10	1.5	13.0	27.6	21.3	26.0	25.4	24.6	16.7	26.9	19.5	0.45
15%	3.0	5.9	4.9	11.0	13.2	4.1	12.0	6.4	10.6	7.6	0.52
20	2.3	2.0	5.6	4.3	8.2	9.2	10.7	6.1	23.0	6.1	0.52
25	4.9	20.2	25.9	13.3	11.1	7.4	18.1	33.4	11.2	16.8	0.57
35	82.8	46.5	21.5	25.4	12.3	6.8	3.6	5.2	-35.1	25.5	1.06
45 or more	5.2	9.0	7.0	5.4	3.4	1.9	0.5	3.3	-23.4	4.5	0.62
High: <=10	1.8	16.3	35.1	40.3	51.6	70.2	55.1	45.6	44.7	39.5	0.55
Low: >10	98.2	83.6	64.9	59.4	48.2	29.4	44.9	54.4	-11.0	60.4	0.36

Source: Computations based on data from the Ministry of Trade.

Table 3. Destination of Exports and Regional Shares (percent)

Region	1991	1992	1993	1994	1995	1996	Average Share	Growth Rate of Exports	C.V. of Exports
Asia	32.8	23.8	23.0	26.2	61.4	30.1	32.9	26.7	0.56
Middle East	1.0	4.9	21.3	10.2	6.3	20.3	10.7	81.9	0.96
Africa	23.3	43.4	23.5	23.9	18.4	30.3	27.1	13.8	0.51
Europe	6.7	9.6	99.8	2.0	0.2	3.9	5.4	-26.0	0.72
America	36.2	18.4	22.2	36.9	13.7	15.5	23.8	3.4	0.37
Other	0.0	0.0	0.0	0.8	0.0	0.0	0.1		2.45
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	17.9	0.34

Source: Computations based on data from the Overseas Merchant Inspection Co., Ltd (OMIC).

Table 4. Average Regional Shares of Viet Nam Rice Exports of Different Qualities in 1994-1996 (percent)

Region	5% Broken	10% Broken	15% Broken	20% Broken	35% Broken
Asia	32.9	45.8	41.5	0.1	46.8
Middle East	24.4	25.0	3.3	0.0	0.0
Africa	15.6	10.0	43.1	7.7	38.0
Europe	3.9	2.0	2.6	1.7	0.9
Americas	23.2	17.2	9.6	90.5	14.3
Total	100.0	100.0	100.0	100.0	100.0

Source: Based on data from the Ministry of Trade.

Table 5. Margins of Vietnam Regional Prices below Thai 5% Broken

	Average price in the North	Average price in the Center	Average price in the South	Thai 5% price
Coefficient of Variation over 1990-1996	0.064	0.065	0.056	0.107
Percentage Margin below Thai 5%	27.3	50.8	62.4	0

Source: Based on computations using Bangkok prices obtained from the United States Department of Agriculture (USDA) and Vietnam prices from the General Statistical Office.

Table 6. Export Prices as a Share of Bangkok Prices

Year	Viet Nam Export Price for 5% Broken (US\$) (1)	Average Viet Nam Export Price (US\$) (2)	Thai 5% Broken (US\$) (3)	Viet Nam Export 5% as Percentage of Thai 5% (1)/(3)	Viet Nam Export Price as Percentage of Thai 5% Broken (2)/(3)
1989	NA	194	300	NA	65
1990	NA	170	271	NA	63
1991	NA	226	293	NA	77
1992	NA	207	268	NA	77
1993	NA	203	236	NA	86
1994	228	218	270	85	81
1995	284	266	320	89	83
1996	298	266	338	88	79

Source: Based on computations using Bangkok prices obtained from the United States Department of Agriculture (USDA), Vietnam prices from the General Statistical Office and 1996 Viet Nam prices obtained from Slayton and Associates.

Table 7. Domestic Demand Projections over 1995-2020

Year	Low demand scenarios			Medium demand scenarios			High demand scenarios		
	Per capita demand (kg/year)	Population (millions)	National demand (000 tons)	Per capita demand (kg/year)	Population (millions)	National demand (000 tons)	Per capita demand (kg/year)	Population (millions)	National demand (000 tons)
1995	157	73.8	11594	157	73.8	11594	157	73.8	11572
2000	156	80.0	12512	157	80.5	12606	158	81.0	12766
2005	153	85.2	13010	153	86.8	13306	157	88.5	13921
2010	148	88.7	13083	149	92.3	13725	156	95.8	14935
2015	142	92.6	13186	144	98.0	14122	154	103.6	15923
2020	138	96.5	13365	141	104.2	14682	152	111.9	16964

Source: The low scenario assumes 6 percent annual per capita income growth, 4 percent growth in urban population, and the low variant of the United Nations (UN) population projections. The medium scenario assumes 6 percent annual per capita income growth, 3.7 percent growth in urban population, and the medium variant of the UN population projections. The high scenario assumes 4 percent annual per capita income growth, no change in the level of urbanization, and the high variant of the UN population projections. The per capita demand projections are based on patterns of rice consumption in the Viet Nam Living Standards Survey, the income growth assumptions, and the urbanization assumptions (see text for details).

