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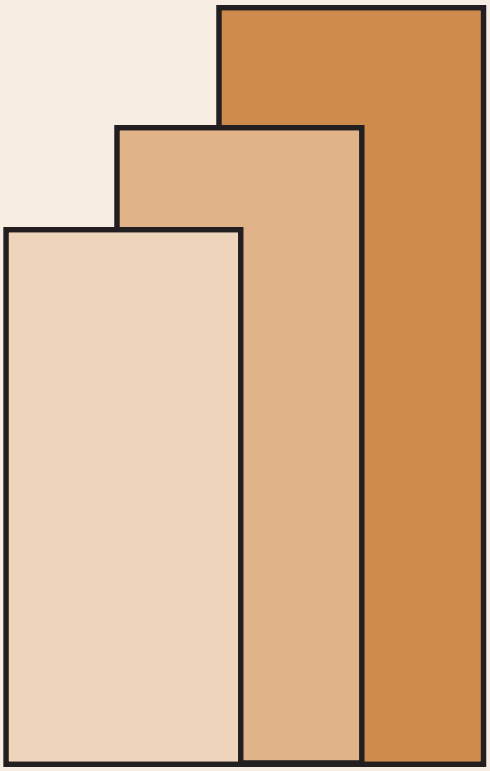

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RICE PRICES AND THE NATIONAL FOOD AUTHORITY[1]

Ponciano Intal, Jr., Leah Francine Cu and Jo Anne Illescas

Abstract: This study examines the performance of the NFA with respect to its function of price stability, its implications for public finances, and recommends policy reforms where warranted. It finds that NFA has been unsuccessful in stabilizing producer prices, but relatively successful in stabilizing retail prices, largely through exercise of its import monopoly. However it does so at high cost, partly due to operational inefficiency, but largely owing to its fundamental policy mandate. The study recommends relinquishing this mandate, and leaving a greater role for the private sector in stabilizing rice prices, with NFA function and price policy limited to maintaining strategic reserves a variable import levy.

Key words: food security, price stabilization, financial sustainability, National Food Authority

Introduction

The National Food Authority (NFA) is one of the most important policy instrumentalities of the Philippine government with respect to agricultural price policy and food security. Despite its name, the government-owned and controlled corporation deals primarily with rice, the country's foremost food grain which accounts for the largest share of the food basket of the average (but especially of the poor) Filipino consumer. At the same time, rice is a major agricultural commodity accounting for a significant share of farmers in the country. Many of the rice farmers are also poor.

NFA is tasked to stabilize the price of rice consistent with farm prices that are remunerative to the country's rice farmers and retail prices reasonable enough for the country's consumers. Also, it is mandated to respond immediately (within 48 hours) to ensure supply of rice during emergencies and calamities and stabilize rice prices within two weeks in the calamity-stricken areas to levels prior to the calamity or emergency (Coffrey International Development, 2007, p.27).

[1] This study is conducted as part of a project on Monitoring and Evaluation of Agricultural Policy – Capacity Development Project of the Philippine Institute for Development Studies, funded by the World Bank and Food and Agriculture Organization.

Clearly, the mission of NFA is daunting and almost a recipe for failure. To a large extent, this is because NFA is tasked to address potentially conflicting objectives for consumers and rice farmers. At the same time, the organization has to be agile to be responsive in times of calamities, spread out geographically to meet rice supply and demand pressures all over the country (in the light of a relatively inadequate infrastructure and logistic system in the country), and efficient enough to be competitive with the private sector in the provision of rice marketing services.

Not surprisingly, NFA's performance over the years has been extremely mixed. The basic issue is whether the society's investment in NFA has been worth it given the resources put into the corporation. If not, what can be done to address the fundamental concerns being pursued by NFA, which are rice price stability and food security.

The paper examines the performance of NFA during the past decade or so, examines why and presents policy recommendations accordingly.

Price Stabilization and Food Security: Some Analytics

Virtually all countries have intervened in the market pricing of food grains to promote price stability. The most common method of intervening is the use of buffer stock usually in tandem with trade policies (see Islam and Thomas, 1996 , pp1-2). The Philippines is no exception to this. In developing countries, the management of the buffer stock is usually handled by a government instrumentality. In the Philippines, it is the National Food Authority that has the mandate to manage the country's buffer stock of rice, the country's key food grain.

