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| **IMPLICATIONS OF THE WTO DOHA ROUND FOR THE RICE SECTOR** |

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Implications of the WTO Doha Round for the Rice Sector

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Introduction

The Uruguay Round Agreement on Agriculture represented a turning point in the history of the multilateral trading system by subjecting agricultural trade to essentially the same rules that discipline trade in industrial goods. For the first time, WTO members committed to reducing agricultural tariffs, export subsidies, and domestic support. The agreement also committed members to start negotiations on continuing these reforms beginning in 2000. With the signing of the Doha Ministerial Declaration in November 2001, objectives and deadlines for the current round of multilateral negotiations were set. While some progress has been made, little compromise has been reached on core issues regarding commitments to further expand market access, reduce or eliminate export subsidies, and lower trade-distorting domestic supports.

Trade liberalization is having a profound impact on the international rice market because rice trade has been highly protected in both industrialized and developing nations (Wailes, 2002). The relatively modest terms of agreement in the Uruguay Round Agreement on Agriculture along with regional trade agreements and national policy reforms have contributed to the sharp increase in global rice trade growth experienced in the latter half of the 1990s (Figure 1). Compared to the 1970s and 1980s, post-Uruguay Round rice trade has essentially doubled in both volume and as a share of consumption. Nevertheless, rice remains with sugar and dairy products, as one of the most protected food commodities in world trade.

Policy distortions in global rice trade

The major types of distortion in world rice markets are import tariffs and tariff rate quotas in key importing countries and price supports in key exporting countries. In 2000, the global trade weighted average tariff on all rice was 43.3 percent. Medium grain rice markets are far more distorted than long grain rice markets due to the TRQs and quotas in the major medium grain rice importing countries of Japan, South Korea, and Taiwan. Global trade weighted average rice tariffs in 2000 for medium and short grain rice markets were 217 percent compared to 21 percent for long grain markets.

Price supports for rice producers have been important in the major industrialized countries or regions including the European Union, Japan, and the United States. Both the EU and the US have shifted much their support mechanisms to decoupled payments and therefore out of WTO amber box discipline. Yet it is clear that without such payments, producers in these regions would be challenged to maintain current production levels. Much of the price support in Japan extends from the tariffs and TRQ levels. Since 1998, Japan's internal market intervention applies only to maintaining rice stocks for food security. Therefore, Japan' notification of domestic support as an aggregate measure of support (AMS) is remarkably low, while at the same time the producer subsidy equivalent measure (PSE), which reflects both domestic and border support, remains extremely high.

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In addition to trade protection by rice type, an important dimension of world rice trade is protection for the domestic rice milling industry. This form of protection is expressed in tariff escalation and is especially prevalent in Central and South American nations and the European Union. Tariffs on milled rice are higher than for brown or paddy rice. Tariffs on milled rice imports into the EU are more than twice the tariff level for brown rice. In Mexico, paddy rice imports pay a 10 percent tariff while brown and milled pay a 20 percent tariff. The effect of tariff escalation is seen in the reduced trade flows of milled high quality long grain. Most of this trade goes to nations with low tariffs. Most of the trade in brown and paddy rice however goes to nations that have high tariffs on brown and paddy, but even higher tariffs on milled rice. The trade weighted average tariffs by degree of milling for high quality, long grain rice is estimated to be 4.3 percent for milled, 31.4 percent for brown and 16.9 percent for paddy rice. This compares to simple non-trade weighted averages for milled of 13.7 percent, brown 18.7 percent and paddy 25.4 percent.

The greatest degree of protection in world rice trade is for medium/short grain. World export prices of medium/short grain rice are lower by approximately 100 percent as a result of protection by Japan, South Korea and Taiwan. Currently very few rice exporting countries produce medium/short grain rice. While potential to expand production of medium grain rice in non-traditional areas exists, there has not been an adequate price incentive to induce the research and development of production systems necessary to compete for these markets. The clear beneficiaries of trade liberalization in medium/short grain rice in the longer term, with expanded market access, will be those countries and especially China, which have a competitive advantage in production costs and logistics relative to other traditional medium grain export competitors, the United States, Australia, and Egypt.