Table 8. Supply Projections over 1995-2020

Year	Low supply scenario			Medium supply scenario			High supply scenario		
	Sown area (000' hectares)	Paddy yield (tons per hectares)	Milled rice production (000' tons)	Sown area (000' hectares)	Paddy yield (tons per hectares)	Milled rice production (000' tons)	Sown area (000' hectares)	Paddy yield (tons per hectares)	Milled rice production (000' tons)
1995	6766	3.69	14089	6766	3.69	14089	6766	3.69	14089
2000	6766	3.92	14954	7111	4.07	16348	7111	4.07	16348
2005	6766	4.16	15874	7111	4.32	17353	7474	4.50	18971
2010	6766	4.41	16849	7111	4.59	18420	7474	4.77	20137
2015	6766	4.68	17885	7111	4.87	19552	7474	5.07	21374
2020	6766	4.97	18984	7111	5.17	20753	7474	5.38	22688

Source: The low scenario is based on a) no change in sown area and b) yield growth of 1.2 percent.

The medium scenario is based on a) 1 percent growth in sown area until 2000 and no growth thereafter and b) yield growth of 2 percent until 2000 and 1.2 percent thereafter.

The high scenario is based on a) 1 percent growth in sown area until 2005 and no growth thereafter and b) yield growth of 2 percent until 2005 and 1.2 percent thereafter.

Milled rice production is calculated assuming 66 percent conversion from paddy to milled rice and assuming 14.5 percent losses in harvesting and marketing.

Table 9. Projections of Exportable Rice Surpluses over 1995-2020 (million tons)

Year	Low supply			Medium supply			High supply		
	Low demand	Medium demand	High demand	Low demand	Medium demand	High demand	Low demand	Medium demand	High demand
1995	2.49	2.49	2.49	2.49	2.49	2.49	2.49	2.49	2.49
2000	2.44	2.35	2.18	3.84	3.74	3.58	3.84	3.74	3.58
2005	2.86	2.57	1.97	4.34	4.05	3.45	5.96	5.67	5.06
2010	3.76	3.13	1.96	5.33	4.70	3.53	7.05	6.41	5.25
2015	4.70	3.76	2.00	6.36	5.43	3.67	8.19	7.25	5.49
2020	5.62	4.30	2.08	7.39	6.07	3.85	9.33	8.00	5.78

Source: Demand and supply projections in Tables 7 and 8.

Table 10. Marketed Surplus in Different Regions by Season

Season	North Mountain and Midland	Red River Delta	North Central Coast	South Central Coast	Central Highlands	North-east South	Mekong River Delta	Viet Nam
Winter-Spring	16	65	35	34	44	72	77	70
Summer-Autumn	.	.	32	41	47	49	64	60
Rainy	8	58	.	.	.	29	95	48
All Year	12	62	37	37	45	55	72	64

Source: Based on IFPRI Survey 1995-96.

Table 11. Marketing Channels for Farmers (percentage of sales)

Season	Millers	Traders	Others	Total
Winter-Spring	1.2	96.9	1.9	100.0
Summer-Autumn	1.1	96.9	2	100.0
Rainy	8.2	90.7	1.1	100.0
All Year	1.6	96.5	1.9	100.0

Source: Based on IFPRI Survey 1995-96.

Table 12. Rice Sales and Value of Assets by Type of Marketing Agent

	Category	Rice Sales (tons/month)	Assets (000 US\$)
Viet Nam	Traders	33	3
	Millers	171	31
	SOE	4,017	1,594
Mekong Delta	Polisher	800	218
	SOE	5,054	1,395

Source: Based on IFPRI Survey 1995-96.

Table 13. Sources of Credit for Traders and Millers (percent)

	Traders	Millers
Friends & relatives	37	19
Money lenders	17	5
Commercial banks	11	30
Agricultural bank	26	37
Other	9	9
Total	100	100

Source: Based on IFPRI Survey 1995-96.

Table 14. Credit Constraints

	Current Credit (US\$)	Interest Rate (%)	Required Credit (US\$)
Wholesaler			
RRD	2,102	2.57	6,556
NES	1,810	5.04	262,202
MRD	4,014	4.43	18,143
Medium Miller			
RRD	571	2.17	3,810
NES	2,133	2.50	14,206
MRD	4,873	2.56	25,360
State Owned Enterprise			
RRD	141,231	1.27	89,524
NES	3,454,382	1.53	9,206,349
MRD	5,769,893	1.75	14,147,186

Source: Based on IFPRI Survey 1995-96.

