

Briones, Roehlano M.; Dela Pena, Beulah

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Competition Reform in the Philippine Rice Sector

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

Competition Reform in the Philippine Rice Sector

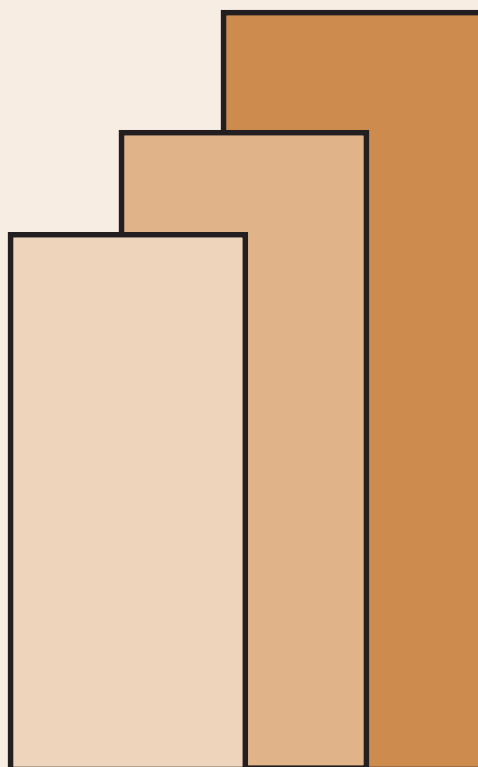
Roehlano M. Briones and Beulah dela Pena

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For comments, suggestions or further inquiries please contact:

The Research Information Staff, Philippine Institute for Development Studies

5th Floor, NEDA sa Makati Building, 106 Amorsolo Street, Legaspi Village, Makati City, Philippines

Tel Nos: (63-2) 8942584 and 8935705; Fax No: (63-2) 8939589; E-mail: publications@pids.gov.ph

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Competition Reform in the Philippine Rice Sector

Roehlano Briones¹, Beulah de la Pena

Abstract

The rice sector is regulated by the National Food Authority (NFA), with imports under a statutory monopoly. Consistent with previous studies done on the rice supply chain, a rapid appraisal finds that the domestic paddy and rice supply chain is highly competitive. Entry into import business is however severely curtailed. Welfare analysis indicates that, in 2013, if quantitative restrictions were eliminated and rice imports were allowed to freely enter the country, rice imports would have increased tenfold, bringing down the retail price of rice to 19.80 pesos/kg from P33.08 pesos/kg. Consumer surplus would have increased by P 178 billion pesos, compared to a 34 billion peso reduction in producer surplus, for a net social benefit of 138 billion pesos. This paper recommends tariffication, i.e. liberalized importation policy with moderate tariffs.

Keywords: agricultural marketing, rice policy, competition policy, welfare analysis

¹ Senior Research Fellow, and Consultant, respectively, Philippine Institute for Development Studies. This study is drawn from the Diagnostic Country Report for the Philippines, under the Competition Reforms in Key Markets for Enhancing Social & Economic Welfare in Developing Countries (CREW Project).

1. Introduction

Competition reform seeks to promote a market environment in which no party or group is able to assert its dominance over market outcomes. Competition is expected to result in lower prices and better quality for consumers; meanwhile producers as an industry benefit from an open playing field (though reform may be opposed to the interest of an erstwhile dominant market player).

Competition enforcement is fair to weak in many developing countries, and needs to be strengthened to ensure that competition reforms lead to measurable and demonstrable welfare gains. Developing and least developed countries are faced with resource constraints, and policymakers need to make difficult choices/decisions while allocating scarce resources between various public policy areas. For resources to be made available to implement competition reforms in developing countries, it is necessary that impacts of competitive markets on consumers and producers are properly demonstrated and explained to policymakers (and development partners as well). However, there is lack of a comprehensive approach for measuring such impacts. CUTS Centre for Competition, Investment and Economic Regulation (CUTS C-CIER) has undertaken a project titled ‘Competition Reforms in Key Markets for Enhancing Social & Economic Welfare in Developing Countries’ (*CREW Project*). The project is being executed in India, The Philippines, Ghana and Zambia and across two common sectors: staple food and passenger transport. This project endeavours to undertake a project for developing such a methodology and test its robustness in the four countries. One of the main goals of this project is to demonstrate the benefits of competition reforms for consumers and producers, so that greater attention and support can be provided to this issue by policymakers.

In the Philippines, the main staple is rice. The DCR aims to identify existing concerns of consumers and producers in the Filipino rice sector and propose market reforms to help address these concerns, and estimate benefits thereof. More specifically its objectives are as follows:

- Review trends in the rice sector in the Philippines, particularly policies affecting the market and competition in various components of the rice value chain;
- Describe the state of competition in the Philippine rice industry;
- Assess the impact of past and current competition reforms (i.e. reforms enhancing competition in the market) on consumers and producers, and based on this assessment make recommendations.

- Identify concerns (of consumers and producers) and assess the potential impact of reform measures that can help address such concerns.

2. Overview of the rice market

Policy regime in the staple food sector

The rice sector is regulated by the National Food Authority under a highly interventionist regime aimed at food security and price stabilization. Presidential Decree No. 4 of 1972 established the charter of the National Food Authority or NFA (then called the National Grains Authority). The NFA was established to encourage grains production and productivity and assure a "fair return" on investment of producers. Its mandate is to maintain food security in staple cereals in times and places of natural or man-made calamity/emergency, as well as stabilization of staple cereal supply and prices. To do so it was given a broad set of powers, including:

- maintain a national buffer stock;
- procure and sell grain;
- monitor grain storage;
- seize stocks in case of hoarding;
- establish and enforce standards in grading, sampling, and inspection;
- register, license, and supervise warehouse, mills, and other businesses related to grains;
- control the importation of grains so as to maintain parity between domestic and world prices;
- control the export of grains.

The NFA also regulates a number of rice-related processing and servicing activities, namely:

- Mechanical Drying, Threshing, and other Post Production Equipment
- Transportation
- Milling
- Warehousing
- Manufacture of rice-based and corn-based products
- Grains Packaging
- Retailing/ Wholesaling
- Importing/Exporting/Indenting

Each of these activities requires a license from NFA, which is typically valid for a year and subject to renewal.

Competition regulation in the rice sector is guided by relevant provisions in the Constitution and the Price Act. The enforcement agency for the case of rice is the NFA. In recently highly publicized campaigns, the NFA has joined other law enforcement agencies (such as the Philippine National Police, Bureau of Customs, and National Bureau of Investigation) in investigating suspected smugglers and hoarders, revoking licenses of rice traders conducting illegal practices, and impounding stocks of errant traders.

Since 1995 the most significant reform in rice policy was its compliance with WTO rules and decisions. In 1995 the Philippines acceded to the World Trade Organization (WTO), particularly articles on conversion of quantitative restrictions (QRs) into equivalent tariffs (*tariffication*). However the Philippines obtained a Special Treatment for rice up to 2005, allowing it to maintain its rice QR. Nevertheless the country conceded a minimum market access, ranging from 30,000 tons in 1995 up to 224,000 tons in 2004. Volumes within the market access charged a maximum tariff of 50%. Upon expiration in 2005, the country negotiated and obtained an extension of its special treatment for rice up to 2012. In exchange the country raised its minimum access to 350,000 tons, of which 163,000 were in the form of country-specific quotas (CSQs) to Thailand, China, India, and Australia. In practice, the high prices of rice produced in these countries tend to limit the usage of CSQs by private traders. Currently, the Philippines has applied for an extension of special treatment with the WTO up to 2017, in the meantime maintaining *status quo* in its import policy while approval is pending.

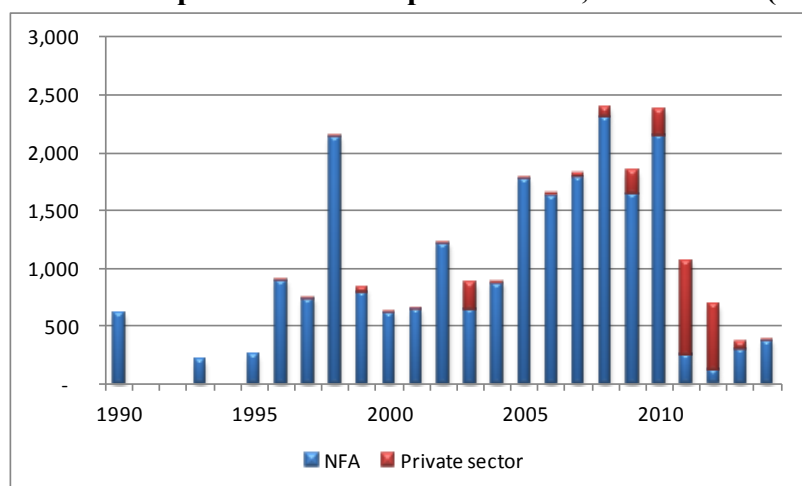
RA 8178 (1996), the Agricultural Tariffication Act, converted trade barriers into tariffs, to meet the country's WTO obligations. However RA 8178 specifically exempted rice; rather, it confers the NFA the authority to undertake direct importation of rice, or allocate the import quota among licensed importers. One positive development though was the shift to private sector importation beginning in 2008, which intensified in 2010 onwards (Figure 1).

In 2008 the allocation to private importers was only 200,000 tons, of which only 76,000 was actually imported; total imports that year totaled 2.2 million tons. Private sector availment was low due to very high world prices prevailing at the time; moreover as explained above, the CSQ scheme prevented importers from selecting their least cost supplier.

By 2011 the private sector (inclusive of farmer organizations) was allowed to import 660,000 tons, 77% of that year's import quota of 860,000 tons. However the annual import quota is now restricted to the minimum market access owing to the self-sufficiency target of

100% by 2013, to be sustained up to 2016. In 2013 the import quota is 350,000 tons, of which 163,000 is to assigned to the private sector under the CSQs.

Figure 1: NFA and private sector import arrivals, 1990 – 2013 ('000 tons)



Source: NFA.

Rice marketing chain

The rice marketing chain covered in this study is shown in Figure 2. Typically, the farm produce is sold to traders, who then sell paddy rice to rice mills. Rice millers process the paddy into milled rice. From the mill, the rice goes to wholesalers, who may also obtain milled rice from importers; rarely is rice imported in paddy form. Wholesalers then sell it to retailers, which in turn are divided into traditional retail outlets (rice sold in public or wet markets, or roadside stalls), as well as modern retail outlets (i.e. supermarkets and retail chains). The latter are often pre-packed and sealed, whereas the former are often sold loose.