Trade liberalization may stimulate production of medium/short grain in other countries but currently traded varieties are mainly suitable for temperate climates. Thus South American production, particularly Argentina and Uruguay, could develop adapted varieties more quickly. Many other developing countries have tropical or sub-tropical climates, thus these countries likely would require a decade or more to develop varieties that would be competitive into a liberalized medium/short grain global market. Production capacity for medium grain rice in Australia and the United States and to some degree China is increasingly constrained by lack of irrigation water.

Long grain rice markets are far less protected than medium grain. Tariffs in major low quality rice importing nations such as Indonesia and Bangladesh are estimated to reduce world export prices by as much as 30 percent compared to prices under full liberalization. The major impact of protection in low quality rice markets falls on consumers in these low-income importing developing nations and producers in low quality rice exporting nations such as Vietnam, India, Pakistan, and Thailand. Tariffs in high quality long grain markets are low by comparison with medium/short grain markets and low quality long grain markets. The most significant aspect of tariffs in high quality long grain rice trade is tariff escalation, where countries, particularly the European Union and several Central and South American nations have particularly high tariffs on milled rice relative to brown or paddy rice. This pattern of protection depresses world prices for milled high quality long grain relative to brown and paddy rice prices and places economic hardships on the milling sectors of high quality, long grain exporting nations such as Thailand, Vietnam, and the United States. Protection in high quality long grain milled rice markets is estimated to reduce world export prices by 10 to 20 percent.

As a result of slower and longer-term market access reforms allowed for developing countries in the WTO, rice policies in developing countries have not changed significantly over the past decade. The lack of rice policy reforms in developing countries has resulted in greater price volatility, which has placed a heavy burden directly on poor consumers or on the government to provide food distribution programs for those in poverty. The coefficient of variation of domestic prices in real terms over the past 20 years was 0.43 in India, 0.26 in Indonesia, and 0.37 in China over the past 16 years. These measures of price volatility compare with the coefficient of variation of only 0.24 of the Thai export price in real terms.

Estimates of policy reforms in the global rice sector

Recent official and unofficial meetings on agricultural negotiations of the Doha round have created a sense of frustration of not being able to move forward. The costs of negotiation, to find agreement to achieve further reform within the WTO framework, appear to be high. Are then the potential benefits of pursuing further reforms worth the effort? In recently completed research we have explored the question of what are the potential gains from near complete policy reform in the global rice markets (Wailes, 2004). Global rice trade liberalization is found to result in significant expansion of rice trade and price adjustments. Estimates of the impact of the elimination of import tariffs, export subsidies, and domestic supports were generated through the use of two modeling frameworks, a spatial equilibrium model, RICEFLOW (Durand-Morat and Wailes, 2003) and the Arkansas Global Rice model, a dynamic econometric framework (Fuller, Wailes, and Djunaidi, 2003). An earlier version RICEFLOW was used to assess trade liberalization prior to the Uruguay Round. For this study, RICEFLOW was more completely disaggregated by rice type and degree of milling and the baseline trade flows and elasticity estimates were updated through the year 2000. The results reflect the effects of trade liberalization applied to year 2000 trade flows and prices. A summary of the analysis by quantities traded and prices are presented in Table 1.

Complete rice trade liberalization in 2000 would have resulted in an expansion in global rice trade of nearly 3.5 mmt, a 15 percent increase in trade compared to actual 2000 rice trade. Trade weighted average export prices would be 32.8 percent higher and trade weighted import prices would be 13.5 percent lower.

Results by rice type and degree of milling also provide interesting estimates. As noted above, protection in medium/short grain rice markets is substantially greater than in long grain rice markets. Trade in medium/short grain with trade liberalization would increase by 73 percent. Producer export prices would rise by 91 percent and import prices would decline by 27 percent. In the most protected brown medium/short grain rice markets, trade increases by 141 percent, export prices increase by 200 percent and import prices decrease by 41 percent. Milled medium/short grain rice markets would expand by 59 percent, with export prices higher by 71 percent and import prices lower by 25 percent.