Table 15. Rice Storage

Marketing Agent	Capacity (tons)	Rice Stock (tons)	Holding Period (days)
Retailer	5.6	1.7	5.8
Wholesaler	117.3	22.3	5.9
Assembler	6.1	0.2	1.3
Small Miller	17.9	1.9	2.3
Polisher	1930.9	480.3	15.6
SOE	21734.3	2978.5	23.2

Source: Based on IFPRI Survey 1995-96.

Table 16. Unit Operating Costs (US\$/ton)

Region	Wholesale rs	Medium Millers	Large Millers and Polishers	State Owned Enterpris es
Red River Delta	7.85	3.26	8.24	55.26
Mekong River Delta	11.67	6.29	7.29	44.99

Source: Based on IFPRI Survey 1995-96.

Table 17. Composition of Retail Price

		Red River Delta		Mekong River Delta	
		(US\$/ton)	(% of retail price)	(US\$/ton)	(% of retail price)
Farmers	Unit cost	206	65	120	40
	Unit profit	57	18	93	31
	Farmgate price	263	83	213	71
Marketing Agents	Unit cost	19	6	33	11
	Unit profit	34	11	55	18
	Marketing margin	53	17	88	29
Retail Price		316	100	301	100

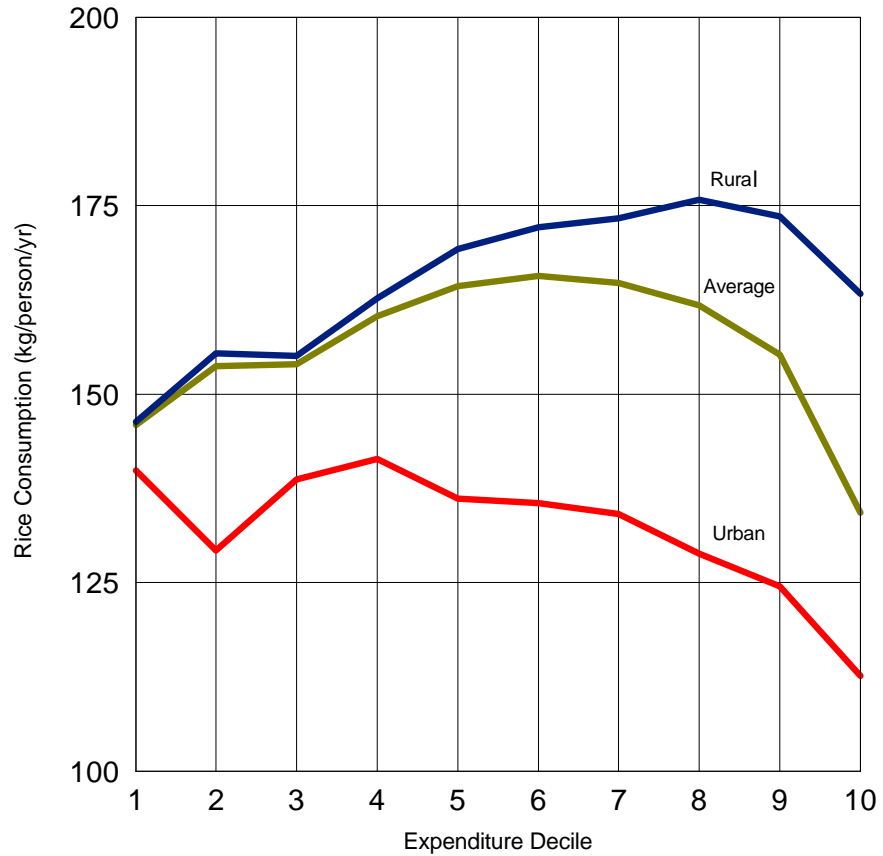
Source: Based on IFPRI Survey 1995-96.

Table 18. Implicit Tax and Rent Associated to Rice Export Quota

Year	Average Export Price (US\$ per ton)	Average Price in the South (Dong per kg)	Exchange Rate (Dong per US\$)	Implicit tax (percent)	Export (thousand tons)	Rent (Million US\$)
1991	226	1,499	9,229	27	1016	62.3
1992	207	1,721	11,114	24	1960	98.2
1993	203	1,833	11,537	21	1649	69.4
1994	218	1,818	11,161	24	1989	105.2
1995	266	2,208	11,032	24	2020	127.7
1966	266	2,287	11,036	21	2021	165.6

Source: Computed by authors based on data from General Statistical Office and Ministry of Trade.

Figure 1: Rice Consumption by Expenditure Decile



Source: Data from the Viet Nam Living Standards Survey (1992-93)
 Note: The deciles are defined on the basis of the real value of consumption expenditure per capita, including the imputed value of home production and the rental equivalent of housing and consumer durables. All deciles are defined according to national rankings rather than within urban and rural areas.

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