Figure 2: Schematic of the rice marketing chain

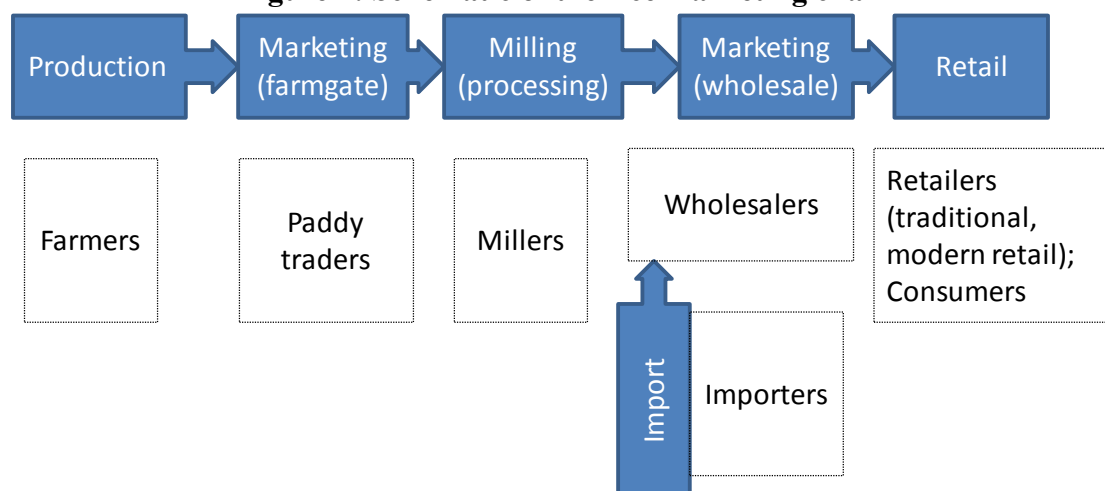
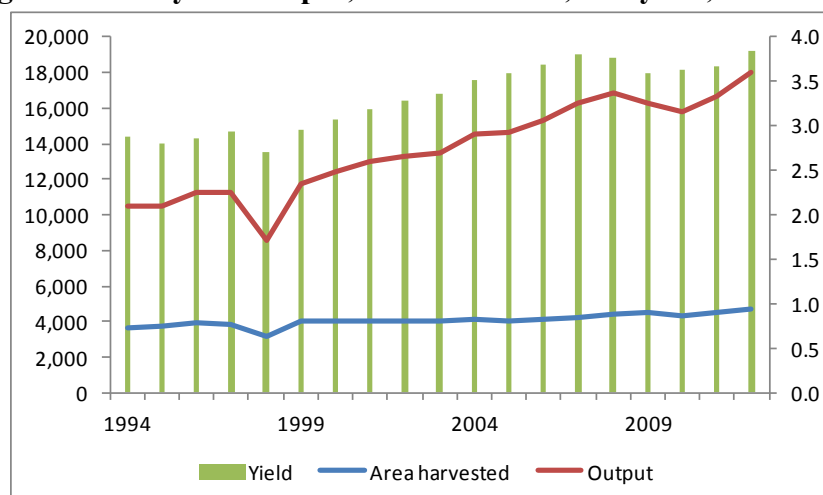


Figure 2 is a simplification of a much more complicated state of affairs in the marketing chain. There may be multiple layers especially between farmers and millers, working as consolidators, commission agents, independent traders, etc. Millers may also procure directly from farmers or sell to retailers; likewise wholesalers can be simultaneously importers and/or retailers.

Domestic rice production has been increasing, due to both rising area and yield. Since 1994 (the beginning of the official data series), paddy rice output has been increasing, with dips only in 1997 and 2010 due to the El Nino phenomenon (Figure 3). Current output is about 18 million tons, from 4.7 million ha of area harvested, or a yield of 3.8 tons/ha. Annualized growth in output since 1994 was 3.0%; source of growth was fairly evenly distributed between yield (1.6%) and area harvested (1.4%).

Figure 3: Paddy rice output, area harvested, and yield, 1994 - 2012

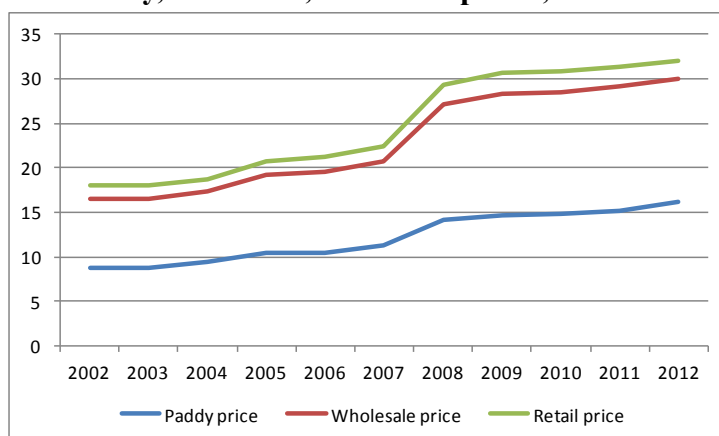


Source: BAS CountryStat.

The price spread in the marketing chain is narrower at the retail level, compared to the wholesale level. The trend in price at the paddy, wholesale, and retail levels are shown in Figure 4.

The price spread (as a share of retail price) ranges from 6 to 8 percent at the wholesale-to-retail level; the price spread at the paddy-to-wholesale level is much wider, ranging from 40 to 44 percent. This is likely a reflection of higher costs along that segment of the chain, as it covers processing (e.g. processing cost and quantity adjustment for milled rice recovery) as well as assembly cost from paddy farmers to millers.

Figure 4: Paddy, wholesale, and retail prices, national averages



Source: BAS CountryStat.

Market structure: review of literature

The following reviews available literature on market structure along the rice supply chain. Some important observations for update and further validation are covered in the empirical part of the DCR (Section 8).

The input distribution system for rice is characterized by low levels of government intervention. In this study it is posited at the level of the farm, producing paddy (husked, or rough rice); there is of course a prior input distribution system, for which the state of competition is fairly well characterized (Box 1).

Past research on rice industry shows a high degree of competition in the domestic market, from paddy production to retail marketing. As early as the mid-1960s, Mangahas and Recto (1966) analysis of rice market found that price changes at one level of the marketing system are typically reflected, with little change in the marketing margin, at other levels. Market power if any is only transitory or of local significance. This was echoed in the analysis of Mears and Anden (1970), which shows that "hoarding" of palay or milled rice during the off-season does not necessarily create abnormal profit to the trader; when opportunity costs of storage are taken into account, both farmers and traders face a high probability of loss from holding paddy rice for sale after harvest. The astute trader may realize profit, but even so may sustain losses in some years; it is unrealistic to suppose that a farmer with less familiarity and information could fare better.

In the mid-1980s, studies on rice marketing continued to emphasize recurrent themes of multiple market layers, numerous players, and the pervasiveness of government intervention. During that period, when the degree of self-sufficiency was greater than over the past decade, Umali and Duff (1992) found that there was a diversity of prices throughout the marketing chain, generally reflecting differences in grain quality.

Box 1:
The rice input system

The main variable inputs to rice production is fertilizer, agro-chemicals, and seed. According to BAS data, agro-chemicals account for less than 3% of total production cost; seed has a similar share, while fertilizer accounts for 10% of production cost. Only 29% of seeds is certified or hybrid seeds; the rest is "good seeds" (purchased but not certified) or farmers' own seed. Privately-bred seeds (distributed by large agribusiness companies) account for just 10% of all rice seeds (Sombilla and Quilloy, 2014).

Meanwhile in the case of fertilizer, over 70% of domestic supply is sourced from imports. It can be shown that domestic and world prices of urea (the most important form of fertilizer) are integrated, in the sense that the margin between world and domestic price is mostly explained by marketing cost. Import permits are not required, although importers need to be licensed and imported products need to be registered. Tariffs on imports are minimal; 85% of imports are from free trade partners for whom the preferential rate is zero. There have been no major fertilizer subsidy schemes since 1986. The fertilizer distribution system is characterized by numerous players; as of 2009 there were 483 licensed handlers in the fertilizer industry, spanning importation, distribution, repacking, export, and manufacturing. Of these, 134 were listed as importers; 7 handlers were also listed as end-users (e.g. large plantations). Many more handlers are farmer cooperatives or associations (e.g. sugar planter organizations) who distribute fertilizer to their members. Briones (2014) finds that fertilizer handlers report no major issues in obtaining licenses and registering fertilizer products. Moreover, domestic and world markets are integrated, i.e. arbitrage opportunities between world and domestic prices are exhausted. (This of course does not rule out cartelization in the world markets, which may artificially elevate world prices).

In the 2000s, government implemented the Hybrid Rice Commercialization Program, the flagship project to boost rice productivity in the country. The program promoted dissemination of hybrid rice varieties combined with seed and fertilizer subsidy. The program was terminated in 2010 by the succeeding administration. Criticisms of the program had been mounting, first from farmer organizations themselves (GRAIN, 2005), as well as from government managers and auditors due to fund anomalies. Since then there have been no major subsidy programs for rice seeds and fertilizers. The lack of opposition to the closure of the program suggests that intended beneficiaries never felt substantial benefits from the subsidy allocations due to the aforementioned leakages.

Competition in the private marketing system had been steadily increasing in rice retail, wholesale, and transportation sectors, as well as in warehousing. However, rice processing was not as competitive as government licensing has served as an entry barrier.

The authors also examined the issue of market integration, i.e. the degree to which trading activity arbitrages away differences in space or level of marketing, leaving only "pure" (opportunity) costs of transport and marketing. They found that wholesale and retail levels of the market were integrated, although the degree of connection between farm and wholesale markets was much lower. The integration result is consistent with that of symmetry of price changes found by Reeder (2000). Using official data on farmgate, wholesale, and retail prices, he finds that traders do adjust their prices upwards when cost increases; they are equally likely to pass on falling costs by providing price discounts. There is no evidence to support the view that traders over-react to unanticipated market news (i.e. of shortages); shocks tend to propagate from the farm level, to the wholesale, and then the retail level. Finally, Rufino (2008) finds that regional wholesale prices of regular milled rice are well integrated in the long run; moreover, even short-run deviations from long run equilibrium dissipate rapidly. Apparently by the 1990s, entry barriers were not affecting the competition across space, given the study's failure to detect arbitrage opportunities across regions.

