

Intal, Ponciano S.; Garcia, Marissa C.

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Philippine Institute for Development Studies
Surian sa mga Pag-aaral Pangkaunlaran ng Pilipinas

Rice and Philippine Politics

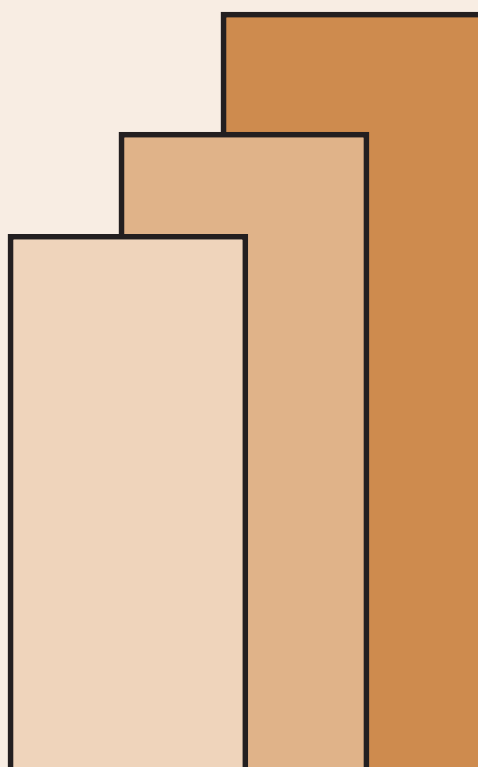
Ponciano S. Intal Jr. and Marissa C. Garcia

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The Research Information Staff, Philippine Institute for Development Studies
3rd Floor, NEDA sa Makati Building, 106 Amorsolo Street, Legaspi Village, Makati City, Philippines
Tel Nos: 8924059 and 8935705; Fax No: 8939589; E-mail: publications@pidsnet.pids.gov.ph
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Rice and Philippine Politics

Ponciano S. Intal, Jr. and Marissa C. Garcia
Economics Department, De La Salle University–Manila

Abstract

Rice has been a pivotal political commodity since the Commonwealth because of its importance as a staple food and calorie source for majority of the population, especially in the low-income groups, as well as a source of employment and income to a wide range of people that comprise the demand and supply chain. As a result, food security and price stability continue as twin priority objectives of the government regimes in the Philippines.

Using a political economy perspective, this paper establishes the strong relationship between rice and politics and explains recent developments in the Philippine rice landscape. Results of the analysis show that the price of rice has been a significant determinant in election results since the 1950s, with the exception of 1998, where despite stable prices, the candidate from the incumbent administration failed to win the presidential elections. In addition, reliance by the Philippine government primarily on price instruments to achieve its rice objectives and to protect farmer and consumer interests has not resulted in any substantial improvements in rice production. In fact, the shift to rice protection since the 1980s has failed to stabilize domestic rice prices and has effectively penalized the poorer households. This has been traced largely to the failure of the National Food Authority to provide timely, accurate, and appropriate intervention in the country's rice market.

If the Philippines is to achieve sustained, stable rice supply at low prices and at the same time promote rice consumer and producer welfare, the adoption of a private-focused, market-based regulatory regime without a rice trading parastatal (but with rice emergency reserves, not for price stabilization) remains as a long-term objective. In the meantime, a two-pronged transitional approach is suggested: 1) Setting up a *Tax Expenditure Fund* ceiling for all subsidies to government-controlled and -owned corporations (GOCCs); and 2) More aggressive support of productivity enhancing investments in the rice sector, e.g., irrigation and better varieties and improved farming practices through agricultural research, development, and extension (RD&E).

Key words: rice, politics, political economy, rice politics

Rice and Philippine Politics

Ponciano S. Intal, Jr. and Marissa C. Garcia¹
Economics Department, De La Salle University–Manila

“Rice is... 4 percent protein and 96 percent politics.”

– Lawrence Theriot, a Washington, DC lobbyist (Dobbs, 2000).

“The first sign of civil unrest can often be traced to rising rice prices.”

– Mahabub Hossain, International Rice Research Institute (IRRI) economist (1999).

“Rice: it’s more than just a food.”

– Linda Wojtan, Chair of the Advisory Board, National Clearinghouse for US-Japan Studies (1993)

1.0 Introduction

Rice has been intertwined with politics in the Philippines since the Commonwealth period before the Second World War. Rice continues to play a vital role in Philippine political economy, accounting for 17.4% of Gross Value Added in Agriculture, 3.5% of Gross Domestic Product, and providing a source of income to its extensive chain of stakeholders on the demand and supply side, consisting of more than 3 million rice farmers and their families, thousands of traders, millers, retailers, and their families, and numerous individuals employed in the processing, distribution, and sales of its related products. Moreover, as a staple food of about 80%–85% of the Philippine population, rice comprises about 35% of the total calorie intake per Filipino. Rice is more important to people at the lower income levels, where households in the lowest income quartile depend on it for as much as 60%–65% of their calorie intake (David and Balisacan 1995, Sebastian *et al.*, n.d.). By the sheer magnitude of its contributions to the country’s economic development as well as the diverse and conflicting economic impacts it has on various segments of society, the sustainable supply of rice at low and stable prices has been the government’s overriding objective.

Significant changes have occurred in the domestic and global front (e.g., rising cost of farm inputs, the availability of cheaper import alternatives, and the productivity plateau in technological breakthrough, etc.) that pose as a serious challenge to the government in achieving its food security goals and in balancing the interests of both farm and non-farm population. In celebration of the international year of rice, this paper makes an attempt at initially understanding the interplay of rice and politics in the Philippines and explaining the developments in the Philippine rice industry within a political economy perspective and draws up policy directions for improved rice productivity in the future.

The study is organized accordingly. Following the introduction, a discussion of historical trends in production, consumption, and trade is provided in section 2. An analysis of the

¹ The authors would like to acknowledge with thanks and appreciation, the research assistance provided by Kathreena del Rosario, DLSU–Manila.

existing marketing landscape and nominal protection rates in the rice industry is then given in section 3. A discussion on rice and politics is provided in section 4, followed by an analysis of issues concerning price stabilization in section 5. Finally, the study draws conclusions and offers suggestions for defining future production strategy.

2.0 Review of Historical Trends

2.1. Production

Rice production in the country increased at a modest rate of 3.3% from 3.4 million metric tons (mmt) in 1970 to 8.6 mmt in 2002 due primarily to the adoption of improved rice varieties as the Philippines exhausted its land frontiers by the 1960s (Table 1). However, despite increases in land productivity, farmer interest in rice farming has diminished through the years due to the increasing cost of rice cultivation brought about by the rising opportunity cost of labor and land and the availability of lower priced imported rice, which further dampened incentives for rice production (Hossain, n.d., Pingali, 1995). In addition, because modern rice varieties are mainly suited to irrigated conditions and favorable rainfed areas than traditional varieties and due to the seasonal and erratic nature of the monsoon, investments in irrigation become a crucial determinant in rice production. Thus, the lack of infrastructure support for agriculture by the government, especially in irrigation since the 1980s, owing to budgetary and foreign debt problems as well as competing demand for water, have contributed to the dismal growth of rice output since 1990 (Baulita-Inocencio *et al.*, 1995; Hossain, n.d.; and David 1992). Moreover, the lack of proper maintenance of irrigation facilities has meant the deterioration of these systems and the reduction in the effective life of these investments and area coverage (Baulita-Inocencio *et al.*, 1995; and Intal, 2002). This implies that the potential for output growth through improved cropping intensity from irrigation has not been effectively realized to compensate for the decline in the average farm size brought about by land conversion and other population pressures (Baulita-Inocencio *et al.*, 1995).

On a regional basis, Central Luzon consistently accounted for the largest share with 16.3% (1.4 mmt) of total production in 2002, followed closely by Western Visayas and Cagayan Valley with 13.1% and 12.9% (both with 1.1 mmt), respectively (Figure 1). Although Central Luzon continues to dominate rice production in the country, the regional profile of rice output has changed due to the continuous increases in the yield contributions from the various regions in the Mindanao area with a recorded average growth rate of 4.4% from 1970–2002 compared to 3.1% in the Visayas and 2.8% in Luzon. Notably, growth rates in all six Mindanao regions were above the national average, with ARMM (5.3%), Southern Mindanao (4.7%), and Western Mindanao (4.6%) as the primary growth centers. This implies that had it not been for the strong growth performance of Mindanao, total rice production would have increased at a much slower pace of 2.9%. The better than the national average performance of Mindanao saw a corresponding increase in the region's share from 17.1% (0.6 mmt) in 1970 to 24.8% (2.1 mmt) in 2002 and a concomitant reduction in the relative contributions of Luzon from 64.7% (2.1 mmt) in 1970 to 55.8% (4.8 mmt) in 2002, notably Central Luzon