Long grain rice trade liberalization results in a 7 percent increase in volume traded. Export prices increase by only 2 percent but import prices fall by 18 percent, improving consumer welfare in rice importing nations. Most of the expansion in long grain trade occurs in the low quality markets such as Indonesia, Bangladesh and Philippines. Traded low quality long grain volumes increase by 13 percent and import prices fall by 14 percent, improving consumer welfare in many low-income developing countries. Removal of protection in these markets also improves producer welfare in developing countries as export prices increase by 7 percent. In the fragrant

rice market of basmati and jasmine rice, free trade results in a 41.5 percent lower import price but only slight increases in the volume traded and the export price.

Trade in the high quality long grain markets is subject to much less protection and as a result, trade liberalization results in only slight increases in volume traded—4 percent more paddy rice, 7 percent more brown rice and 3 percent more milled rice. Price effects are primarily seen in lower import prices—10 percent less for paddy, 31 percent lower for brown and 4 percent lower for milled rice.

Consumer and producer surplus gains and losses are estimated using the results of the baseline and free trade results of the RICEFLOW model. The detailed welfare estimates for producers and consumers and impact on government revenues from tariff elimination and government expenditures from the termination of domestic support programs are found in Wailes, 2004.

Global rice trade liberalization results in a total economic surplus gain of USD 7.4 billion annually. Importing countries, as a group, have a net gain of USD 5.4 billion and exporting nations gain USD 2 billion. The magnitudes of the net gains vary considerably by country and by rice type and degree of milling. The estimates are based on the impact of full trade liberalization in year 2000.

Reform of trade in medium grain milled rice accounts for more than 60 percent of the total global welfare improvement at USD 4.3 billion, of which importers benefit by $3.4 billion and exporters by $905 million. Brown medium grain rice importers benefit by $1 billion and exporters gain $449 million. Long grain trade liberalization generates total improvements of USD 1.14 billion. Importers gain $ 1.06 billion and exporters gain $ 80 million. High quality rice trade has welfare improvements of $218 million, with importers gaining $195 million and exporters gaining $23 million. Most of these gains occur for high quality milled, $69 million and brown rice, $124 million. Paddy rice trade liberalization improves the welfare of exporters by $2.4 million and importers by $22.4 million. Low quality rice trade liberalization improves the welfare of importing nations by $315 million and exporters by $52 million. Nearly all of these gains are captured by developing countries. Fragrant rice trade reform is estimated to improve importers welfare by $547 million, a result due primarily to Japan. Exporting nations of fragrant rice, India, Pakistan and Thailand gain only $6 million annually.

The trade and welfare analysis presented above assessed trade reform based on elimination of trade and domestic policies using the RICEFLOW model, a static spatial equilibrium framework of excess supply and demand equations. This framework is limited to estimation of the effects of policy reform pertaining to border protection. Domestic policy reforms were implicit in the policy results. It is not possible to use RICEFLOW to assess directly the effects of domestic price support policies on world rice trade and prices. To examine this additional effect, the Arkansas Global Rice Model (AGRM) was used. The AGRM is a non-spatial dynamic econometric model of the global rice economy (Fuller, Wailes, and Djunaidi, 2003). The AGRM structure is based on equations for supply—expressed in terms of equations that estimate area harvested and yields; and for demand—expressed in equations for domestic consumption, exports, imports, and ending stocks. Rice prices are endogenized, with world reference equilibrium prices for long grain and medium grain rice.

The effects of domestic price supports and trade policy are captured in the supply and demand framework of AGRM. For this study, policy interventions in rice supply that are trade-distorting

("amber box" in WTO parlance) were removed. To place the impacts of the removal of domestic policies on rice trade in perspective, the model was also simulated for the removal of import tariffs and export subsidies as well. This exercise provides an additional analysis to evaluate the trade impact results generated by RICEFLOW, the spatial equilibrium modeling framework. Finally, the AGRM was used to examine the net effect of complete policy reform including domestic support, import protection and export subsidies.

Results are presented in Figures 2-4. The AGRM baseline global trade projections are 27.9 mmt in 2005 increasing to 33.6 mmt by 2012.   The world reference export price of long grain is the Thai 100 percent B and the reference export price for medium grain is the US California No. 2 Medium grain price. Long grain prices in the baseline begin at USD 232/mt in 2005 and increase to USD 277/mt by 2012. Medium grain prices increase from USD 332/mt in 2005 and increase to USD 406 by 2012.