A study from the mid-1990s (Bordado et al, 1996) compared the marketing of paddy rice by farmer cooperatives and traders in selected regions of the Philippines (Cagayan Valley, Central Luzon, and Southern and Central Mindanao). The study tests the notion that market intermediaries are earning rents, that can be arbitrated by farmers who directly market their produce to millers or even wholesalers (i.e. taking over the rice milling themselves). It shows that the cost of marketing of PGs on average was higher than that of traders (Table 1).

Table 1: Marketing efficiency indicators, sample cooperatives vs. traders in selected regions of the Philippines, 1993

	Cooperative	Trader
Marketing cost (pesos per kg)	0.29	0.26
Buying price (pesos per kg)	4.88	4.79
Selling price (pesos per kg)	5.36	5.20
Margin (pesos per kg)	0.48	0.41
Return on investment (percent)	3	6

Source: Bordado et al (1996).

The highest cost was in Bicol (P.48 per kg), which incurred considerable expense for cooperative overhead (i.e. manager's fee, commission for staff, and depreciation). The highest

cost in Southern and Central Mindanao can be attributed to higher transport cost compared to that of Luzon.

Cooperatives paid higher prices to farmers. They also obtained higher prices from its buyers, i.e. traders earn lower margin than cooperatives. The higher margin of cooperatives enabled them to earn a slightly higher profit despite higher costs (about P0.18 per kg more); in particular the village-based traders in Bicol and Southern and Central Mindanao realized "very low" profits. Hence the notion of excess rent accruing to market intermediaries is unfounded. Nevertheless, traders earned a higher return on investment (ROI).

Hayami and Kikuchi (2000) conducted a reconnaissance of the marketing system in Laguna province in 1995 – 1997 from paddy procurement to retail. Their study revealed the "highly competitive" nature of rice marketing in the locality. Countless middlemen compete in the procurement of paddy; these include small community-based collection, which virtually any villager can enter. These buyers compete with numerous rice mills; in one municipality (Pila, Laguna), as many as nine mills compete for paddy rice. These mills are also competing with other mills, not only in Laguna, but also in other provinces. Widening procurement area allows mills to obtain rice over different harvesting seasons and thereby avoid excess capacity; hence no mill, even large ones, exercises monopoly power. Intense competition is also observed between wholesaling of rice by mills to retailers, and in retailing to consumers.

The authors do observe long-term trade relationships between farmers and collectors, collectors and rice mills, and rice mills and retailers, often with credit tying; however such relationships are motivated by savings in transaction costs arising from possible opportunism, and reduction of risk, rather than exercise of monopoly or monopsony power. "Farmers, middlemen and consumers continue to maintain long-term trade relationships so long as it is beneficial to them, but it is very easy to switch trade partners if the present relationship is found to be unsatisfactory. Thus the market is highly 'contestable' if not perfectly competitive (pp. 204 – 205)."

The most recent study to use primary data traces the value chain from the farm to the wholesale level (Dawe et al 2008), comparing two similarly situated marketing channels in Thailand and the Philippines. The gross marketing margin in Thailand is much smaller (\$16 per ton, compared to 67 dollars per ton in the Philippines). Marketing costs are 100% of the gross marketing margin in Thailand, and 55% that of the Philippines (29 dollars per ton). The most important source of the difference in marketing cost is the higher interest rate for working capital in the Philippines, accounting for 58% of the difference in marketing costs. Nevertheless

the large difference in net margin implies some excess profit in the Philippines, i.e. a positive and significant difference between gross margin and measured marketing cost.

In principle the excess profit should encourage expansion by existing players, as well as entry of new players, until the excess is competed away. Hence persistence of excess profit may be explained as follows: first, new players are not necessarily low cost traders, i.e. the low cost traders have already entered the market; second, low cost traders already in the market face constraints in gaining access to working capital, forestalling expansion of their operations; third, there may be large hidden costs of doing business in the Philippines which may be constraining entry and expansion of low cost traders; and fourth, entry of more efficient foreign investors (e.g. from Thailand) into domestic rice trade may be prevented by statutory barriers against foreign investment in the rice business.

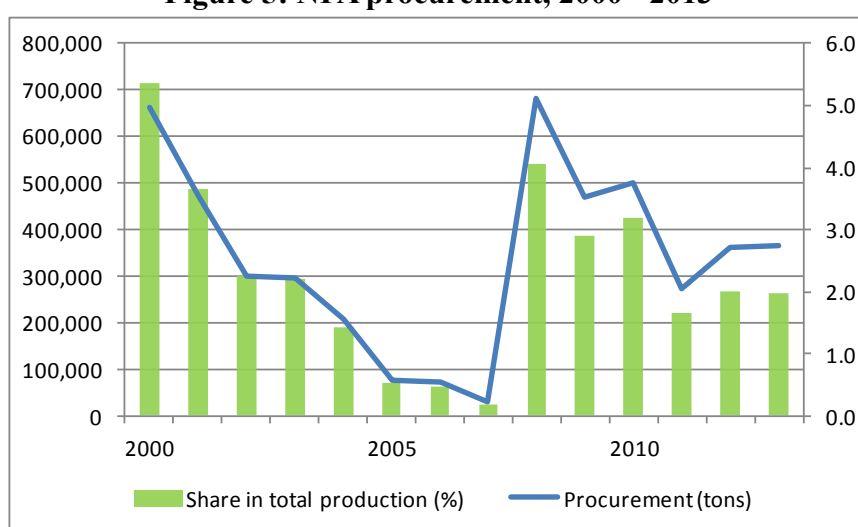
Some past studies suggest that marketing inefficiency in the Philippines manifests in too many rather than too few traders. Tadem (2002) alleges that rice marketing in the Philippines involves a network of middlemen working closely with rice cartels which control 90% of the country's rice supply. The biggest is the "Binondo rice cartel" composed of Filipino-Chinese traders. Intal and Garcia (2005), refer to a so-called "rice cartel" composed of seven Chinese families, associated with Binondo due to two streets in Chinatown characterized by a heavy concentration of large rice wholesalers in Manila. However, the existing literature debunks this view of a cartelized market.

Dawe et al (2008) note that allegation of a cartel is certainly not true between farmgate to the mill, or from the wholesale to the retail levels. In fact it is likely that large marketing margins are perhaps due to proliferation of traders, leaving scale economies in trade unexploited. It takes about 18 marketing agents (traders and millers) to process 90,000 tons of dry palay, compared to one miller in Thailand. As discussed above, the efficient traders/millers are unable to expand their operations, unlike those in Thailand. The authors do concede that collusion may still occur among the "very large traders" who operate at the wholesale level. However they compare the marketing margin at wholesale-to-retail stage between Bangkok and Manila; while the latter is lower, the difference is only P0.33 pesos per kg of palay; adjusting for higher capital costs in Manila, the upper bound estimate of the excess margin due to collusion. Even if collusion exists, it exerts only a small influence on the market price.

Competition concerns

The National Food Authority participates in the rice market as a trader, but not to an extent that it significantly affects paddy rice prices. For rice, the NFA does paddy procurement storage and distribution. Based on NFA's historical data on volume of paddy procurement, the trend shows varying degrees of paddy procurement throughout the last decade (Figure 5). Although it annually sets a target, there appears to be no consistent threshold level for paddy procurement. For instance, in 2005 up to 2007, procurement levels were below 100,000 ton. Then, in 2008, it shot up to 683,402 tons, which was the highest record since 1980.

Figure 5: NFA procurement, 2000 - 2013



Source of basic data: NFA (procurement) and FAOSTAT and BAS (production)

NFA support prices for paddy rice has been rising over time since 1990 (Table 2). In the 1990s the support price was fixed at 6 pesos/kg, raised in the late 1990s to 10 pesos/kg, again fixed until 2006.

Table 2. NFA Paddy Rice Basic Support Price and Wholesale and Retail Price of Rice to Consumer, 1990-2014, in pesos/kg

Year	NFA Support price	NFA Selling Price of Rice			
		Wholesale price, well-milled rice	Wholesale price, regular milled rice	Retail price, well-milled rice	Retail price, regular milled rice
1990	6.00	6.50	6.50	7.00	7.00
1991	6.00	8.00	7.00	8.65	8.40
1992	6.00	8.50	7.75	9.15	8.40
1993	6.00	9.50	-	10.25	-

Year	NFA Support price	NFA Selling Price of Rice			
		Wholesale price, well-milled rice	Wholesale price, regular milled rice	Retail price, well-milled rice	Retail price, regular milled rice
1994	6.00	9.50	-	10.25	-
1995	6.00	9.50	-	10.25	-
1996	8.00	14.00	13.00	15.00	14.00
1997	8.00	14.00	13.00	15.00	14.00
1998	8.00	14.00	13.00	15.00	14.00
1999	9.00	14.00	13.00	15.00	14.00
2000	10.00	14.00	13.00	15.00	14.00
2001	10.00	16.00	15.00	18.00	16.00
2002	10.00	16.00	15.00	18.00	16.00
2003	10.00	16.00	15.00	18.00	16.00
2004	10.00	16.00	15.00	18.00	16.00
2005	10.00	17.00	15.00	18.50	16.00
2006	10.00	17.00	15.00	18.00	16.00
2007	11.00	17.00	15.00	18.00	16.00
2008	17.00	28.00	23.50	30.00	25.00
2009	17.00	28.00	23.50	30.00	25.00
2010	17.00	26.00	23.00	28.00	25.00
2011	17.00	26.00	25.00	28.00	27.00
2012	17.00	26.00	25.00	28.00	27.00
2013	17.00	30.00	25.00	32.00	27.00
2014	17.00	30.00	25.00	32.00	27.00