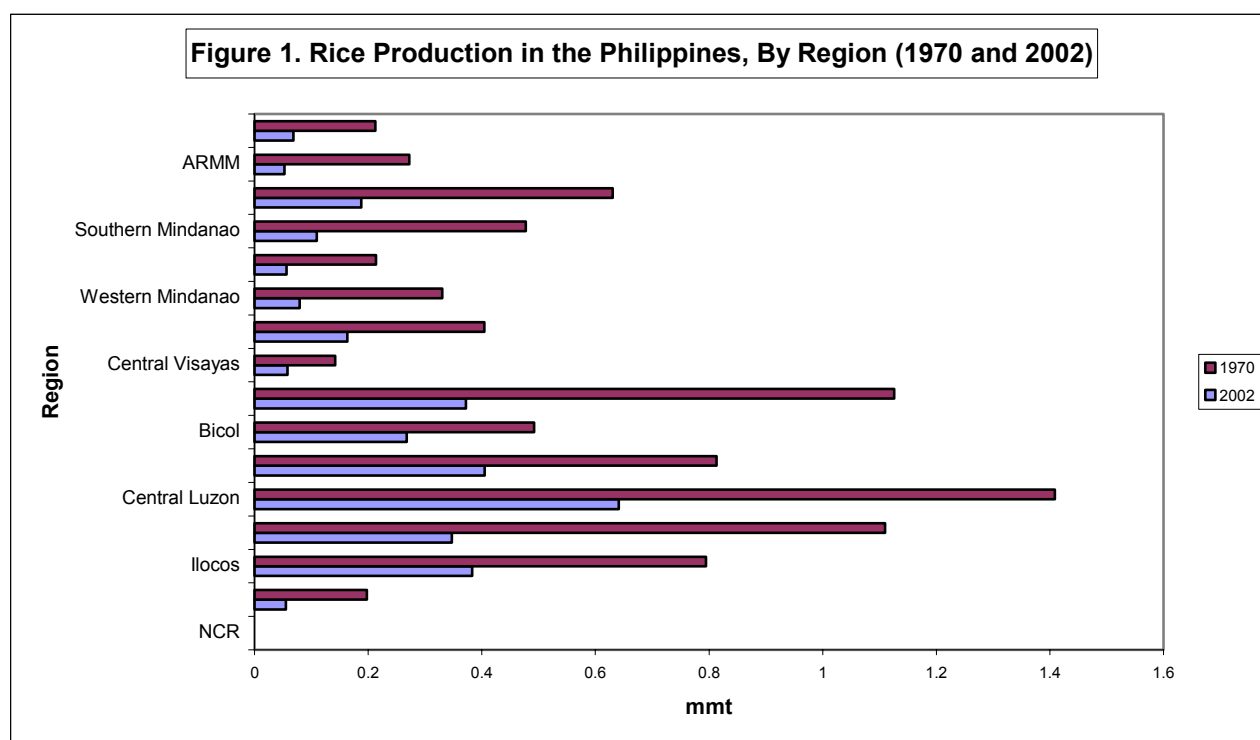
(from 19.8% to 16.3%), Southern Tagalog (from 12.5% to 9.4%), Ilocos (from 11.8% to 9.2%), and Bicol (from 8.2% to 5.7%). Relative contributions from the Visayas were more or less stable at the 18%–19% range (from 0.6 mmt to 1.7 mmt).

Table 1. Rice Production and Consumption, 1970–2002 (in mmt)

Year		Production	Consumption	Surplus/(Deficit)
1970		3.2	3.4	(0.1)
1975		4.0	4.3	(0.3)
1980		5.0	4.9	0.0
1985	R/	5.8	5.7	0.1
1990		6.1	6.5	(0.4)
1995	R/	6.9	7.2	(0.3)
1996	R/	7.3	7.9	(0.5)
1997	R/	7.3	7.9	(0.6)
1998		5.6	7.4	(1.9)
1999		7.7	8.4	(0.7)
2000		8.1	8.9	(0.8)
2001	R/	8.4	9.1	(0.7)
2002		8.6	9.5	(0.9)
AAGR		3.1%	3.3%	6.4%

R/ - Revised

Source of Basic Information: Bureau of Agricultural Statistics, Department of Agriculture.

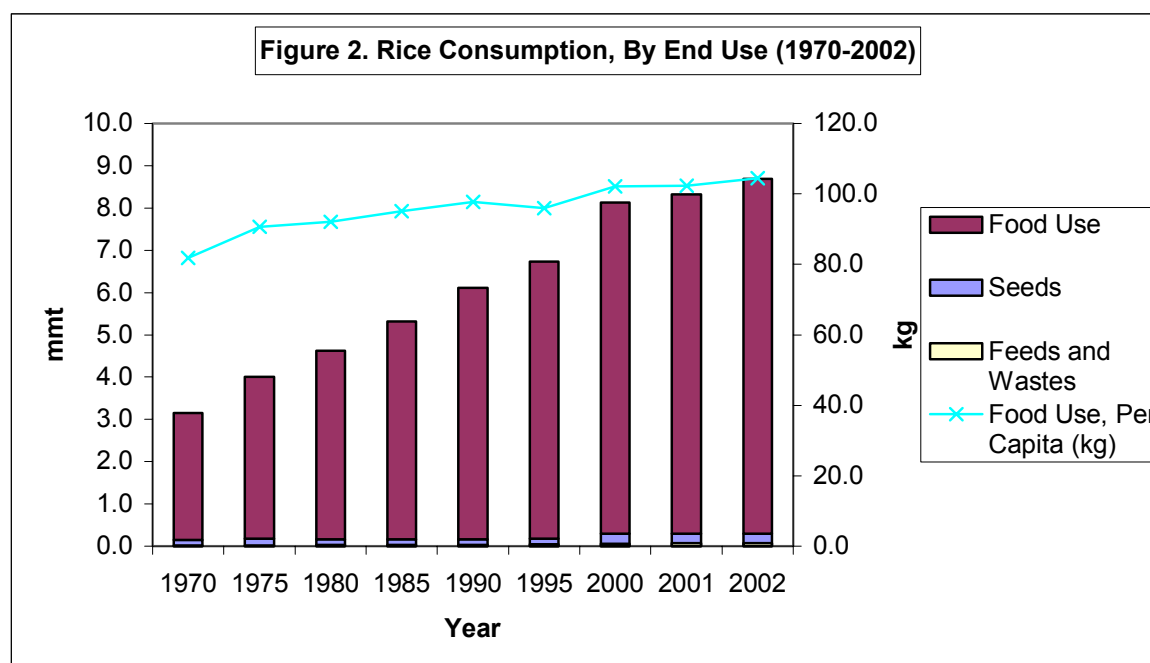


*NCR data from 1970–1997 was included in the Southern Tagalog region.

Source of Basic Information: Bureau of Agricultural Statistics, Department of Agriculture.