The impact on global rice trade from the removal of tariffs dominates all policy reform scenarios. Trade increases by 3.5 mmt in 2005 and continues to expand over time to 5.3 mmt above the baseline. The removal of export subsidies reduces global rice trade in the short-term by 720 thousand mt but the effect in the long term is negligible. Taken together, removal of import tariffs and export subsidies, the effect on global rice trade is swamped by the tariff effects. Trade is higher in 2005 by 2.7 mmt and by 2012 higher by 5.2 mmt. Elimination of domestic supports in the United States, the European Union and Japan reduces trade very slightly and not at all over the longer term. The combined effect of the removal of tariff barriers, export subsidies, and domestic supports increases trade by 2.4 mmt in 2005 and by 4.9 mmt by 2012. The results of policy reform for an expansion of global rice trade by 15 percent given by the more aggregated but dynamic AGRM model is remarkably similar to the static results generated by the RICEFLOW model.

The impact on global export prices follows the impact on trade with the dominant impact on prices resulting from removal of import tariffs. The long grain price is higher in the short term by USD 23/mt and in the longer term by USD 43/mt.   In the more highly protected medium grain market, tariff removal causes prices to be higher by USD 291/mt in 2005 and by USD 340/mt by 2012. The impact of removal of export subsidies is important only in the short term with long grain export prices higher by 6 percent and medium grain prices higher by 5 percent. The removal of domestic supports is negligible throughout the projection period. The aggregate effects of policy reforms, including tariffs, export subsidies and domestic supports is significant for both long grain and medium grain prices. Long grain export prices are higher by 18 to 22 percent. This result differs from the RICEFLOW model result for export prices. Medium grain prices are higher than baseline projections by 70 to 80 percent. This result is similar to the findings reported using the RICEFLOW model.

Policy Implications and Conclusions

The global rice economy has been and continues to be distorted by substantial government intervention. Unilateral reforms that have been adopted or are in process in the United States, the European Union, and Japan are important initiatives for the global rice economy. This study finds that the benefits of policy reforms on a global basis will benefit Japan, China, the United States, the European Union and Australia by large measures. Policy reforms are rarely zero sum as is suggested by the estimates given in this study.

Policy reforms to eliminate protection in the global rice economy are estimated in this study to result in an increase of economic welfare of over USD 7.4 billion per year. Most of these gains can be achieved through the elimination of tariffs on imports. Consumers in importing countries gain USD 32.8 billion while producers in importing countries lose USD 27.2 billion. Importing country governments lose USD 2.9 billion tariff revenue but gain USD 2.7 billion by eliminating domestic supports. The net welfare gain to rice importing countries is estimated to be USD 5.4 billion. Producers in exporting countries gain USD 70.2 billion while consumers in exporting nations lose USD 68.8 billion. Imports by the exporting countries result in a loss of tariff revenue of USD 5.3 million and elimination of domestic supports saves USD 598 million. The net welfare gain in importing countries is USD 2 billion.

With global policy reform, total rice trade is estimated to increase by 10 to 15 percent. Prices received by exporters would be expected to be higher by 25 to 35 percent. Prices paid by importers would be expected to decline by 10 to 40 percent depending upon the type of rice. Rice trade, despite the expansion, would remain relatively thin. Complete policy reform, would result in an increase of rice trade from the current level of 6.5 percent of consumption to 8.4 percent by 2012. Thus, one of the major sources of world rice price instability is likely to remain after liberalization. Global rice stocks have also declined over the past three years by 30 percent. Thus, the ability of stocks to buffer supply shocks has been markedly reduced. The implications of global rice trade liberalization for lower income, net-importing countries that would become more reliant upon world rice trade are not attractive. Political and food security is likely to be reduced.

Medium grain rice is the most protected rice type. Consequently, policy reform would have its biggest impact on the countries that export and import medium grain rice. Japan is estimated to capture nearly 70 percent of the global economic welfare gains. Other developed countries such as the United States, Australia and the European Union who export medium grain rice would also be significant beneficiaries of trade policy reform.