(-) No Regular Milled rice in CY 1993, 1994, and 1995

Source: NFA

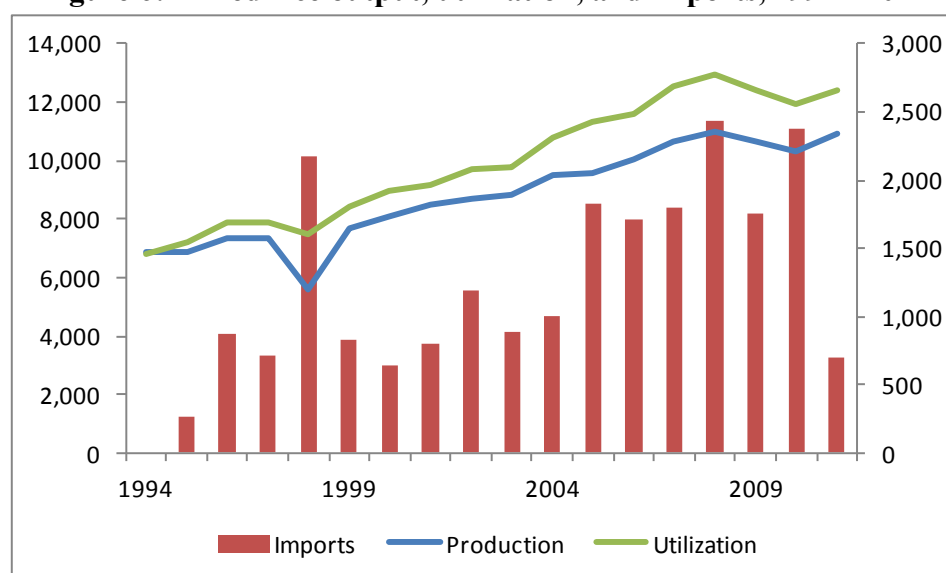
The sharpest adjustment came in 2008 when the support price was raised to 17 pesos/kg, where it has been held since. SEPO (2010) states that NFA's support price is determined from the analysis of the Rice Inter-Agency Committee (IAC), which then recommends to the Secretary of Agriculture the procurement price. Likewise the NFA Management makes a recommendation to the NFA Council. Upon recommendation of the Agriculture Secretary and NFA Council, the President makes a final decision on procurement price. In 2008 the President ordered the NFA to increase its procurement price to 17 pesos/kg amid the the crisis in the world price of rice.

The procurement price of NFA together with its financial health determine its ability to compete with private traders for palay stocks. In the 1990s, the support price was approximately at parity with farmgate prices (5.90 pesos/kg in 1991 – 1995, and 8.30 pesos/kg

in 1996 – 2000). This condition would hold until the mid – 2000s (average of 9.46 pesos/kg in 2001 – 2005); however in 2005 the farmgate price hit 10.76 pesos/kg. During this period the NFA was also experiencing financial difficulties as it was perennially in cash deficit, which was partially addressed by increases in national government subsidies starting from 2005 (Cororaton, 2011). In 2008 the high support price allowed NFA to increase its procurement again, up to a maximum of 4% of domestic output; in 2013 – 2014 farmgate prices have been striking the 20 pesos/kg level and above, again eroding competitiveness of NFA procurement.

Even as domestic production is growing, the increase in consumption has outpaced the growth in supply, leading to a growth in imports. In 1994, domestic production of milled rice was 6.8 million tons, with nearly identical quantity of domestic utilization (Figure 6).

Figure 6: Milled rice output, utilization, and imports, 1994 - 2011



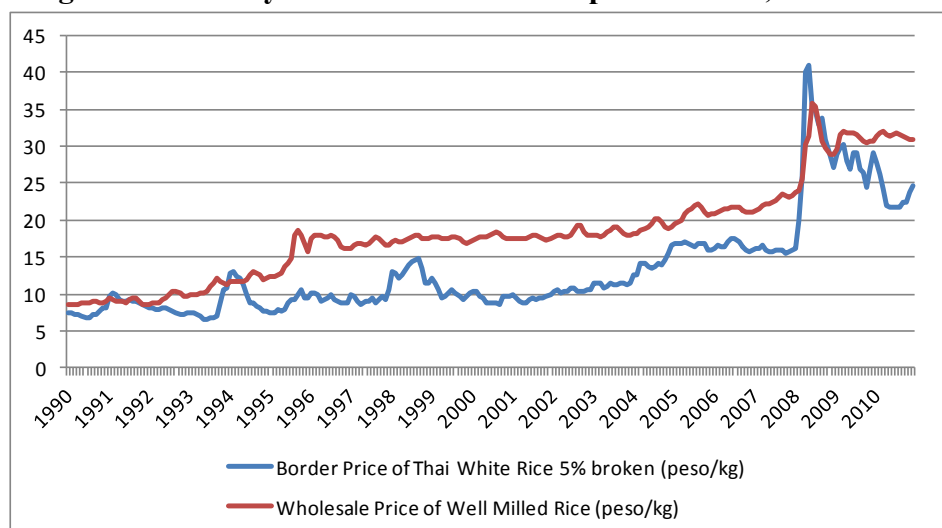
Source: BAS CountryStat.

By 2010 domestic production reached 10.9 million tons, while domestic utilization reached 12.4 million tons. In the long run the gap between production and utilization (supply and demand) must be bridged by imports, which have increased from an average of 0.4 million tons (1994 – 1996) to 1.6 million tons (2009 – 2011). This highlights the increasing importance of foreign supply in meeting domestic demand since the 1990s.

The domestic price on average has been higher than the world price. Despite growing importance of imports, the domestic price of rice has been consistently above the border price. In Figure 7 the domestic price of rice is proxied by the national average wholesale price of

well-milled rice; the border price is proxied by the landed price of Thai White Rice 5% broken, converted to peso using the market exchange rate.

Figure 7: Monthly border and wholesale prices of rice, 1990 - 2011



Source: BAS CountryStat.

The average nominal protection rate (the difference between the border price and comparable domestic price as a share in the border price) is 45%. The world rice price crisis of 2008 narrowed the gap between domestic and border prices; however since then the difference has reappeared.

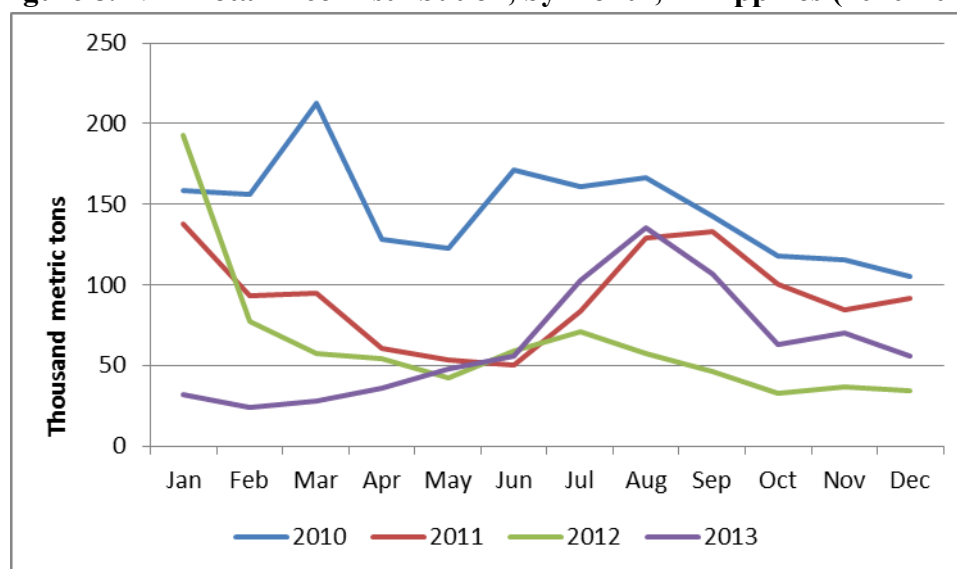
As discussed earlier, difference in marketing cost accounts for part of the difference. However this is only a minor part; in 2002, between Thailand and the Philippines, the difference in mark-up from paddy to wholesale (in paddy equivalent) is six percent, and millgate to wholesale is 17%. (Dawe et al, 2008). However the difference in paddy price is about 66%. Price of paddy rice is much higher in the Philippines due to higher production cost (Cabling and Dawe, 2007). Again, restrictions in imports allow domestic production to expand, causing an increase in domestic price to incentive farmers to bear the increasing marginal production cost.

NFA manages to stabilize retail prices, but keeps domestic prices high by means of an import monopoly. The NFA maintains a buffer stock of about 15 days worth of national consumption at any one time, with a required inventory of 30 days on July 1 of every year. Rice milling is outsourced; the NFA does sell milled rice under its distribution program. NFA rice currently sells at 26 – 28 pesos/kg through accredited retailers; compare this with

prevailing retail prices of about 32 – 36 pesos per kg. In 2010 to 2013, NFA rice distribution averaged 1.1 million tons of milled rice per year (Figure 8). During the first half of 2013, the volume of rice distribution was the lowest among the years being compared in Figure 8, but it increased toward the latter part of the year.

Umali and Duff (1992) had shown that government intervention in the 1970s had kept consumer prices low, putting the pressure on farmgate prices; however due to an insufficient resources and an unrealistically low floor price, government was unable to defend paddy prices. Market integration improved after 1983, after government reduced its role in the market. More recently Yao et al (2007), using regression analysis, show that the NFA exerts only a mild influence on farmgate and retail prices at the national level, and exerts significant influence in only a few regions. Intal et al (2012), using a different regression model, on the other hand show that NFA distribution is able to contribute to price stability at the retail level. However they confirm that NFA procurement was unable to stabilize farmgate prices. The reason is that NFA procurement accounts for only a small percentage of paddy production; but is a much bigger share of distribution.

Figure 8. NFA Total Rice Distribution, by month, Philippines (2010-2013)



Source: NFA

However while NFA has managed to stabilize somewhat consumer prices, its charter grants it an import monopoly. This starkly anti-competitive policy is responsible for keeping domestic prices above the world price. The monopoly is administered according to an annual import quota. The import quota is decided by the NFA Council, the governing body of the Authority, which is chaired by the Secretary of Agriculture. The quota is decided upon

recommendation of an Inter-Agency Committee on Rice and Corn, which evaluates the supply and demand situation to determine the country's import requirement.

In the 2000s the implicit protection rate averaged 45% (Briones and Parel, 2011). Partial equilibrium analysis by Roumasset (2000; cited in Cororaton (2005), estimates the excess burden of NFA operations (including its import monopoly) at P49 billion. Cororaton and Cockburn (2006) extend this analysis using general equilibrium analysis and find that a shift from the import monopoly to free trade has a net effect of reducing poverty, through a reduction in consumer price, despite the accompanying reduction in producer price.