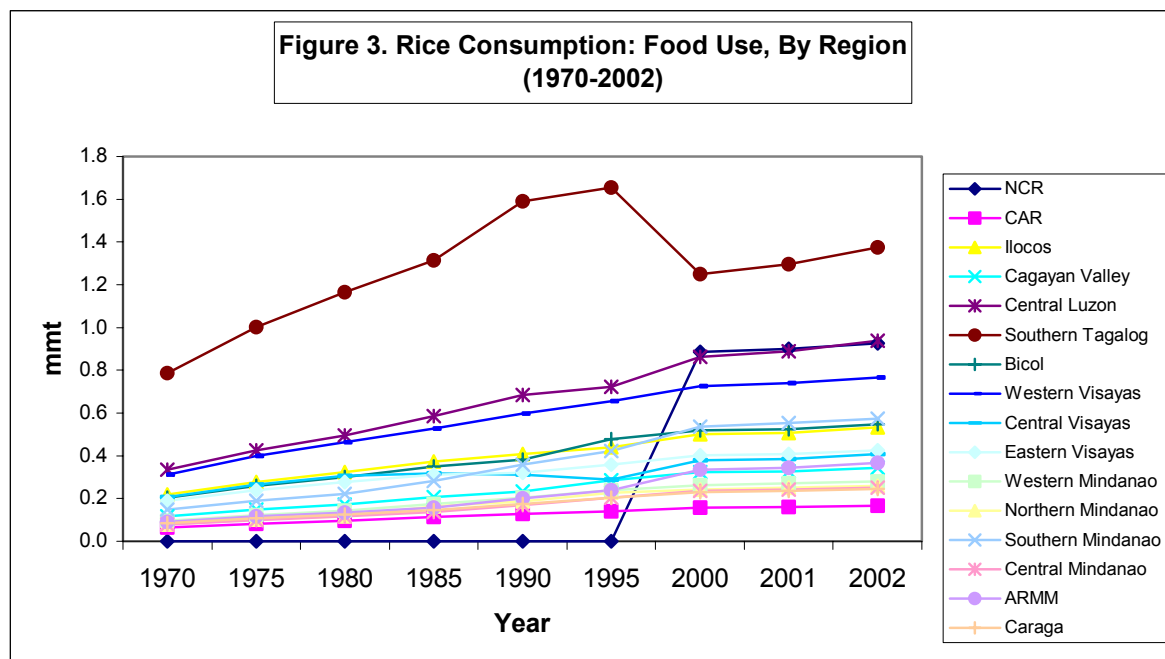
2.2 Consumption

Domestic rice consumption from combined food and non-food uses increased by nearly 282% from 3.4 mmt in 1970 to 9.5 mmt in 2002 or an average annual growth rate of 3.3% during the 32-year time period (Table 1 and Figure 2). Since rice is primarily utilized as food for human consumption, much of the growth in rice demand is attributed to a nearly threefold increase in food uses from 3.0 mmt to 8.4 mmt during the same period. This represents an average national growth rate of 2.8%, keeping pace with the population growth rate of 2.5% during the same period. Food consumption patterns were again heavily influenced by the regions in Luzon, which emerged as the principal producer and consumer in the country, leading the way in terms of magnitude and reaching an estimated 4.8 mmt in food consumption in 2002 with a market share of 57.5% and an average growth rate of 2.8% from 1970 to 2002 (Figure 3). From among the regions in Luzon, Southern Tagalog accounted for the largest share with 16.4% (1.4 mmt) of total rice consumption in 2002, Cagayan Valley with 11.1% (0.9 mmt), and the NCR with 11.0% (0.9 mmt). As with production, although the combined Luzon area continues to increase and provide the largest volume of rice production destined for food uses, growth in food consumption was likewise dominated by Mindanao with an average growth rate of 3.8% from 1970–2002. The two major food utilization growth centers were ARMM and Southern Mindanao with 4.5% and 4.3% average annual growth, respectively. On the other hand, the Visayas continue to lag behind the national average with 2.8%, resulting in slightly diminished shares from 23.5% in 1970 to 19.0% in 2002.



*NCR data from 1970–1997 was included in the Southern Tagalog region.

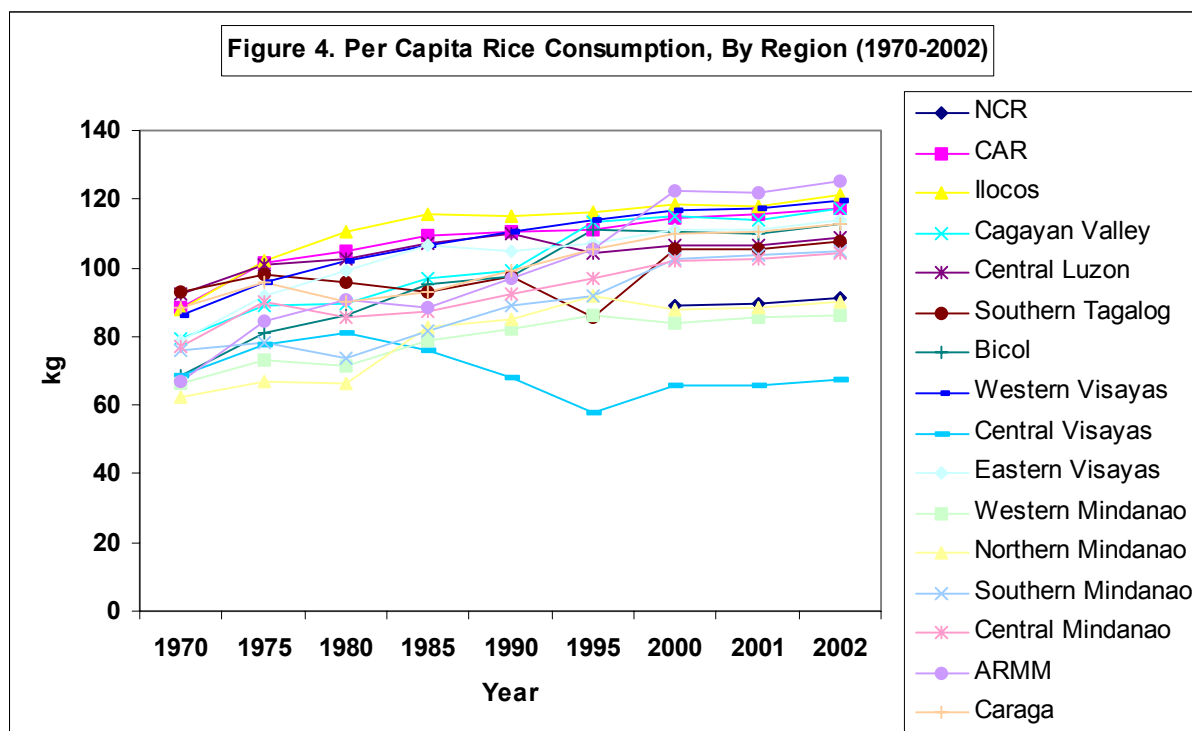
Source of Basic Information: Bureau of Agricultural Statistics, Department of Agriculture.



*NCR data from 1970–1997 was included in the Southern Tagalog region.

Source of Basic Information: Bureau of Agricultural Statistics, Department of Agriculture.

Growth in food consumption on a per capita basis outpaced population estimates since 1970, resulting in a steady increase from 81.8 kilograms (kgs) in 1970 to 104.7 kgs in 2002. The ARMM region emerged as the largest per caput consumer with 125.4 kgs in 2002 with a growth rate of 1.7% (58.5 mmt) from 1970 to 2002, the highest in the country (Figure 4). A close second was Ilocos with 121.3 kgs, followed by Western Visayas with 119.3 kgs. On the other hand, the traditional principal consumers on a per capita basis during the 1970, such as the Southern Tagalog and Central Luzon regions experienced the smallest increases in per capita consumption with 14.7 kgs and 16.8 kgs, respectively. With the exception of Central Visayas, which showed a decline of 0.9 kgs, from 68.4 in 1970 to 67.5 in 2002, all regions in the country registered increases in per capita demand.

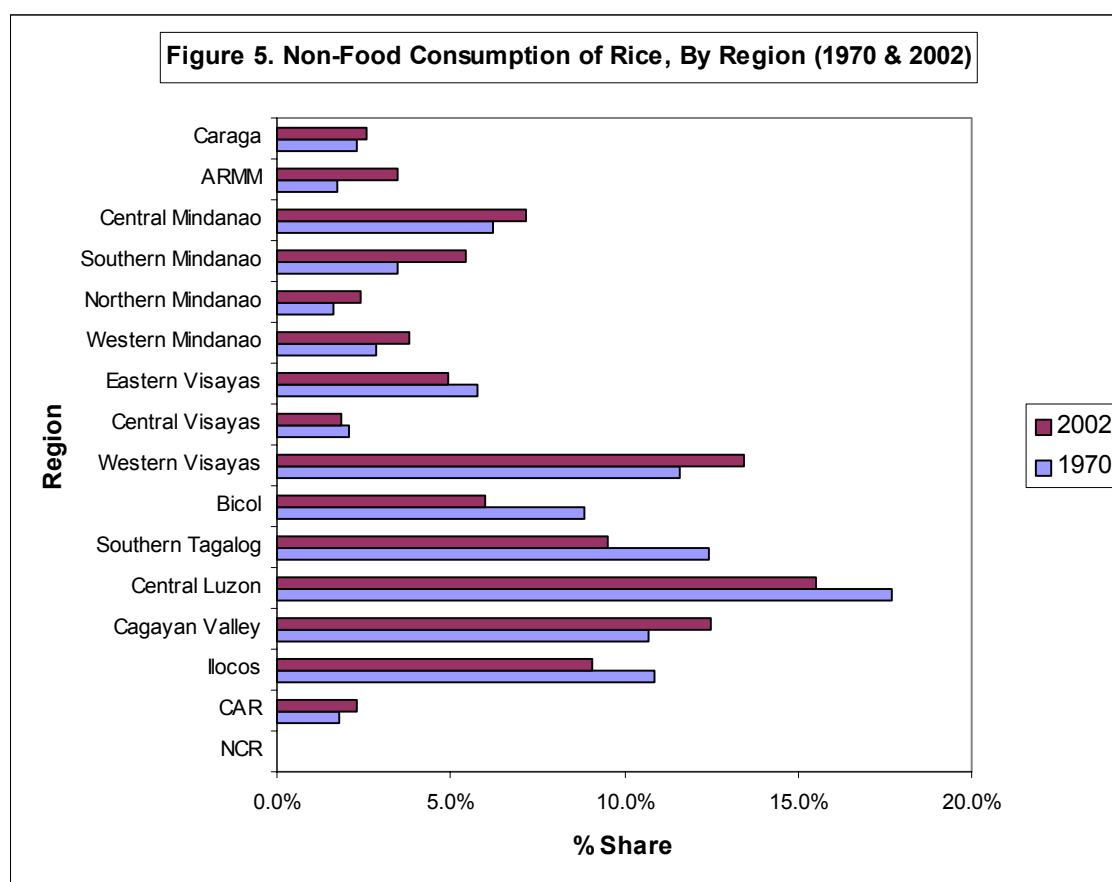


*NCR data from 1970–1997 was included in the Southern Tagalog region.

Source of Basic Information: Bureau of Agricultural Statistics, Department of Agriculture.

The volume of non-food uses of rice reached 1.1 mmt in 2002, accounting for 11.7% of total consumption, with feeds and wastes contributing 0.8 mmt and the rest (0.3 mmt) from seed utilization. Growth in animal feeds and waste utilization averaged 1.0% from 1970–2002 due to the expansion of the livestock industry while seed uses decreased by the same amount.