Ironically, some countries that currently have little or no degree of protection are likely to be harmed from policy reforms. This result is due to the large country impacts that countries like Japan' increased imports would have, increasing the demand for medium grain rice and thereby increasing world prices especially for medium grain rice. Countries, such as Turkey and Russia, which have imported medium grain rice with moderate levels or no protection, would experience higher prices as a result of the increased volume of medium grain imports by Japan, South Korea, and Taiwan. Benefits of removing moderate levels of tariff protection, as in the case of Turkey, are swamped by the price effect of free and expanded trade in medium grain.

The impacts of domestic support policy reforms in the United States and the EU are estimated to reduce rice exports by less than 5 percent in the initial years and have relatively no impact on trade in the longer term. Prices are estimated to be 5 to 10 percent higher initially but over the longer term the effect diminishes to zero. Multilateral and regional trade policy reforms achieved over the past decade have contributed to an expansion in rice trade and more stable prices. The achievements of the Uruguay Round Agriculture Agreement include the opening of the previously closed Japanese and South Korean markets. Limits placed on domestic supports in the EU and the US and export subsidies in the EU have yet to have a significant impact on rice trade. Regional agreements such as NAFTA and MERCOSUR have increased western hemisphere rice trade. The prospects for the Doha Round of the WTO hinge to a great extent upon continuing the expansion of market access, reduction of tariffs, and limits on export subsidies that will be effective.

Continued trade policy reforms are important for the global rice economy and will have positive impacts on producers in exporting nations and consumers in importing countries. But reforms will result in losses to other market participants. The exercise of political power by specialized interests in protecting benefits from a policy distorted global rice sector cannot be underestimated. Therefore it is important to continue efforts to clearly measure and understand the consequences of protection and the benefits of moving forward.

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Figure 1. World rice trade and percent share of total use.
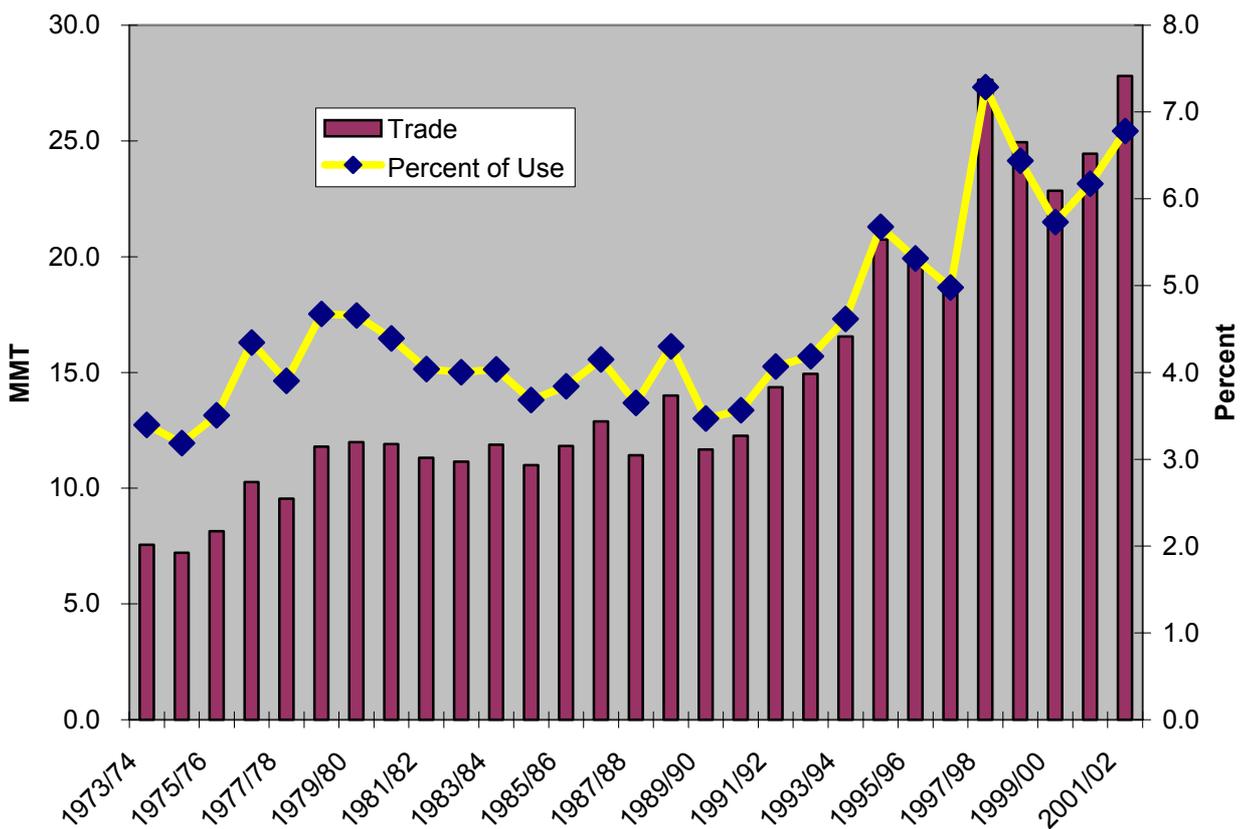
Source: USDA, PS&D, 2003.