Controversy over NFA operations have led to frequent leadership changes. In 2013, the NFA administrator was replaced and the NFA transferred from Department of Agriculture to the Office of the President. As there has been no change in NFA functions and policies, the current administration clearly perceives the problem as mainly procedural or operational (i.e. failure to store and release stocks, failure to distribute rice, failure to apply audit and other controls on the use of funds, failures in procurement, etc.) rather than policy-related.

3. Research Methodology

To assess the relevance of competition reform in the staple food sector, the study adopts the rapid appraisal method based on interviews of key informants. Informants will be selected from each of the nodes of the Metro Manila value chain, beginning at retail market in Manila, tracing it back to the biggest rice-producing province in the country, Central Luzon, 3 hours north of Manila by car. Interviews will be conducted for consumers and retailers (in Metro Manila), a wholesaler and rice mill in Greater Manila (Metro Manila and periphery), the National Food Authority, as well as rice miller, wholesaler, palay trader, and farmers in Central Luzon.

As discussed earlier, the review of literature indicates the key competition distortion in the staple foods sector is the statutory import monopoly of NFA. The study developed a model for economic surplus analysis, called the Total Welfare Impact Simulator for Trade (TWIST). The model is derived from the Welfare Impact Simulator for Evaluating Research (WISER), described in Briones and Galang (2012). It follows the same framework in Roumasset (2000) and runs in General Algebraic Modeling System (GAMS). Equations and GAMS code are shown in the Annexure.

Two scenarios are examined: first is free trade; the second is an increase in the import quota. Free trade is the limiting case of competition reform in international trade; this is

implemented in TWIST by setting the wholesale price equal to the border price. Meanwhile the import quota scenario maintains the current policy but implements it more flexibly, i.e. avoiding the more onerous protectionism incurred by self-sufficiency targeting.

The limitation of the economic surplus model is that analysis is restricted to a single market layer; the supply chain is kept in the background (i.e. as a set of fixed marketing margins). However, without performing the numerical computation, we may surmise the following directions of change: reducing the level of protection would lead to reduction in domestic price at all layers (farmgate, wholesale, retail); reduced domestic production and related inputs (hiring of labor, purchase of fertilizer, deployment of farm equipment, etc.); and increased domestic consumption.

4. Potential impact of competition reforms on consumers and producers

Quantitative impact assessment of prospective competition reform is performed in Section 9. This section deals with the results of the rapid appraisal in the staple foods sector to characterize the rice supply chain so as to assess the relevance and implications of competition reform in the staple foods sector. A profile of the respondents interviewed for the rapid appraisal are shown in Table 3.

Table 3: Profile of Key Informants

Number	Sector	Place of Operation
2	Farmer/ Cooperative	Pangasinan
1	Cooperative Miller/Wholesaler	Nueva Ecija
2	Trader/Wholesaler/ Retailer	Pangasinan
2	Miller/Wholesaler	Pangasinan
2	Miller/Wholesaler	Nueva Ecija
3	Miller/Wholesaler	Bulacan
2	Wholesaler	Metro Manila
2	Retailer	Metro Manila
2	Consumer	Metro Manila
5	NFA	Metro Manila, Bulacan, Nueva Ecija, Pangasinan

Representative players in the rice supply chain

Most of the rice sold in Metro Manila start out as paddy produced in Pangasinan, Nueva Ecija, Isabela, Cagayan, Tarlac, Pampanga and Bulacan (Regions 1, 2 and 3). Region 4

typically supplies the south; i.e. Davao, General Santos, Cebu and Leyte, because access to shipping facilities makes doing so more lucrative compared to competing in Metro Manila. Region 5 is typically rice- deficit and also gets from Region 4. There have been reported cases of rice coming from Cebu into Metro Manila but industry analysts think that these are possibly rice smuggled from outside the country.

Farmers typically dry paddy in pavements under the sun and sell these to (a) paddy traders who set up buying stations in the farming communities, (b) millers who buy through independent agents that operate in the area, and (c) cooperatives who do trading for their members. Some cooperatives and mills also have mechanical dryers but these are viewed as mainly for emergency use during storm season because solar drying is definitely more efficient.

Farmers may also sell to NFA (though as shown earlier, NFA accounts for only a small share of paddy output). A farmer or a farmer cooperative can sell to the NFA upon acquiring a passbook to log transactions. The passbook can be obtained by filing the necessary paperwork, i.e. for individual farmers, a certificate of land title, and certificate of farmer status by DA technician. Farmers with passbooks simply bring their paddy to the nearest NFA buying station. The NFA then inspects, weighs, and values the stock, and makes payment. However some studies have shown that the average farmer is discouraged from selling to NFA owing to the paperwork (i.e. securing the passbook), stringent requirements for moisture content and quality, and even promptness in making cash payment (SEPO, 2010).

Traders who do not have mills also sell the paddy to millers or pay to have these milled and then sell the rice to wholesalers or retailers. Traders interviewed in Pangasinan have the paddy milled in nearby mills and sell the rice directly to consumers and to other retailers in surrounding municipalities although one brings some paddy to a miller/wholesaler in Bulacan. Traders generally put up buying stations and have stores to transact business but no significant warehouses.

Millers have warehouses where paddy and rice can be stored. Paddy stocks store longer and are thus intended for future sales while milling is done in anticipation of rice being sold in a few days. The big mills/warehouses, with capacity to store paddy longer, are reported to be in Nueva Ecija and Isabela while Pangasinan and other Luzon provinces generally have small to medium sized mills/warehouses. Millers interviewed in Pangasinan and Nueva Ecija buy directly from farmers, picking up the produce after volume and price agreements are made through their own or independent agents and profess going out of their province, notably to Tarlac and Isabela, in search of paddy. They also buy from paddy traders who deliver to their

mills and likewise mill for traders. They eventually sell the rice to wholesalers in Pampanga, Metro Manila, Cavite, Laguna and Rizal with one miller in Nueva Ecija shipping to Cebu and Cagayan de Oro.

In 2012, the NFA price exceeded the trader's price (17 pesos/kg for NFA, compared to 14.35 to 16.22 pesos/kg for traders). By 2013 traders had matched or exceeded the fixed NFA price (paying 16.93 to 17.79 pesos/kg). In 2014, the fixed NFA price was consistently below the private trader's price, which was hitting 20 pesos/kg by March-April).

Bulacan hosts small millers/wholesalers, many in Intercity, an industrial estate where about 125 small rice mills do brisk 24-hour business buying and milling paddy and essentially acting as rice staging area for wholesalers and retailers in Manila. This privately-developed property in Bocaue is strategically located and, due to the number of adjacent independent mills/warehouses competing for the business, is known to offer very competitive prices to paddy traders and rice buyers as well as traders in need of milling services. Those who go to Intercity are described as “guerilla type” traders – they are not as established and they do not deal in big volumes. An NFA official estimates that some 70% to 80% of rice going through Intercity get distributed in Metro Manila and Southern Tagalog. The rest may go to Visayas. Another private property near in Bulacan, the Golden City, is currently being developed for the same purpose and now hosts around 15 small mills/warehouses.

Wholesalers, mostly supplying retailers in the wet markets, normally maintain stocks good only for 2-3 days in Metro Manila warehouses. The stock is refilled regularly from own or contact mills/warehouses outside Manila which usually stock paddy enough for three months. Retailers in Manila get stocks from wholesalers, mostly once or twice a week. Some pool together requirements and buy the pooled requirements from Intercity. Retailers are present, often more than one, in all the markets in Manila as well as in community commercial areas.

Degree of competition

The interviews reveal very strong competition among the current players in practically all levels of the supply chain, at least among the places visited. At the farm level, interviewees report that farmers have a choice of buyers right in their communities due to the presence of a number of buying stations and agents competing for the product. Thus, farmers easily get the highest price for paddy, especially now that supply is tight. Some farmers still get production and/or harvesting loans from traders but these traders are forced to give them the highest price

come harvest time rather than lose out to another buyer and risk not being able to collect the loan. One trader says “what is giving up a few centavos per kilo paddy compared to losing the loan amount due to non-payment?”

Competition in the paddy production centers increases further as agents, who get 10 centavos per kilo of paddy sold with their referral, prefer to be independent. These agents normally ask around for the highest offer from trader and mill contacts not present in the community but ready to pick up the produce once a transaction is agreed on. They strive to get the highest price for the producers because their business sustainability relies on their reputation of ability to get the best deals. Farmer members of trading cooperatives add to the competition as they also actively solicit business for their organization in consideration of patronage rebates.

Mills that buy paddy and sell rice earn through volume traded because competition keeps margins low at about P30 – P50 per 50 kilo sack of rice traded. They need to price at prevailing market levels when they buy and sell because a difference of 5 centavos per kilo paddy or 10 pesos per sack rice will send customers to the next buyer/mill/seller.

Millers also learn to be very flexible to maximize the use of their facilities and recoup investments, operating expenses and interest on loans. To get supplies, they buy both from traders delivering to their mill and directly from producers through their own buying stations and independent agents in the farming communities. While they generally buy the paddy they store and mill, they also offer milling services at P60 per sack for those who do not want to sell their paddy and prefer to trade rice. Some mills also have mechanical dryers which paddy suppliers can use for a fee but, if the sun permits, they also use their yards as no-cost drying pavements just to hold on to customers who face difficulty in drying paddy. As noted above, mechanical dryers are not a good investment, requiring fuel and, for the flatbed drier, manual shifting, while any pavement under the sun dries paddy faster at no cost.

A farmer interviewed narrates how he delivered his wet paddy to the mill to dry during some rainy season but the mechanical dryer had a queue. While waiting, the sun shone so he asked the miller if he could just spread out his paddy in the miller’s yard to which the miller agreed as long as the farmer did his own shifting. He did and sold his dried paddy to the mill before those in the dryer queue did. One miller says that he lowers his rice selling price to accommodate regular wholesale customers who haggle because he figures that he already earned in drying and milling, and even when he did not, he earns goodwill.

In Intercity, where warehouses are smaller, the rate of stock turn-over is the key to earnings. They are very conscious of prevailing prices because very small differences in price offerings matter where more than 100 mills exist side by side. Buyers and sellers normally go through agents who stand at the Intercity's two gates. These agents are independent of the mills and generally point the buyer or seller to the mill currently offering the highest prices or having the stocks or space.