The continued expansion of Mindanao's rice sector also extended to non-food uses. While the region's non-food consumption started off as the smallest contributor among the three major island groups in the country in 1970, it has since surpassed the Visayas as the second largest non-food consumer with an average growth rate of 4.8% from 1970–2002. Within Mindanao, the ARMM region continues to dominate growth in non-food uses with an annual rate of 5.9%, reaching 0.04 mmt (3.4%) in 2002. Although Luzon remains the largest consumer of non-food uses with 0.6 mmt (54.9%) in 2002, data shows declining proportions from 62.4% in 1970 and lagging growth of 3.3%, the lowest among the various regions. The largest reductions in relative shares came from Southern Tagalog from 12.4% (0.04 mmt) in 1970 to 9.5% (0.1 mmt) in 2002 and Bicol from 8.9% (0.03 mmt) to 6.0% (0.07 mmt).



*NCR data from 1970–1997 was included in the Southern Tagalog region.

Source of Basic Information: Bureau of Agricultural Statistics, Department of Agriculture.

2.3 Trade

From a position of marginal exporter in rice production until the early 1990s, the Philippines has since been a consistent and growing importer. This reflects the increasing gap between production and consumption as well as the rising dependency on the external rice market to meet our food requirements, thus, putting food security issues in the forefront. Importation is done exclusively by the National Food Authority, which maintains monopoly power over the international trade of rice in the country.

Rice imports increased at an average rate of 27.5%, from 0.001 mmt in 1970 to 1.2 mmt in 2002, approximately 13.9% of domestic production, the highest thus far since 1970, except in 1998 where imports rose to 39.0% of domestic proportion due to the devastating effects of the combined La Niña (flooding) and El Niño (drought) phenomena, which brought local rice production to abnormally low levels (ISGN, n.d.). In addition, the recent years saw exceptional growth in import volumes reaching 36.8% in 2000–2002.

Thailand and Vietnam have been the country's main trading partners since the 1990s, accounting for at least 60% of total import quantities. The only exceptions were in 1998

when rice imports from China (1,351.3 mmt or 62.3% of total shares) and recently in 2002 from India (594.1 mmt or 49.7%) flooded the domestic market.

Ironically, import volumes have exceeded by a huge margin the minimum access quota, which the Philippine government sought exemptions for under the General Agreement on Tariffs and Trade-Agreement on Agriculture (GATT-AoA) under the World Trade Organization (WTO)². The penalty for such an offense is a 100% out-quota tariff rate compared to 50% for volumes within the minimum access quota. However, despite the higher tariff rate, prices of imported rice were substantially lower than locally produced rice³ (ISGN, n.d.). For example, the long queues for rice witnessed in 1995 was due to the availability of cheaper imported rice priced at P10.75 per kilo compared to the price of domestically grown rice, which were available at a much higher price of P24 per kilo (Regalado, 2000).

Table 2. Rice Imports and GATT-WTO Minimum Access Quota, 1970–2002 (in mt)

Year	Imports	% of Domestic Production	GATT-WTO Minimum Access Quota
1970	<1,000	0.0%	
1975	134,800	3.4%	
1980	<1,000	0.0%	
1985	540,900	9.4%	
1986	6,000	0.1%	
1987	<1000	0.0%	
1988	181,167	3.1%	
1989	219,928	3.6%	
1990	620,494	10.2%	
1991	<1000	0.0%	
1992	627.5	0.0%	
1993	201,594.2	3.3%	
1994	<1000	0.0%	
1995	263,197	3.8%	59,000
1996	862,258	11.8%	
1997	722,213	9.9%	
1998	2,170,606	39.0%	
1999	833,913	10.9%	119,460
2000	638,780	7.9%	
2001	807,751	9.6%	
2002	1,196,157	13.9%	
2003			
2004			239,940
AAGR	27.5%		

Note: Bold print represents presidential election year.

² The Philippines and Korea are the only countries in the WTO that have quantitative restrictions (QRs) on rice imports (Tolentino, 2002).

³ Prices of local rice can go as high as 2x or 3x as much as the price of imported rice (ISGN, n.d.)

As a token recognition of its niche in the lives and livelihood of majority of its people, the Philippine government sought protection for rice under the AoA. It negotiated for the exemption of rice by lifting the QRs until 2004 through the Special Treatment Clause or “Rice Clause” of the AoA. While tariffication was postponed until 2004, the WTO forced the country to import, regardless of necessity, a Minimum Access Volume (MAV) of 1% of consumption or 59,000 mt in 1995, which was gradually raised to 119,460 mt in 1999, and then to 4% or 239,940 mt in 2004. These amounts were allowed entry with a 50% in-quota and a 100% out-quota tariff rate. The Rice Clause was supposedly intended to protect sensitive commodities and staple foods. MAVs imposed by the WTO contradict the very idea of a “special treatment” and render the Rice Clause useless for Philippine rice, its continuance after the implementation period must be negotiated requiring “additional and acceptable” trade-offs from the Philippines. A request for an extension would therefore entail not only sacrificing other sectors as concession by extending this false sense of security but also neglecting the development of local rice production.

The figures speak for themselves. A decade and a half before the accession of the Philippines to the WTO, growth in rice production was moving at a snail’s pace of 0.9% annually. In 1998, rice output dipped by nearly 24% from the previous year’s production of 7.30 mmt, which the government exploited by importing a record-shattering amount of 2.17 mmt. Since 1995, importation has gone beyond the MAV requirements: 257,260 mt against 59,000 mt in 1995, 2.17 mmt against 119,460 mt in 1999 or 239,940 mt in 2004. Charged with 50% in-quota and 100% out-quota tariffs, the volume of imports thrashed local rice production when it led to depressed farmgate prices for palay. Local rice, which was priced at almost thrice the world price, could not possibly compete with imports from Vietnam and Thailand. What more when developed nations like the US starts dumping its highly subsidized and price-supported California rice?

2.4 Marketing Chain

In the Philippines, nearly two-thirds of rice land is cultivated by tenants. Under a shared cropping arrangement, a certain percentage of the harvest goes to the landlord as payment for the use of land as input to production and the rest of the harvest goes to the farmer. In times of crop failure, the farmer resorts to borrowing from the landlord, traders, or informal lending institutions for the purchase of farm inputs and for the provision of his needs. Payment of the principal plus some interest is then subtracted from the produce. Palay⁴ then goes through threshing and milling. In most cases, traders, who may also be the landlord, likewise own the threshing and milling facilities (Pelegrina, n.d.).

The share of farmers to retail prices fluctuated from the early 1970s to the late 1980s, but secularly declined thereafter. The farmgate price to retail price ratio was 0.51 during 1973–1975, 0.49 during 1989–2001, and 0.43 during 2001–2003. The similar decline in the 1990s was due primarily to the decrease in the ratio of farmgate price to wholesale price, which dropped from 0.54 during 1989–1991 to 0.48 during 2001–2003. The ratio

⁴ Defined as unhusked rice.

of wholesale price to retail price was largely stagnant at 0.91 during 1991–2003. In short, the decline in the share of farmers to the retail price of rice was due to the rising wholesaler's margin.

Some analysts consider the decline in the share of farmers' to the retail price of rice as reflective of the power of rice traders in the country, which extends not only in controlling inputs and processing activities but also to the market price of rice. By holding on to their stocks, wholesalers could create artificial shortages by hoarding rice to bid up prices or by flooding the market with their stocks to reduce prices to artificially lower levels (Pelegrina, n.d.). Moreover, the government has not been successful in dismantling a "rice cartel" composed of seven Chinese families that has contributed in keeping high consumer prices through monopsonistic tactics. With limited resources and access to credit or processing and storage of rice, farmers are forced to sell their harvest even at low prices, thus, enforcing the trader/wholesaler control over prices (Garcia, n.d.).

The analysis in the preceding paragraph is the stereotypical image of the monopsonitic/monopolistic rice traders is a popular one for decades. Mears, *et al.* (1974) also alludes to this popular perception, stemming in part from the heavy concentration of the large rice wholesalers in Manila in two streets of Binondo. The large rice wholesalers frequently provided the financing of millers in the transit market (e.g., Cabanatuan), which they recovered through rice purchases at prices slightly lower than the prevailing market prices. The meticulous analysis of Mears, *et al.*, (1974), largely disproves the popular perception of the traders described above. Specifically, taking into consideration the holding cost of rice stocks, the probability of loss is nearly as high as the probability of profit. Indeed, traders mixed favorable price years with many years of unfavorable prices. Similarly, taking into account the holding cost of rice stocks, the probability of loss to a farmer that opts to store and sell his stocks at a more appropriate time several months later is only slight less than that of a trader. Mears, *et al.* (1974) analysis suggests that the popular perception against traders being monopsonistic necessitates an assumption of zero holding cost (including opportunity cost) for farmers, which is unrealistic.