Table 1. Rice trade liberalization results from RICEFLOW model, 2000.

Rice Type	Baseline	Free Trade	% Change
Long Grain			
High Quality			
Paddy			
Quantity (MT)	1,035,320	1,081,254	4.4%
Export Price (USD/MT)	149.21	154.67	3.7%
Import Price (USD/MT)	185.51	166.89	-10.0%
Brown			
Quantity (MT)	856,798	916,721	7.0%
Export Price (USD/MT)	223.75	219.25	-2.0%
Import Price (USD/MT)	363.32	250.64	-31.0%
Milled			
Quantity (MT)	7,495,594	7,704,482	2.8%
Export Price (USD/MT)	225.97	225.58	-0.2%
Import Price (USD/MT)	262.06	252.16	-3.8%
Low Quality			
Milled			
Quantity (MT)	8,084,093	9,149,728	13.2%
Export Price (USD/MT)	177.05	188.70	6.6%
Import Price (USD/MT)	248.19	213.09	-14.1%
Fragrant			
Milled			
Quantity (MT)	2,449,711	2,467,502	0.7%
Export Price (USD/MT)	265.24	267.07	0.7%
Import Price (USD/MT)	511.20	299.07	-41.5%
All Long Grain			
Quantity (MT)	19,921,516	21,319,687	7.0%
Export Price (USD/MT)	206.87	210.68	1.8%
Import Price (USD/MT)	287.45	236.43	-17.7%
Medium/Short Grain			
Brown			
Quantity (MT)	483,063	1,162,478	140.6%
Export Price (USD/MT)	271.80	814.47	199.7%
Import Price (USD/MT)	1438.54	842.75	-41.4%

<u>Milled</u>

Quantity (MT)	2,487,760	3,946,170	58.6%
Export Price (USD/MT)	367.71	628.92	71.0%
Import Price (USD/MT)	855.89	645.69	-24.6%

All Medium/Short Grain

Quantity (MT)	2,970,823	5,108,648	72.0%
Export Price (USD/MT)	352.11	671.14	90.6%
Import Price (USD/MT)	950.63	690.53	-27.4%

<u>All Rice</u>

|			
Quantity (MT)	22,892,339	26,428,335	15.4%
Export Price (USD/MT)	225.71	299.69	32.8%
Import Price (USD/MT)	373.51	322.97	-13.5%

Source: University of Arkansas, RICEFLOW Model. 2003.