An Intercity miller interviewed competes for buyers by ensuring that he has some minimum amount of stocks for each of the varieties or qualities of rice. He notes that retailers have boxes of different rice qualities and prices offered to consumers. Since most of those who go to Intercity are the small less-established traders, they are likely to need the various varieties when they buy. To better categorize and improve the quality of his stocks, he invested in additional equipment like color sorter and polisher.

To compete in niche markets that prefer premium quality rice, like restaurants, corporate and other institutional accounts, millers/wholesalers invest in mechanical weighing and packaging equipment. They brand their products and produce smaller packs of 5, 10 and 25 kilos for retail in supermarkets. One miller infuses his rice with plant-based fragrances like vanilla and pandan to enhance aroma. At the input end, they maintain a "suki" relationship with trusted sources in areas known to produce good quality paddy and buy at higher prices to encourage farmers to invest in good production inputs. They buy everything the "suki" sells even if the crop quality does not meet the quality standard in order to maintain goodwill. On the other hand, institutional buyers do not offer term contracts; instead they issue purchase orders, some over a duration of three months, with prices following prevailing trends.

Rice wholesalers who cater to retailers in Manila also rely on volume for profits and maintain low margins of 20 - 30 pesos per sack to compete. They offer payment terms of 15 to 30 days to maintain regular clients.

The retailers compete by offering variety and convenience. Many make available different types of rice in terms of quality and price so that there is something suitable for every shopping budget. Also, rice is only one among a variety of products these retailers sell. In fact, rice retailers are usually market variety stores or neighborhood convenience stores, including supermarkets. Market and neighborhood stores show rice offerings in boxes representing different prices and qualities from where rice is weighed and packed according to the customer's order while supermarkets sell different brands and varieties of rice in 5-, 10- and 25-kilo clear packs. Retailers generally price according to the price they buy the rice plus

a margin of about 100 pesos per sack. They can give discounts of up to 20 pesos to those who buy 25- or 50- kilo sacks.

Majority of those interviewed say that they follow prevailing prices. Many paddy buyers; i.e. traders and millers; source price information from rice buyers, especially big established wholesalers around Metro Manila as well as in fast markets like Intercity. Then they work backwards, imputing their costs to arrive at their maximum paddy buying prices. They work out actual buying prices considering competition and supply conditions in their area.

Table 4 provides a breakdown of cost and margins in the rice marketing chain. Paddy during the time of the appraisal cost around 18 - 20 pesos/kg or some 900 – 1,000 per sack. According to official data, farmers earn a net margin of 106 pesos per sack in 2012. Milling costs are 60 pesos/kg and milling recovery (rice produced from paddy) ranges from 60% to 65%. Using 60% recovery the cost of rice ex-mill is about 1,716 pesos/sack. Transport costs of some 70.00 pesos/sack bring the rice cost ex-Manila at 1,786 pesos/sack. A miller explains that the cost difference between low quality vs medium quality and medium quality vs high quality rice is 200 pesos/sack. This means that low quality rice will cost around 1,586 pesos/sack, medium quality will be around 1,786 pesos/sack, while high quality rice will be around 1,986/sack in Manila excluding all the margins.

Table 4: Estimated Costs and Prices of Rice, Metro Manila, in pesos per sack

Table A Estimated Costs and Prices of Rice, Medium Quality, in pesos per sack								
Ex-Manila cost (medium quality)								
	Cost	% of total						
Palay price	1,000.00	92.7						
Milling cost	60.00	3.4						
Cost ex-mill	1,716.25							
Transport cost	70.00	3.9						
Total	1,786.25	100.0						
Cost in Manila								
	Low	% of total	Medium	% of total	High	% of total	Small packs	% of total
Price (pesos/sack)	Cost		Cost		Cost		Cost	
Ex-Manila cost	1,586.25	89.8	1,786.25	90.8	1,986.25	91.7	2,186.25	88.6
Repacking							100.00	4.1
Margins								
Trader's	20.00	1.1	20.00	1.0	20.00	0.9	20.00	0.8
Miller's	40.00	2.3	40.00	2.0	40.00	1.8	40.00	1.6
Wholesaler's	20.00	1.1	20.00	1.0	20.00	0.9	20.00	0.8

Retailer's	100.00	5.7	100.00	5.1	100.00	4.6	100.00	4.1
Total cost	1,766.25	100.0	1,966.25	100.0	2,166.25	100.0	2,466.25	100.0
Retail price (pesos/kg)	35.33		39.33		43.33		49.33	

Note: The milling recovery is 60.38%; one sack = 50 kg.

Source: Authors' data.

An interviewed Metro Manila retailer says that their average margin is 100 pesos/sack while the interviews with traders, millers and wholesalers suggest that their margins per sack, including storage costs, are about 20 pesos for the trader, P40, 40 pesos for the miller and 20 pesos for the wholesaler, or 80 pesos cumulative up to the wholesaler and 100 pesos for the retailer. Note that these are all dwarfed by the gross margin at the farm level, which reaches 584 pesos per sack based on PSA-BAS cost and returns data.

Adding these to the costs, the computation places the price of rice in Metro Manila at about 35 pesos/kg for low quality, 39 pesos/kg for medium quality and 43 pesos/kg for high quality, which are very near what we are seeing now in the markets. Rice packed in smaller volumes is higher by 2 pesos/kg (100 pesos per 50 kilos) when it leaves the mill and with wholesaler and retailer margins bigger, prices in the supermarkets are, not surprisingly, much higher.

Barriers to entry

The interviewees say that entering the market will be easy if you have the capital and the supply source or the potential market. But the financial requirements are quite substantial. A 10,000 sack warehouse will easily require a minimum of P15 million for working capital for rice alone at 1,500 pesos per sack. Also, like any business, there is a learning curve and the first few years can prove very risky for a new comer. In fact, many of the interviewees, despite their long years of operation, admit to still feeling vulnerable to the following risks: (a) bad weather severely limiting supplies that will further make competition intense especially from the big players; (b) unplanned or hastily-decided imports and uncontrolled smuggling that make huge volumes of low-cost rice available after they bought stocks or sold on credit at higher prices; and (c) swindlers who get your trust through regular good orders but disappear once you give them credit. For the last reason, more than a few millers/wholesalers interviewed express reluctance to enter the Metro Manila market where the norm is for wholesalers to give 15- or 30-day term credit to retailers and where stories of swindling of those who tried to enter the market in the past abound.

While the NFA licenses all types of grains businesses from paddy trading, warehousing, and milling to wholesaling and retailing and registers rice facilities and equipment, further requiring that licenses and registrations be renewed annually, none of the interviewees had any issue with the same. For them, the requirements and procedures are clear and easy to comply with. The documentary requirements are the standard proofs of legitimacy of business, location and facilities layout plans, proofs of compliance with applicable zoning and environmental regulations and proof of insurance and guarantee of stocks. Provided the requirements are complete, the application can be processed and a temporary license can be issued in 30 minutes.

According to Table 5, in 2013, there were a total of 95,000 licensed players in the rice market, majority of whom are in retail (54,000); next are warehouse operators (12,000). There are over 8,000 rice mills operating all over the country. Even specialized wholesalers number over 3,300. A large number of players (close to 10,000) are wholesalers who also operate a retail outlet. The number of retailers rose from 1990 to 2000; there may have been consolidation at the retail level since then. Likewise the number of rice mills has been on a decline since 1990. On the contrary, the number of licensed warehouse operators have been increasing from 1990 to 2010, before declining somewhat until 2013.

After licensing, there is little monitoring of registered businesses outside of processes involved in the estimation of commercial stocks which NFA does monthly by province or sub-province; i.e. provincial offices estimate total commercial stocks based on data on stocks from a sample of millers/warehouses, normally 100% enumeration for big and a small sample for small players.

Table 5. Total Number of Applicants per Line of Activity: Philippines (1990 - 2013)

Line of Activity	1990	1995	2000	2005	2010	2013
TOTAL	127,038	116,622	123,249	112,319	109,447	94,629
Retail	66,422	63,218	77,193	70,433	66,960	54,032
Wholesale	4,628	4,873	3,614	3,073	3,065	3,314
Retail-wholesale	16,785	14,367	11,457	10,370	10,852	9,936
Mill	12,739	12,324	10,469	9,672	8,383	8,288
Warehouse	8,809	10,679	11,042	10,912	13,130	11,783
Threshing	1,735	1,706	1,116	638	419	370
Shelling	614	553	330	199	125	125
Drying	104	213	473	496	496	645

Line of Activity	1990	1995	2000	2005	2010	2013
Manufacture	1,265	488	357	234	209	221
Importing	188	60	165	153	160	95
Exporting	5	6	11	11	8	9
Indenting	29	18	27	15	12	7
Packaging	9	16	35	49	43	35
Transporting	6,103	5,460	5,293	4,815	4,693	4,842
Others	7,603	2,634	1,667	1,249	892	927

Source: NFA (GMOD-MRSD and ISD-IRD).

As for rice storage, as of December 2013, there are 450 NFA warehouses in the Philippines, which have a total capacity of 30.22 million metric tons of rice (Table 6). Only 6.33 million metric tons are stored in these warehouses, which is equivalent to only 20.93 percent utilization rate. The NFA data contrasts sharply with PSA-BAS data, which shows NFA stocks down to just 300,000 tons.

With respect to additional investments, many of the respondents are not keen about investing more to expand facilities. Some want to upgrade to make their operations more efficient but the aforementioned risks discourage them. They figure that rice areas are not getting bigger, the population is growing, and the incidence of adverse weather will be increasing so paddy supplies will always be tight. Also, the high paddy prices mean the traders and millers need more working capital to maintain the same level of operations so any additional investments go to the back burner. Moreover, they feel that the Bureau of Customs will never be able to control smuggling and smuggled rice, because it is tariff free and undocumented, is difficult to compete with. In fact, some in the industry would prefer that government allow imports as long as these are controlled, taxed, properly documented and transparent, because they can work around this.