Nonetheless, Mears, *et al.* (1974) posits that up to the early 1970s, the source of profit is in astute trading of rice, not in the simple act of storing. This arises from the large intraseasonal and interyear volatility of rice prices that stems in large part from the ineffective rice policy and buffer stock management by the government. Politics, financial constraint, and organizational/institutional weakness, in addition to market information failures, all play a role in the ineffective management of the country's rice buffer and price policies. This is discussed in greater detail in the next section.

Mears, *et al.* (1974) indicates that the country's rice marketing system is largely efficient. For the main trading areas, the price differential between markets was less than the transport costs between them (when transport costs include shipping costs and the premium to cover for risks, the price differential disappears before the shipment

arrives). As the infrastructure and transport services improve, the price differentials come close to the shipping cost.

The same finding that any arbitrary market power of wholesalers and retailers does not appear at the aggregate level and if ever is only of local significance and temporary had been brought forth even earlier by Mangahas, Recto, and Ruttan (1966). They noted that the major exceptions to the statement were in regions with poor transport, indicating that good infrastructure and transport facilitates greater market competition. That the country's rice marketing system (between large markets) is relatively efficient is corroborated by recent analysis using time series analysis techniques (Rufino, 2005).

2.5 Nominal Protection Rates

The Philippines has traditionally relied on price intervention instruments to address domestic food security and protect the interest of both farmer and consumer groups. Nominal protection rates (NPRs)⁵ affect the welfare of consumers and rice growers in opposite directions (Tolentino, 2000). Lower NPRs imply low domestic prices, which favor consumers while higher NPRs imply high domestic prices, which benefit producers. The historical trend in the NPRs of rice from 1970–1998 shows a movement towards protectionism as evidenced by much higher NPRs in recent years (Table 3). Ironically, NPRs were highest at 68% in 1995–1998, after the government formally joined WTO in 1995 and committed to dismantle QRs on imports and decrease the level of trade protection over time, except for rice, which was exempt until 2004. This implies a shift from a pro-consumer to a pro-producer stand by the government, presumably due to political pressures from producer groups (David, 1997). The net effect of high NPRs on income distribution is hard to gauge, i.e., positive NPRs favor rice farmers and hurt poor rice consumers, who spend a substantial amount of their income on rice purchases. However, most rice farmers are also rice consumers either because their small landholdings do not produce enough rice for their consumption or because they sell most of their palay right after harvest to pay for their financial obligations and/or other needs (Regalado, 2000).

These high rates of protection, which are expected to encourage output growth of domestically produced rice have yet to show substantial positive results. The average growth rate in rice production when NPRs were considerably higher was -6.7% from 1995–1998 and hardly changed at 3.3% from 1995–2002 compared to 3.2% from 1970–1994 when NPRs were significantly lower.

While high rates of protection could possibly promote rice production in the country, this type of policy cannot be efficiently sustained in the long-run (David, 1997). Rice production achieved through artificially excessive domestic prices compared to its world price counterpart leads to inefficiency and waste (Heytens, n.d). Instead, future government policy on rice should concentrate on supporting heavily productivity-enhancing investments (e.g., irrigation, agricultural R&D, and extension services)

⁵ Defined as the percentage difference between domestic and border prices.

through increased public expenditure and utilize price policies only as a last resort to achieve self-sufficiency and price stability targets (Heytens, n.d.; Intal, 2002).

Table 3. Nominal Protection Rates (NPRs) of Rice, 1970–1998

Year	NPR
1970–1974	4.0%
1975–1979	-13.0%
1980–1984	-13.0%
1985–1989	16.0%
1990–1994	19.0%
1995–1998	68.0%

Source: David (1997).

3.0 Rice and Philippine Politics

The statements of Theriot (Dobbs, 2000), Wojtan (1993) and Hossain (n.d.) at the beginning of the paper are suggestive of the various nuances of the political economy, rice politics, and trading. Mr. Theriot's (Dobbs, 2000) statement was put as a hyperbole, but nonetheless brings out the vulnerability of a private (foreign firm) having privileged position in the trading of rice between two countries (in this case, between the US and Haiti). Perhaps the case of the US-Haiti rice trade may be unusual in that a US-owned Rice Corporation of Haiti that allegedly largely benefited from the free trade politics of Haiti (supposedly imposed by the International Monetary Fund) and allegedly hurting Haiti rice farmers (through lower import prices) (Dobbs, 2000).

Wojtan's (1993) statement presents the anti-thesis of Theriot's (Dobbs 2000) "joke" about the politics of rice trade and underscores the special problem of rice in Japan's WTO and bilateral trade negotiations, that is, rice is viewed not just as food in Japan but central to Japan's indigenous culture. The Japanese society's commitment to group harmony and consensus seeking is believed to have originated from wet rice cultivation. Many aspects of Japanese life and culture (language, folklore, festivals, family rituals, rice-based foods, arts, etc.) have strong links to rice. The special nature of rice in the Japanese culture is also echoed historically in the centrality of rice growing and the use of rice products in the priestly duties of the Japanese Emperor under the Japanese Shinto religion, and in the ceremonial duties of the Emperor at present.

What makes the rice issue particularly difficult for Japan is that the centrality of rice in the Japanese culture is combined with the strong political power of Japanese farmers in the parliament because of "unbalanced populations among representative districts that is overwhelmingly in favor of farming districts (Wojtan, 1999). And rice is controlled in Japan, in terms of price, distribution, and production.

Studies have shown that countries tend to protect their agricultural sector where they reach a threshold middle income (e.g., US \$5,000 per capita GDP). This is due to the concern of political leaders on the widening income gap differential between farmers and urban households. The faster the economic transformation, the wider the income disparity between the urban and rural households, and the greater is the pressure for agricultural protection. Households become more tolerant of the rise in agricultural protection because food has become a small fraction of their overall income. It is the combination of Japanese culture, politics, and consumers' tolerance that has made rice a particularly unique problem for Japan in its trade negotiations.

Hossain's (n.d.) statement is at the heart of the political economy of rice in developing countries, with the understandable concern of many governments to have stable rice prices. At base, rice is a political commodity because it is the most important food grain and source of calories of the population (especially among the poor) on the one hand, and a major source of income and employment in the country, on the other hand. Not surprisingly, the government's rice price objective tends to be to stabilize prices at a level that is affordable to consumers and yet remunerative to farmers. Government performance in the rice economy—from production to rice marketing—has been very mixed across countries and across time (especially in the Philippines) and in some cases (e.g., Japan) very expensive.

In the Philippines, the government has been particularly sensitive to substantial rice price hikes. Indeed, major institutional changes in the rice intervention agency have been in reaction to "rice crises." The Philippine rice trading was previously undertaken by private traders at the start of the 20th century until a critical rice shortage in 1935. Poor harvest caused by bad weather during 1934–1936 reduced production by 20% and raised rice prices by 25% in 1935 and 27% in 1936 (Intal and Power, 1990). The crisis led to government rice importation in that year and the establishment of the National Rice and Corn Corporation (NARIC) in 1936 that augured the active involvement of the government in rice trading.

Similarly, the rice crisis in 1971 arising from poor weather, pest infestation, and the Great Central Luzon flooding in 1972 reduced rice output by 17% in the face of rice shortage. This led to the establishment of the National Grains Authority (NGA) in 1970 and later in the National Food Authority with expanded scope for operations compared to NARIC and later on the Rice and Corn Administration (RCA) in the 1950s and 1960s. NGA's functions aimed at integrated growth and development of the grains industry including rice, corn, feed grains, and other grains.

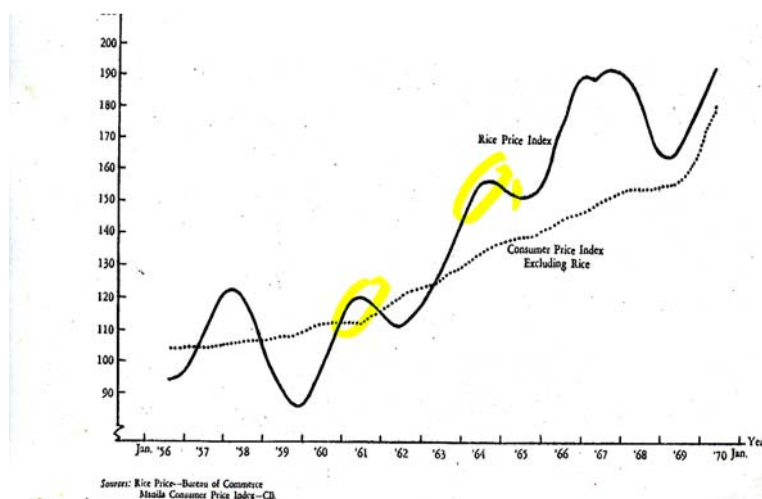
The role of rice in Philippine politics is well suggested by the following statement by Nestor Mata, a Malaya columnist (2004):

"We recall how the rice shortages in the 1950s was magnified by the "pila," the long queues in the public markets, and it became a political issue that eroded the people's confidence in government."

Tadem (n.d.) notes that rice was always a major electoral issue before the Martial Law regime. “The ruling party always used its control over rice supply and distribution in order to gain more votes from the electorate. The opposition party, on the other hand, often capitalized on recurring rice crises in order to discredit the incumbent administration.” (Tadem, n.d.).