Figure 2. Policy Reform of the Global Rice Economy: Net Impact on Trade
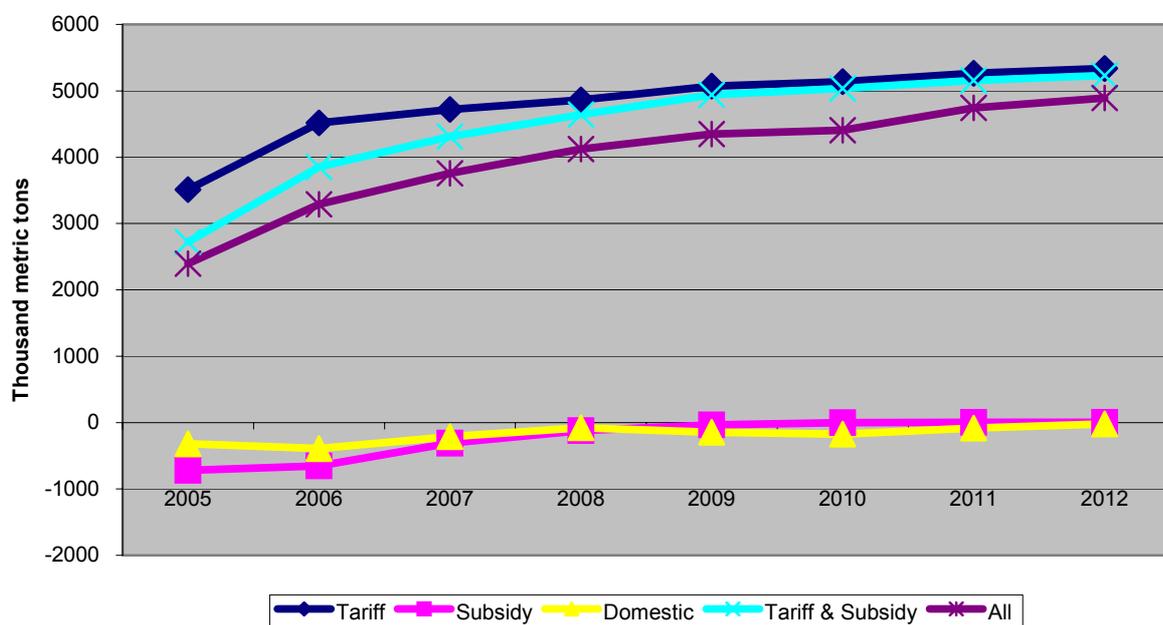
Source: Arkansas Global Rice Model, University of Arkansas. 2003.

**Figure 3. Policy Reform of the Global Rice Economy: Net Impact on Thai 100%
B Long Grain Price**
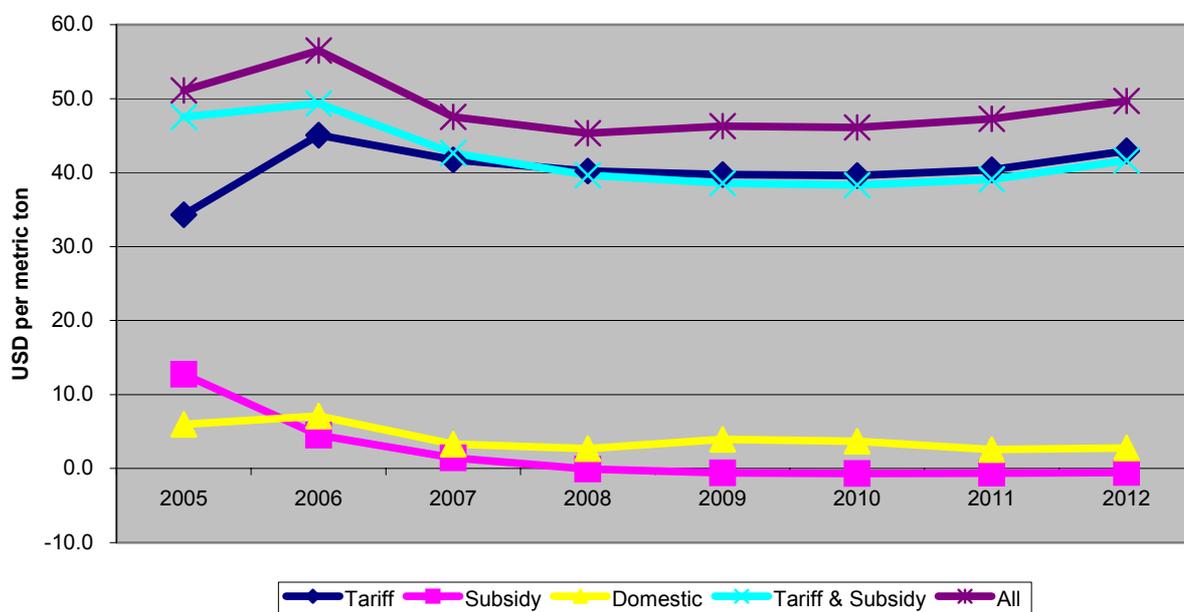
Source: Arkansas Global Rice Model, University of Arkansas. 2003.

Figure 4. Policy Reform of the Global Rice Economy:
Net Impact on California No. 2 Medium Grain Price