Table 6. Summary of Warehouse Capacity (as of 31 December 2013)

Region	Total	Capacity			Utilization (%)
		NFA- owned	Leased	Total	
Philippines	450	25,132,630	5,090,828	30,223,458	20.93

Region	Total	Capacity		Utilization (%)	
		NFA- owned	Leased		
Ilocos Region	31	1,460,500	407,600	1,868,100	6.04
Cagayan valley	53	2,452,650	15,750	2,468,400	5.51
Central Luzon	63	4,166,200	630,500	4,796,700	15.63
Southern Tagalog	59	1,811,600	809,050	2,620,650	30.53
Bicol Region	41	872,076	931,298	1,803,374	25.23
Western Visayas	25	1,669,850	291,918	1,961,768	11.35
Central Visayas	15	968,500	235,000	1,203,500	45.68
Eastern Visayas	23	979,500	200,000	1,179,500	28.66
Western Mindanao	19	1,355,000	0	1,355,000	13.61
Northern mindanao	20	1,965,000	7,712	1,972,712	33.14
Southern Mindanao	24	1,360,550	289,000	1,649,550	32.01
Central Mindanao	29	2,278,470	0	2,278,470	6.40
NCR	23	2,664,734	893,000	3,557,734	30.81
ARMM	11	273,000	290,000	563,000	13.35
Caraga	14	855,000	90,000	945,000	29.45

Source: NFA

Substitute products

Consumers buy rice according to ability to pay the price, but if the budget permits, they prefer rice that is white, has few broken, and is fragrant. This is why those interviewed say that they will not buy the cheaper NFA rice, which they believe is of poor quality. The retailers say that the most demanded varieties are those of the medium-price range. Among the discriminating, one of the most preferred varieties is the high-priced dinorado known for being aromatic and slightly sticky.

Interviewed consumers claim that they will continue to consume the same amount of rice even though rice prices increase because available substitutes like bread and pasta are still more costly. They eat bread or pasta for convenience and variety of fare. They will cope with rice price increases by choosing what they feel is the best rice variety they can afford instead of the variety they really prefer. It is however accepted that instant noodles substitute for rice among the poor because of affordability and because of convenience for other income classes.

Interviewed consumers also say that they change rice varieties or the stores they buy from when they sense that the rice they get is not as they expected. Because stores present rice in boxes, one really does not know what one gets even if the retailers place the variety common names beside the prices to identify the contents of the boxes. It is widely known that not a few retailers or wholesalers -- each one pointing to the other -- mix poor quality stocks with higher quality rice just to move the former or to moderate prices for the latter. Thus a consumer may buy dinorado rice but actually get only 75% dinorado rice. The assurance of quality is another reason why branded packed rice in supermarkets are priced much higher. In this regard, product labeling regulations on rice need to be better enforced while consumer awareness of rice quality standards need to be enhanced.

Anti-competitive behaviour

Given the number of layers in the chain and the apparent number and variety of players in each level, it is difficult to imagine how one or a group of market players would be able to influence market directions to their advantage. In fact the cost estimates and prices show no substantial margins as these are apparently limited to 2% or less of raw materials up to the wholesaler level and 5% at the Metro Manila retailer level. Interviewees consistently say that the competition is really stiff, especially with tight paddy supplies, a situation especially pronounced at the time of the interviews which were done following the end of the rice lean season (July to September) and around the occurrence in October of a typhoon that destroyed crops ready to be harvested in Nueva Ecija, the biggest rice producer in the country.

However, some respondents do not discount that a group may be able to control certain markets in certain situations. That the Philippines is an archipelago, there is lack of sufficient infrastructure and rice production is seasonal make possible circumstances in which certain groups are able to control the market. However given the empirical work cited earlier by Rufino, Reeder, and others, such control must be episodic and transitory, as rice markets are integrated across space. There may be differences across horizontal segments owing to transport costs (which can be significant due to the poor state of infrastructure in the countryside); however, accounting for these costs, arbitrage opportunities due to price differences are generally competed away.

In Metro Manila, it is opined that a group that can control 20% - 30% of commercial supply, possible in September, may be able to influence price movements. The NFA accounts

for 15% -25% of the retail market during the lean season but the reputation of the quality of its rice makes it a less preferred product among many buyers, thus limiting its impact on the commercial sector. However, industry players are quick to point out that some price increase in September should be expected because palay stocks shrink by 1% - 2% per month of storage, cost of money is 5% per annum, and there are other storage costs. Besides, storing and price speculation are legitimate business practices. The only issue is how many have the wherewithal to do so. Also, there is considerable risk in speculation because government allows some importation during the lean months and it cannot seem to control smuggling.

One wholesaler interviewed notes that the current importation quota distribution rules, where the importer has to bring in a minimum of 2,000 tons and as much as 5,000 tons, favor big players thus facilitating cartel-like behavior. Two thousand tons of rice cost about 700,000 dollars or 30.8 million pesos (at 350 dollars/ton ex Hanoi and 44 pesos per dollar) without freight and tariff. If the system will allow smaller players to import, say a 10- or 20- ton container load, the supplies cannot be concentrated in a few big players. In this regard, many of the interviewees believe that the country will never be able to attain self-sufficiency and thus support some controlled importation policy. One interviewee points out that controlled and transparent legitimate importation may not disrupt their market operations the way uncontrolled smuggling does.

To summarize: the rapid appraisal confirms the findings of the literature survey showing a competitive market structure for domestic rice production and marketing. However bringing in foreign stocks of rice is highly uncompetitive, being a statutory monopoly of the NFA. As discussed earlier we propose to analyze introduction of competition in rice importation using TWIST, in the next section.

5. Estimating the impact of competition reforms

Input parameters and data

Economic surplus analysis of trade policy reform uses baseline data for 2013, as follows:

	Data	Remarks
Quantity	11,601	thousand tons
Retail price	33.70	pesos per kg
Wholesale price	31.56	pesos per kg

Exchange rate	42.45	pesos per dollar
Quota	404.702	thousand tons
Border price	415.95	Vietnam White Rice 5% broken in dollars per ton
Elasticity demand	-0.5046	
Elasticity supply	0.28	

The PSA-BAS is the main reference for the production quantity. Under the Supply and Utilizations Account (SUA), the Net Food Disposable (NFD) is used as the basis for the supply and demand quantity. BAS defines it as “the volume of food commodity available in its original (unprocessed) form for human consumption”. The same source is used for the retail-level and wholesale-level prices of rice (pesos per kilo). Other important variables in the model are import quota and world price. The Philippines has import commitments to the World Trade Organization (WTO), which is the minimum access volume (MAV) of 350,000 metric tons annually. The import quota is solely decided upon by the National Food Authority through the National Food Authority Council, which is headed by the Secretary of Agriculture.

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The World Bank’s Pink Data is used to get the average nominal world price of Vietnamese rice (5 percent broken) in dollars, which is considered as the freight-on-board (FOB) price. This is then converted to its estimated cost-insurance-freight (CIF) equivalent by dividing it by the computed ratio of FOB to CIF (0.95). The prevailing exchange rate for 2013 is adopted to transform the price from dollars to pesos.

Another important assumptions made under the baseline case are the elasticities of supply and demand. The demand elasticity and supply elasticity are lifted from the study of Lantican et al. (2011) and of Edillon (2004), respectively. The primary runs correspond to the last column for demand elasticity of -0.5. The first two columns shown runs for sensitivity analysis using elasticity values of -0.25 and -0.75.

Results

Baseline run. Results are shown in Table 7. The main set of estimates are found in the first column (under elasticity = -0.50). The monetary equivalent of the benefits enjoyed by consumers in 2013 amounted to P387, 389.72 million. On the other hand, producers enjoyed only P 49,469.72 million. Importers gained P 5,626.54 million from the rice market. Overall, the total economic surplus amounted to P 442,485.98 million.

Alternative scenario 1: free trade. If quantitative restrictions were eliminated and rice imports were allowed to freely come in the country, total rice imports would have reached 4.20 million ton. Such high level of imports would have brought down the retail price of rice to P 19.80/kg and P 17.66/kg at the wholesale level. Clearly, consumers would have benefited from free trade given the low market price of rice. Consumer surplus would have increased by P 178,075.65 million. However, this would have led to a P 33,985.01 million reduction in producer surplus. In totality, the economy would have benefited by as much as P 138,464.10 million above the baseline.

Alternative scenario 2: Increase in import quota. If the import quota were increased from 404,702 ton to 1,000,000 ton, prices would have fallen. At the retail level, price of rice would have decreased from P33.70/kg to P 31.52/kg. At the wholesale level, price would have dropped by P2.18/kg. In terms of welfare, consumer surplus would have increased by P25, 706.18 million. Conversely, producer surplus would have decreased by P 6,598.97 million. The overall impact of such reduction in the import quota would have been a P25, 203.32 million increase over the baseline.

Table 7: Results of TWIST

	Elasticity of demand		
	-0.50	-0.25	-0.75
Baseline			
Imports	404,702	404,702	404,702
Retail price (P/kg)	33.70	33.70	33.70
Welfare measures (P millions)			
Consumer surplus	387,390	781,907	260,636
Producer surplus	49,470	49,470	49,470
Importers revenue	5,627	5,627	5,627
Economic surplus	442,486	837,004	315,732
Changes from baseline			

Free trade			
Imports	3,796,035	2,577,522	4,970,516
Retail price (P/kg)	-13.90	-13.90	-13.90
Welfare measures (P millions)			
Consumer surplus	178,076	169,605	186,240
Producer surplus	-33,985	-33,985	-33,985
Importers revenue	-5,627	-5,627	-5,627
Economic surplus	138,464	129,994	146,628
Increased quota			
Imports	595,298	595,298	595,298
Retail price (P/kg)	-2.18	-3.21	-1.67
Welfare measures (P millions)			
Consumer surplus	25,706	37,694	19,675
Producer surplus	-6,599	-9,554	-5,082
Importers revenue	6,096	5,065	6,611
Economic surplus	25,203	33,205	21,204

Source: Authors' calculation.

Finally, the runs for sensitivity analysis in Table 21 (under elasticity headings -0.25 and -0.75) indicate the same pattern of results. Compared to the primary run, lower elasticity of demand than in the primary run leads to a smaller gain for the economy under free trade, owing to a smaller gain from consumer surplus. Meanwhile the gains from increased quota is greater mostly due to a greater gain from consumer surplus. On the other hand, higher elasticity of demand leads to a greater gain to the economy under free trade compared to the primary run, due to a greater increase in consumer surplus. Meanwhile the gains from increased quota is smaller compared to the primary run.