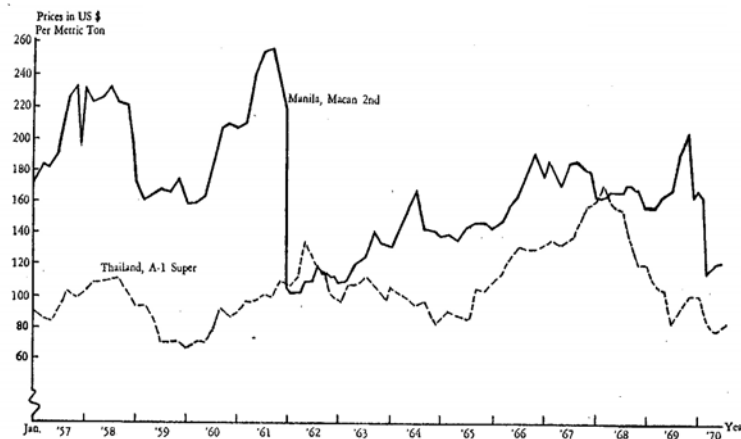
What is interesting to note is that the run-ups to presidential elections from the late 1950s to the latter 1960s have been preceded by rising rice price (See Figures 6 and 7). Under the period of rice insufficiency, rising rice prices are accompanied by “pila” or rice queue for the government’s lower priced, but inadequately supplied, rice stocks. As Mr. Mata’s (2004) and Tadem’s (n.d.) statements implied, the opposition political parties made full use of this failing of the incumbent administration’s rice policy and strategy. The resulting loss in the people’s confidence in the government is translated in the voters’ preference against the incumbent administration. The electoral defeat of President Garcia in 1961 and President Macapagal can be attributed in part to these spikes in rice prices during the run-up in the presidential elections. It is to be noted also that for the 1965 elections, the Macapagal administration increased substantially the level of rice imports (in 1964–1965) apparently in an attempt to dampen the price of rice before the elections but to no avail.

Figure 6. Comparison of Trends (12-Month Moving Averages) of Indices for Rice Price (Macan Second Class-Manila Market) and the Manila Consumer Price Excluding Rice



Source: Mears (1970)

**Figure 7. Comparison of Export Prices in Thailand and the Philippines, 1957-1970
(Prices in US \$ per mt)**



Source: Mears (1970)

The 1967 local election year is another example where the favorable rice factor contributed to the electoral success of the incumbent administration. Rafael Salas recounted that President Marcos was full of praises for the Rice Self Sufficiency Program as one of the reasons for the success of the incumbent's political party (Nacionalista Party) during the elections (Tadem, n.d.). Similarly, the news reports in August 1969 before the presidential elections of a so-called "Operation Suki" wherein the opposition party allegedly attempted to induce a rice shortage and high rice prices is indicative of the political salience of rice at that time (Manila Daily Bulletin, 1969). That the alleged scheme petered out reflects the fact that the rice supply situation actually improved substantially during that period because of the new IRRI rice variety that started the so-called Green Revolution.

Tadem (n.d.) noted that in the 1986 snap presidential elections, the Marcos government did not use the rice sufficiency card to prop up its electoral chances, as it did during the 1967 local elections and 1969 presidential elections. This is because the Philippines turned to becoming a net rice importer again by 1984. Moreover, there was substantial increase in the nominal price (by 35%) and real price (by 9.2%) of rice in 1985.

The government's reaction to the 1995 crisis is reminiscent of the rice price stabilization strategy during the Macapagal administration. The 1995 rice crisis stemmed from a 5.7% increase in demand while output largely stagnated from the previous year in part due to drought (AGILE, 2000). The demand gap led to a significant rise in the real price of rice in 1995–1996. In reaction to this crisis, the government decided to import larger volumes of rice during 1996–1998. The larger stocks of rice in government hands

(NFA) proved useful for consumers when the El Niño returned in 1997–1998 and hit Mindanao (as well as Indonesia). Despite a substantial decline in rice production in 1998 due to the El Niño, the real price of rice (i.e., the price of rice as a ratio of the consumer prices) dropped. Note that 1998 was a presidential election year. It is likely that the government's decision to over import rice was influenced by the election consideration as much as by the concern to temper the inflationary impact of the peso depreciation arising from the East Asian financial crisis. (Note that there was “over importation” in the sense that under normal circumstances a significant decline in production should result in a price increase or at least the same level of real price, but not a decline in the real price. In effect, the country's rice farmers carried substantially the burden of overall price stabilization in the face of the East Asia financial crisis). However, the incumbent administration's candidate did not win the presidential election despite the stability in the price of rice.

The year 1998 is probably unique in the history of the Philippine presidential elections since the 1950s because the price of rice did not influence the outcome of the presidential election. In the two other instances when the real (as well as nominal) price of rice was benign (1992, 2004), the incumbent administration or its handpicked successor was voted into office, which is consistent with the hypothesized direction of the political impact of rice in presidential elections in the Philippines.

To take note of more recent experience, under the Estrada administration, the government committed itself to implement the Asian Development Bank (ADB)-funded Grains Sector Development Loan Package (GSDLP) (amounting to US\$100 million), which was suppose to revolutionize the manner in which grains policy was to be implemented. Its policy reform component (the other component being investment) involves, among others, the privatization of the NFA and liberalization of rice trading.

There never was a question at all in Malacañang whether to privatize the NFA or not. The real issue was whether to privatize the agency now or delay it for a few more months or years for political considerations. Urgency over the issue of privatization was a major concern for then Agriculture Secretary Edgardo Angara (together with National Economic and Development Authority's Secretary General Felipe Medalla, Budget Secretary Benjamin Diokno, and Executive Secretary Ronaldo Zamora) because of the conditions set forth by the ADB. According to Secretary Angara, government failure to meet the conditions in the ADB-GSDLP, would endanger other pending loans amounting to \$170 million. Also, accelerating privatization came as a logical option in light of the projected P65 billion budget deficit at that time. Moreover, Secretary Angara emphasized in a memorandum that the NFA privatization remained an unfulfilled commitment to the International Monetary Fund (IMF) in relation to our debt obligations. This was perhaps to remind the Chief Executive where government policies and its multilateral creditors stand. On the other hand, Eduardo Joson II, then NFA administrator, wanted more safety nets for local farmers in view of global trade liberalization.

The Estrada administration succeeded against making an open declaration for privatization by obfuscating the NFA issue. An open declaration would have meant disaster, considering that national and local elections were set forth for the following year (2004).

When prices of oil and other basic commodities shot up in 2002, Estrada immediately lowered the selling price of NFA sugar by P3.00 and NFA rice by P2.00. The move paid off, since it helped keep that year's inflation to a "manageable" level.

Former President Joseph Estrada's flip-flopping in 2003 reflected more than conflicting opinions within his cabinet that led to contradicting and often confusing policy pronouncements. More importantly, it showed how the politics of popularity figures in government decisions amid global pressures to liberalize the economy and privatize state enterprises.

In light of the on-going negotiations on the extension of quotas on rice imports, House Bill 3339 and Senate Bill 1912, twin legislative proposals entitled "Rice Safety Net Acts," provided for the conversion of the present quota restrictions on rice imports to its tariff equivalent by July 1, 2002. No explanation was offered why the bill specified July 2002 as the date of conversion. It is interesting to note however, that this date coincides with the scheduled release of the long-delayed second tranche of the ADB-GSDLP. A "Rice Farmers Development Trust Fund" will then be created from the earnings from rice importation. The safety net envisioned by both proposals is that the fund would be allocated for the exclusive purpose of financing investments and expenditures under a comprehensive "Rice Farmers Development Program." Again, critics pointed out that there was no assurance that the much-touted revenues would materialize. In fact, the sad experience we had with the Agricultural Competitiveness Enhancement Fund (ACEF) has yet to benefit small farmers, almost a decade after the Agricultural Tariffication Act (RA 8178) was signed into law. In addition, while Philippine law allows the imposition of tariff of up to 100 percent, the actual tariff equivalent of the present QRs were much lower. WTO-prescribed computations have yielded a beginning tariff of up to 72 to 75 percent only. This will further be reduced as part of our WTO commitments.

4.0 Price Stabilization at Any Price?

The price policy debate can be expanded in two different directions. The "producer compensation" approach asks how farmers achieve satisfactory incomes when prices are "too low." On the other hand, the "consumer compensation" approach asks how consumers achieve satisfactory nutritional status when prices are "too high." There is a wide range of income distribution with many consumers too poor to afford rice even at low prices. Similarly, there is a wide distribution of land holdings and cost structures, so many rice farmers are unable to earn adequate income even with high prices. Consequently, no single price of rice can satisfy *all* consumers and producers.

Because rice is a tradeable commodity and the Philippine rice market is reasonably integrated, at any given time, a single rice price exists (Rufino, 2005). Generally, in this case, it is not possible to separate rice prices for producers and consumers, and for large and small producers, for rich and poor consumers. The “law of one price” holds at least roughly, for well-integrated markets (Rufino, 2005).

What should this one price be? The economically efficient answer in the absence of market imperfections and transaction costs, should be the cost of producing a marginal unit of rice. Since the Philippines is a regular importer of rice, that price would be the world price of rice. Precisely because rice is very important for cultural, political, nutritional, and security reasons, the policy debate just begins with the understanding of the opportunity costs of rice imports. It is the analysis of market failures and externalities that justify policy analysis in the first place. One of the most important lessons from development economics in the past half century is that “government failure” is much worse than “market failure.”

The stated objectives of NARIC in 1936 are as follows:

- 1) Provide tenants and small farmers with a just price for their crops (includes production cost and a reasonable margin for profit); and
- 2) To ensure a steady supply for consumers at a reasonable price at all times.

The above stated objectives of NARIC bring out the two key driving forces of rice policy in the Philippines since the Commonwealth period, that is, self-sufficiency and price stabilization (or at least prevention of rice crises).

Rice policy reform has focused on how to strike a balance between the interests of rice producers and consumers, where virtually the only policy instrument under discussion has been the price of rice. Historically, two dimensions have received much attention: the floor price during harvest (which is a seasonal issue) and the relative price of domestic to world prices (which depends the foreign exchange rate). The policy instruments that achieved desirable outcomes are no longer available at reasonable costs. In general, price floors and price ceilings were defended using the following policies:

- 1) Monopoly control over international trade in rice;
- 2) Access to credit (at heavily subsidized interest rates);
- 3) Procurement of as much rice as needed to lift the price in rural markets to the policy-determined floor price; and
- 4) Extensive logistical facilities (complex of warehouses).

Imperative reform of rice policy has recently been driven by two forces. First, stabilization policies were difficult in budgetary terms. Subsidized imports when domestic supplies were short and world prices were high, and increased corruption further called into question the use of public funds for price stabilization. Second,

successful stabilization enhanced profitability and biased farmer decision making towards cultivation. This bias was desirable as new rice technology and infrastructure, especially irrigation, meant that farmers had to learn how to manage a new production possibility frontier. These developments posed serious difficulties in crop diversification (towards crop and livestock systems).

The drive for rice price stabilization in the Philippines is shared by other countries in East Asia. As in the Philippines, rice has both economic and political salience in other countries in the region. At the same time, the world rice market has historically been relatively more volatile than other products because the world rice market is thin compared to other crops like corn and wheat. As a result, East Asian countries tend to intervene in the domestic rice markets through taxes, subsidies, and market protection in order to insulate somewhat the domestic rice market from the international rice market.

Kajisa and Akiyama (2003) examined the evolution of rice price policies in Thailand, Indonesia, and the Philippines from the latter 1960s to the latter 1990s. They used two measures of price stability indices. The first one is the ratio of the coefficient of variation (CV) of the real border price of rice to that of the real domestic price, as a measure of long-term price stability. A value greater than 1 (>1) means that domestic prices are more stable than world prices. The second price stability index is the ratio of the absolute average values of the annual percentage changes in the real border price to those of real domestic price, as a measure of the short-term price stability. A value greater than 1 (>1) means that domestic prices are more stable than world prices.

Kajisa and Akiyama's results of price stability indices and nominal protection rates are as follows:

- 1) The Philippines shifted from rice protection in the 1960s to rice taxation in the 1970s (when the country became an exporter) to rice protection since the 1980s. The degree of rice protection increased drastically in the 1990s.
- 2) The Philippines had more stable domestic real rice prices than border prices during the 1960s until the 1980s. However, in the 1990s, domestic real rice prices were more unstable than world real prices.
- 3) Indonesia has had comparatively more moderate rice protection than the Philippines since the 1980s. Similarly, Indonesia's Badan Urusan Logistik Nasional (BULOG) has been more successful than the Philippine NFA in stabilizing domestic real prices vis-a vis the world real prices of rice.
- 4) Thailand, as the perennial net rice exporter among the three ASEAN countries, taxed rice. However, the degree of rice taxation decreased secularly and dramatically such that by the 1980s, it was almost nil. Thailand also abandoned price stabilization in the 1990s, thereby allowing the

domestic price of rice to be affected substantially to changes in the price of rice internationally.

Table 4. Measures of Price Stability and Nominal Protection Rates of Rice 1961-2000

	1961–1970	1971–1980	1981–1990	1991–2000
Philippines				
Average NPR	16.5	-10.1 (4.7)*	16.1	41.8
Ratio of CV	2.3	3.0	1.8	0.9
Ratio of Average Absolute Percentage Change	2.0	5.4	1.6	1.3
Indonesia				
Average NPR	-7.0a	1.5 (14.8)*	17.5	13.0 (18.6)**
Ratio of CV	1.2	3.6	3.6	1.8
Ratio of Average Absolute Percentage Change	0.7	3.7	4.1	2.5
Thailand				
Average NPR	-30.7	-29.4 (-24.4)*	-10.5	-4.2
Ratio of CV	1.1	2.9	1.6	0.8
Ratio of Average Absolute Percentage Change	0.9	2.8	1.1	0.8

*NPR excluding commodity crisis years from 1973–1975.

**NPR excluding 1998 when the exchange rate surged due to the Asian currency crisis.

^a1973–1975

Source: Kajisa and Akiyama (2003).

The results of the analysis by Kajisa and Akiyama's (2003) indicate that the Philippines failed in stabilizing rice prices compared to Indonesia in the 1990s. A look at the pattern of real world price and real domestic price shows that the domestic price rose when the world price increased (during the late 1990s). This is *not* the typical approach to price stabilization where long-term trends between domestic and foreign prices are comparable but domestic fluctuations are less severe than foreign fluctuations. Analysts have pointed out that the atypical pattern of the Philippines during the 1990s was due to incompetence and lack of funding of the NFA (Balisacan, 1989).

However, a more reasonable reading of the performance during the 1990s seems to indicate a case of delayed import response during the 1995 crisis and over-reaction to it during the next three years (probably for political reasons given that the NFA was transferred to the Office of the President in 1998). The sharp rise in domestic rice prices in 1995 was due to the delayed decision to import (in May 1995 only) and delayed contracting (in mid-July 1995, then in November and December 1995) when the lean months started already (see AGILE, 2000, Chapter 3, p. 16).

The fall in the domestic real price of rice during 1997–1999 even as world prices increased is partly policy determined. For example, despite the largest stocks of the NFA (at 92 days) in July 1998 since 1994 and the recommendation of the National Inter-Agency Committee (IAC) that 318,000 mt of rice importation was sufficient for price stabilization despite the projected poor harvest, the NFA Council got the approval from the President for the importation of, and contracted 950,000 mt of rice (See AGILE, 2000, Chapter 3, p. 16).

It is not clear whether the decision to over import was for political reasons in the face of the East Asian economic crisis and/or for the NFA to be able to raise revenues given that it could import rice free of duty and could sell it at substantially higher domestic price (as reflected in the high nominal protection rate). It is possible that all three considerations could have come into play in the 1998 decisions (although it was only in 1996 when the NFA earned profit because of domestic sales of the imported rice).

However, the price stabilization activities of the NFA have had large budgetary and debt implications. The NFA has had operating losses in each year during the 1990s from 1996. The NFA received nearly P1 billion per year during the 1990s. One implication is that NFA debts have soared because much of the financing of its operations is from borrowings. For 2004, NFA losses were expected to amount to about P7 billion. Note that the NFA losses are much higher than the governments' investment in agricultural R&D and/or irrigation.

Are government subsidies through the NFA worth it? Do we pursue price stabilization at any price? Many analysts have actually shown that the NFA has failed in meeting its target with respect to price stabilization in terms of remunerative price support to farmers and effective price ceilings for consumers (See AGILE, 2000). Figures show that government intervention via the NFA has failed to influence private traders to lower their selling price or pull up farmgate prices—not because it monopolizes palay supply, but because it hardly corners a substantial portion to make an impact on the market. (As a matter of policy, the NFA needs to maintain a third of the total rice inventory each year or an equivalent to 30 days, as buffer for the lean months). The findings of recent studies on the performance and impact of the NFA (See for example AGILE, 2000) are almost the same as the studies in previous decades which all showed weak impact on farm prices and consumer prices. Both recent and earlier studies also highlight the distortionary effect of NFA interventions in reducing the incentives to traders to undertake optimal inventory, purchasing, and selling decisions in the market.

In the face of large budgetary costs of the NFA and given the tight budget constraints faced by the national government, there have been suggestions to either abolish the NFA or reformulate the government's intervention in the rice market. On purely efficiency considerations, logic would dictate that it is high time to dismantle the NFA and let the private sector do the trading while the government specifies the regulatory framework for the rice market. This is similar to the decoupling strategy for the NFA reorganization proposed by the AGILE consultant (AGILE, 2000).