Again, these gains arise because restrictive import policies permit domestic prices to rise above world prices. Based on standard theory, the high domestic price does indeed raise the producer surplus (compared to the surplus under free trade price). However note that this is not the same as "monopoly profit" as higher surplus co-exists with price-taking behavior of producers and traders in the domestic market. The higher producer surplus arises simply from the higher price to all units of output, whereas the higher price is needed to pay for the marginal cost of the last unit of output produced. Obviously, with repeal or relaxation of these restrictions, producer surplus must fall, to the detriment of farmers, as clearly indicated in Table 21. One way to ease the burden of adjustment is to apply a moderate level of tariff, thereby striking a compromise between the benefits to consumers and the losses to producers.

6. Conclusion

Competition policy is in the process of being consolidated in the Philippines. It should be noted that the scope of competition policies is wide, encompassing anti-trust, prohibitions on anti-competitive practices, removal of investment restrictions and other entry barriers, trade liberalization (i.e. openness to foreign competition), and competent regulation (to ensure a suitable level competition in cases of market failure, e.g. externalities).

Meanwhile for the staple food sector, consistent with previous studies done on the rice supply chain, the rapid appraisal reported in this DCR finds that the paddy and rice supply chain is multi-layered with many competing players in each layer. The rapid appraisal also finds no evidence of any cartel-like behavior in the areas studied. Margins are limited to 2% or less of raw materials at all levels before retail. Profits are enhanced by volume, fast turnover of stocks, integration of operations across levels, and investments for quality consistency. The greatest threats to current players are weather risks and continuing tight local paddy supplies that spawn greater competition and increase management costs. The increased costs also highlight the lower cost option of bringing in foreign rice.

Rice importation policies need to be rationalized, to protect the interests not only of producers but also of consumers and other market participants. Huge differences in the costs of bringing in imports and moving domestic supplies to consumers makes smuggling lucrative. Quantitative restrictions on imports as exemplified by NFA's regulations raise the domestic price of rice and allow the concentration of legally imported supplies in the hands of a few. Tariffication – involving liberalized importation of rice subject to payment of import duty - can still confer some protection on producers, while reducing the price of rice, stabilizing domestic supplies and prices, and deterring any attempt to control supplies to manipulate market prices.

Opposition to the abovementioned reforms remain strong. Organized farmer groups constitute a strong lobby against import liberalization; such organizations contain a mix of farmer types, i.e. these are not dominated by large farmers. In fact in rice, a farmer is already "large" when he or she cultivates about seven hectares – really large rice landholdings no longer exist due to the country's land reform program (which had covered rice since 1972). The local miller's association is also active, but has not been described in the press nor the literature as a significant lobby group. Tolentino and de la Pena (2012) rather the following lobby groups:

- The NFA Employee's Association;
- The various service providers to NFA (trucking, logistics, warehouses, etc.);

- Financial institutions which lend to NFA;
- Network of corruption within NFA that exploits the difference between NFA retail price and market price, and between domestic market price and world market price

The last is quite significant: "The NFA selectively provides access to a favored few to its stock of imported rice, which is likely to have been imported at the low border price, and which may be sold in the domestic market at the relatively high domestic retail price. Many of those favored with access are the local political elites." (p. 196).

Such opposition appears formidable. However there are countervailing forces – namely the country's economic managers who are trying to arrest food price inflation and reduce the NFA debt; and WTO commitments of the country, which obligate it to undergo tariffication by 2017. Unlike past reform efforts, which have ended in failure, the next few years may well be the turning point in staple foods competition policy in the country.

7. Annexure

Equations for TWIST

The TWIST model is a simple linear version of the standard economic surplus model: Let QD be quantity traded at the retail level, with corresponding retail price RP . On the other hand, let QS_{dom} be the domestic at the wholesale level, with corresponding wholesale price WP . Let QS be the domestic quantity and the volume of *quota*. The intercepts of the demand and supply functions are α and β , while their slopes are $Dslope$ and $Sslope$, respectively.

$$QD = \alpha - Dslope * RP$$

$$QS_{dom} = \beta + Sslope * WP \quad QS = QS_{dom} + quota$$

The difference between RP and WP is called the margin (*mar*).

Imports are computed as follows:

$$import = QD - QS_{dom}$$

To calculate the consumer surplus (CS) and producer surplus (PS), it is important to solve first for WPe , RPe , QDe , QS_{dome} , QSe (e denotes equilibrium), using $QS=QD$. The baseline is denoted by "0" :

$$Dslope = - \varepsilon_D * Q_0 / RP_0$$

$$Sslope = - \varepsilon_S * Q_0 / WP_0,$$

where ε_D and ε_S , denote the elasticity of demand and supply, respectively.

The **consumer surplus** is computed as follows:

$$CS = 0.5 * QDe (Dinter - RPe),$$

$$\text{where } Dinter = \alpha / DSlope .$$

The **producer surplus** is calculated as follows:

Case 1. $\beta > 0$; $Sinter < 0$

$$PS = 0.5 * QSdome (WPe - Sinter) + 0.5 \beta * Sinter ,$$

$$\text{where } Sinter = \beta / SSlope .$$

Case 2. $\beta < 0$; $Sinter > 0$

$$PS = 0.5 * QSdome (WPe - Sinter)$$

To compute for the net revenues from imports, use the following formula:

$$netimprev = import * (RP - mar - BP)$$

Finally, the **total welfare** or the **economic surplus** is computed as follows:

$$ES = CS + PS + netimprev .$$

GAMS Code

```
***** DATA
$call =xls2gms r=sheet1!a1:b10 i=c:/TWIST/TWISTinput.xlsx o=input.inc
Table INPUT(*,*)
$include input.inc

***** MODEL
Parameters
eldem, elsup, QD0,QSdom0,QS0, RP0, WP0, mar,BP0,
DSlope, SSlope,alpha, beta,
Dinter, Sinter, quota;
Variables
RP, WP, QSdom, QS,QD, ED, IMPORT;
Equations EqQD, EqQSdom, EqQS_QR, EqWP, EqRP, EqIMPORT;
EqQD..
QD=e= alpha - DSlope*RP ;
EqQSdom..
QSdom=e= beta + SSlope*WP ;
EqQS_QR..
QS=e= QSdom + quota ;
EqWP..
```

```

WP =e= RP - mar ;
EqRP..
ED =e= (QD - QS)*(QD - QS) ;
EqIMPORT..
IMPORT =e= QD - QSdom ;
Model TWISTQR /EqQD, EqQSdom, EqQS_QR,EqWP, EqRP,EqIMPORT/ ;

```

***** CALIBRATION

```

eldem = INPUT("Elasticity_demand","Market");
QD0 = INPUT("Quantity","Market")*1000;
RP0 = INPUT("Retail_price","Market")*1000;
DSlope = -eldem*QD0/RP0;
alpha = QD0 + DSlope*RP0;
Dinter = alpha/DSlope
Display alpha, DSlope, Dinter;

```

```

Elsup = INPUT("Elasticity_supply","Market");
WP0 = INPUT("Wholesale_price","Market")*1000;
mar = RP0 - WP0;
quota = INPUT("Quota","Market")*1000;
QS0 = QD0;
QSdom0 = QS0 - quota;
SSlope = elsup*QSdom0/WP0;
beta = QSdom0 - SSlope*WP0;
Sinter = beta/SSlope
Display beta, SSlope, Sinter;

```

```

BP0 = INPUT("Border_price","Market")*INPUT("Exchange_rate","Market");

```

```

Option NLP = Minos5;
Solve TWISTQR minimizing ED using NLP;

```

***** CHECKS

```

Parameter ChRP,ChQD, ChIMPORT;
ChRP = 100*(RP.L - RP0)/RP0;
ChQD = 100*(QD.L - QD0)/QD0;
ChIMPORT = IMPORT.L - quota;
Display ChRP, ChQD, ChIMPORT;

```

***** WELFARE

```

Parameters CS0, PS0, netimprev0, ES0;
CS0 = 0.5*QD.L*(Dinter - RP.L)/1000000 ;
PS0$(beta > 0) = (0.5*QSdom.L*(WP.L - Sinter) + 0.5*beta*Sinter)/1000000 ;
PS0$(beta<0) = (0.5*QSdom.L*(WP.L - Sinter))/1000000 ;
netimprev0 = (IMPORT.L*(RP0 - mar - BP0))/1000000 ;
ES0 = CS0 + PS0 + netimprev0 ;

```

```

Display Dinter, Sinter, CS0, PS0, netimprev0;

```

Parameter

WP1,RP1, QD1, QSdom1, QS1, import1, CS1, PS1, netimprev1,ES1,
deltCS1, deltPS1, deltnetimprev1, deltES1;

\$include tariffication

*\$include adjustquota

***** REDUCED QUOTA

quota = 186000

Solve TWISTQR minimizing ED using NLP ;

WP1 = WP.L ;

RP1 = RP.L ;

QSdom1 = QSdom.L ;

QD1 = QD.L ;

import1 = IMPORT.L ;

netimprev1 = (RP1 - mar - BP0)*import1/1000000 ;

CS1 = 0.5*QD1*(Dinter - RP1)/1000000 ;

PS1\$(beta > 0) = (0.5*QSdom1*(WP1 - Sinter) + 0.5*beta*Sinter)/1000000 ;

PS1\$(beta < 0) = (0.5*QSdom1*(WP1 - Sinter))/1000000 ;

ES1 = CS1 + PS1 + netimprev1 ;

deltCS1 = CS1 - CS0 ;

deltPS1 = PS1 - PS0 ;

deltES1 = ES1 - ES0 ;

Display WP1, RP1, import1,

deltCS1, deltPS1, deltES1 ;

***** TARRIFICATION

* Assumes that imports are positive even with tariff

Parameter tar ;

tar = 0 ;

WP1 = BP0*(1 + tar) ;

RP1 = WP1 + mar ;

QSdom1 = beta + SSlope*WP1 ;

QD1 = alpha - DSlope*RP1 ;

import1 = QD1 - QSdom1 ;

netimprev1 = (RP1 - mar - BP0)*import1/1000000 ;

CS1 = 0.5*QD1*(Dinter - RP1)/1000000 ;

PS1\$(beta > 0) = (0.5*QSdom1*(WP1 - Sinter) + 0.5*beta*Sinter)/1000000 ;

PS1\$(beta < 0) = (0.5*QSdom1*(WP1 - Sinter))/1000000 ;

ES1 = CS1 + PS1 + netimprev1 ;

deltCS1 = CS1 - CS0 ;

deltPS1 = PS1 - PS0 ;

deltES1 = ES1 - ES0 ;

Display WP1, RP1, import1,

deltCS1, deltPS1, deltES1 ;

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