Aside from procuring a small portion of the country's produce, the NFA operations also do not benefit small farmers. The agency buys rice mainly from organized groups or farmers' cooperatives and not directly from small farmers as its charter mandates. This is confirmed on the local level by 'Ka Alfredo' Mañal, president of the Alyansa ng mga Magbubukid sa Bulacan (AMB). The 77-year old tenant farmer from San Miguel, Bulacan, Mañal explains the practice happens when traders buy from small farmers at depressed prices and use farmer's cooperatives as front when dealing with the NFA (Obanil, Rovik, n.d.). Many believe that this practice could not have been possible without the participation of unscrupulous personnel from the NFA.

Other peasant organizations agree on the inability of the NFA to carry out its duties as far as exposing government's failure to intervene decisively on their behalf. According to Kilusang Magbubukid ng Pilipinas (KMP) Chairperson Rafael 'Ka Paeng' Mariano, this proves why government should not allow private traders to take full control by further reducing state intervention. Privatization "would take away what is left of government's minimal support to farmers and the adverse impact would be felt by the poor majority who depend on cheap NFA rice" (Obanil, Rovik, n.d.). Others see it as tantamount to the state's abdication of its role in ensuring food security.

However, like in Indonesia's BULOG, it appears that when countries are net importers; that is, not self-sufficient, policymakers and the citizenry are not too confident that the market can do the price stabilization objective in tandem with appropriate market-based policy or intervention measures like variable levies. That is, concerns about the political cost of rice price surges remain salient. As the case of Thailand suggests, it is only when the country is clearly a net exporter that a market-based intervention mechanism (through taxes and subsidies) becomes acceptable to the populace.

What then is the way forward? It is apparent that the adoption of a private-focused, market-based regulatory regime without a rice trading parastatal (but with rice emergency reserves, not for price stabilization) is still the logical long-term goal for the rice market in order to minimize the budgetary cost of price stabilization in the Philippines. The transition towards that long-term objective may demand the institution of the two complementary measures in the meantime:

- 1) Setting up a *Tax Expenditure Fund* ceiling for all subsidies to government - controlled and -owned corporations (GOCCs). This will limit the budgetary cost to the government. It will also encourage competition among GOCCs for the funds, which subsidies criteria can be tweaked to favor fast reforming GOCCs;
- 2) More aggressive support in productivity enhancing investments in the rice sector. The net effect is to shift the supply curve outward, resulting in the country being a marginal net rice exporter. Over time, as the market measures for the exports of rice get implemented, the constituency and the policymakers may be eventually convinced that the market for rice can work well even with only market-based policy measures (e.g., subsidies, taxes).

As a final note, the call for higher investment in productivity enhancing initiatives in rice presumes that such funds are well spent. Cristina David's (2004) complementary paper on rice hybrid progress in the country suggests that much remains to be done in this regard. A judicious mix of support for both open pollinated varieties (OPVs) and hybrids in rice, for example, may be able to generate higher rice yields overall for the country than, for example, a program that relies solely in pure hybrids.

If indeed rice price is the only policy instrument available to pay for food security or farm income benefits, it is the rice consumers that carry the brunt. However, because poor households devote a larger share of their budget on rice compared with higher income consumers, they are effectively paying a proportionately higher tax rate than their better off counterpart. Therefore, high rice prices tax the poor and benefit mostly the well off. Policy research indicates that while market reforms in rice lead to a reduction in the overall headcount poverty index, the Gini coefficient increases as well, indicating a worsening in the inequality of income distribution within a country. For instance, a study by Cororaton (2004) employed a computable general equilibrium model to analyze the possible poverty and distributional effects of the removal of QRs and the reduction in tariffs on rice imports. Results showed that although market reforms in rice reduced consumer prices that is favorable to all, imports of rice increased and generated displacement effects on poor households that rely heavily on agriculture for factor incomes, particularly on palay rice production, which declined, together with output prices. This translates to lower demand for factor inputs as well as a decline in agricultural factor prices and factor incomes for the low-income households. Thus, resulting in increased incidence of poverty and a more pronounced general income inequality.

5.0 Increasing Rice Productivity thru R&D⁶

The country faces a major productivity challenge: there is nearly across-the-board productivity gap vis-à-vis competitor/reference countries. The rice yield in the Philippines is 1/2 of China; 7/10 of Indonesia and Vietnam; 3/4 of developing Asia average; higher than Thailand but the latter has more land. Rice yield must grow by at least *two and half times higher* from 2003–2020 than during the 1990s in order to ensure self-sufficiency without increasing hectarage.

Improving substantially the country's agricultural productivity in the face of limited physical agricultural land involves not only investing in irrigation to allow for at least double cropping but also better varieties and improved farming practices through agricultural research, development, and extension (RD&E). In China and India, agricultural research and development (R&D) is the most important contributor to agricultural productivity and growth.

⁶ Based on a presentation by Ponciano S. Intal entitled *Agricultural RD&E Investment Framework* to the Department of Agriculture on August 2004.

A key reason behind the large productivity gap in the country relative to other countries in the region is under-investment in agricultural RD&E. The country's research intensity ratio (i.e., agricultural R&D as a ratio of the agricultural value added) of 0.41 % in 1994–96 pales in comparison to Thailand's 1.6% and Malaysia's 1.1%, let alone Taiwan's 3.4% and Australia's 4.4%. China's research intensity ratio was higher than the Philippine ratio during the 1970s and 1980s, and possibly even in the 1960s and late 1950s. The perennial under-investment in agricultural RD&E has been aggravated by very low investments in irrigation. The country's ratio of irrigated land to total agricultural land of 17% is lower than Thailand's 23%, Vietnam's 27%, India's 28%, Bangladesh's 34%, and China's 53%.

The Bureau of Agricultural Research's (BAR) budget is indicative of the low and variable under-investment in R&D. From a high of P741 million in 2000, BAR's budget has secularly declined to P174 million in 2004. The result on the country's agricultural RD&E system of perennial (and variable) under-investment has been spotty performance, weak institutions (except notably PhilRice, University of the Philippines at Los Baños–Institute of Plant Breeding), poor research facilities, and scarce senior research personnel. Much remains to be done to strengthen RD&E systems, institutions, and human resources.

Many studies show that returns to agricultural R&D are very high. Rate of return estimates of agricultural R&D in developing countries are usually more than 50%, which is way higher than the 15% threshold rate that the Philippine government uses on its public investment projects requiring foreign loans. There are a number of success stories that demonstrate the remarkable benefits to society of agricultural R&D when it succeeds. Hybrid rice made China self sufficient in rice while releasing two million hectares of rice land to other crops by the late 1980s. The key factors in the success stories include:

- 1) Matching varieties [high yielding varieties (HYVs), disease-resistant] and agronomic practices for specific locations or agro-climatic environments;
- 2) Varietal improvements coupled with designing appropriate production technologies;
- 3) Market demand is relatively price elastic such that output increases do not result in farm income declines because of sharp price reductions, e.g., export or shift from import substitution to eventual export; and
- 4) Role of government is very important in ensuring an integrated approach from research to extension to farmer adoption. Government commitment is palpable and strong.

Recent performance of Philippine agriculture shows the large potential of agriculture RD&E. The high growth of rice production during the past two years is due in part to the adoption of hybrid rice. Note that the low research intensity ratio and large

technological gap mean that the country can reap high returns from additional investments to improve and make the country's agricultural RD&E more effective.

6.0 Conclusions

The Philippines may have one of the highest rice productivity potential in Asia. However, the national average yield currently stands at 3.2 mt per hectare, which is way below the 5.3 mt per hectare set by IRRI as the requirement for food security and 6.3 mt per hectare as the maximum attainable yield (Garcia, n.d.). These yield gaps are the consequence of biological, soil and water, and socio-economic constraints that compel rice growers to utilize inputs at rates below the economically efficient levels (Sebastian *et al.*, n.d.). As has been experienced beginning in the 1960s, with a diminishing agricultural land base from competing land uses and a land policy that converts rice land into commercial, industrial, residential, and recreational areas or higher value crops, the government will have to continue to rely on improvements in cropping intensity or external sources to meet future demand requirements for rice. Between the two options available, increased dependency on food imports seems to be the easier but less popular alternative, especially among landlord, trader, and farmer groups, who stand to lose the most with such market intervention. Also, as a matter of national pride and given the escalating fiscal problems and limited the availability of foreign exchange of the Philippine government, rice imports should remain a last line of defense against inadequate supply and escalating prices. However, should imports be utilized in the short-run, the government should look back at the experience of the 1995 rice crisis that was caused by inaccurate supply forecasts and ill-timing of imports.

Thus, food security and its concomitant effect on price stability, will have to be intimately linked with the country's ability to produce an increasing rice volume to feed its burgeoning population and to fill the growing demand from non-food uses. In order to improve rice production and to effectively face the economic and political realities of globalization, government policy reform will have to take the more challenging task of providing sustained administrative capacity through the provision of much-needed infrastructure by mobilizing long-term productive investments in the neglected areas of irrigation, post harvest facilities, agricultural RD&E on areas relating to pest control, etc. Moreover, in order to improve the market conditions for rice and provide additional incentives for farmers to plant rice, a portion of the extraordinary resource rents that accrue to traders from credit-tying should be transferred to farmers through access to credit primarily for post-harvest activities and communication and transportation networks to improve the quality of information and facilitate access to markets (Ramos, 2000).

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