There is some political logic to price stabilization of basic food commodities like rice. Rice accounts for the largest share of the food basket of poor and near poor Filipinos. And food costs constitute the largest portion of the Filipinos' overall budget. Finally, a

significant share of Filipinos hovers near the poverty line. Thus, large hikes in the price of rice can push a large number of Filipinos into poverty unless the price hike happens together with a corresponding increase in their household incomes (which is likely unlikely especially for poor urban consuming households). Similarly, rice farmers are the most numerous farmers in the country, and a large proportion of them is poor or near poor. Thus, significant price falls of palay, especially during the peak harvest season, have significant adverse impact on the incomes and poverty status of the rice farmers, especially because most of them do not have the wherewithal to hold off the sale of their harvest due to credit and storage constraints. Both the poor and near poor rice consumers and the rice farmers are major voting constituencies in the country.

The importance of rice price stabilization is even more highlighted in a paper (2002) by the DAI Food Policy Advisory Team in Indonesia, probably mainly authored by Peter Timmer, for Indonesia's BAPPENAS. The paper emphasizes that food price stability, especially rice price stability, is a critical element of what is the East Asian approach to food security. Specifically, the approach that can be termed "growth mediated food security" consists of rapid economic growth that benefits the poor combined with food price stability. This is food security at the macro level wherein "policymakers have an opportunity to create the aggregate conditions in which households at the "micro" level can gain access to food on a reliable basis through self-motivated interactions with local markets and home resources" (p.23). Rapid economic growth is the long run solution to food security through the Lorenz curve, because at the resulting much higher per capita income, the share of food expenditures to total family expenditures declines dramatically and therefore significant price swings of rice prices would only have minor adverse welfare effects. In the short run however, it is the relative price stability of food, especially rice, which gives the sense of food security to households. Food and rice price stability can have macroeconomic benefit through possibly less overall inflation rate and less variable overall inflation rate, which would likely lead to improved investment climate and higher rate of investments thereby engendering a more robust economic growth rate.

For countries with relatively large population like the Philippines or Indonesia, food (rice) security has a large element of the drive for self-sufficiency because of the relative

thinness of the world rice market as compared to the world wheat or corn markets. Global rice trade volumes are only about a fifth of global trade in wheat; and the ratio of internationally traded rice is only about 5 percent of world production as compared to about 20 percent for wheat (and 15 percent for corn). This relatively thin market has meant that historically world rice prices have tended to be more unstable that world wheat prices. As a result, rice importing countries have tended to insulate their domestic markets from the volatility of world rice prices. (See DAI, 2002, pp.31-33.)

Three nuances of price stabilization. There are three nuances of price stabilization that are of interest. The **first** is the most politically cogent, which is that when there is an emergency or calamity, the supply of rice is restored and the price of rice stabilized the soonest possible. Where the transportation and warehousing infrastructure is not well developed, a calamity or emergency leads to private hoarding and possible sharp hikes in the price of rice, which will aggravate further the emergency condition. Thus, government intervention to restore rice supplies and temper price hikes during the emergency is needed. This is done primarily through a strategic rice reserve for such eventualities and stored at various locations in the country for quick response. In addition, the government tends to become more vigilant with respect to its regulations against hoarding of basic commodities during emergencies in affected areas.

Note also that government intervention through the provision and activation of an emergency rice reserve addresses both the first nuance of price stabilization, and probably more importantly, that of food security during emergencies.

The **second** nuance of price stabilization is to temper the seasonal variation of the price of rice within a year. Given that rice is consumed continuously and regularly the whole year round while domestic production is seasonal, there is inevitably some seasonal variation in the price of rice such that it is lower during the harvest season and higher during the lean season. The market allows for the seasonal price variation in order to pay for the storage and handling services of traders so that there is some domestic supply even during the lean season. Tempering this seasonal variation in the price of rice means

that the price of rice, especially palay, is higher than the market price would be without government intervention during the harvest season (which rice farmers with marketable surplus would like) while the retail price is lower than the market price without government intervention during the lean months (which the rice consumers would like).

That there is seasonal variation in the price of rice both at the farm gate and at the retail level over the course of a year does not necessarily call for possible government policy intervention as such. This is because the seasonality of rice price is a known reality and is therefore incorporated in the pricing information that shapes expectations and decisions of rice farmers (especially) and even possibly of rice consumers (hopefully). What gives policy salience with respect to the second nuance of price stabilization is that the volume of rice production is uncertain due to weather and pest factors among others. This means that farm prices can spike up or register large droops during harvest season due to such production uncertainties, thereby immediately affecting the incomes and welfare of rice farmers accordingly. Such production shocks can also affect the consumer market and the consumer price down the road if there is no appropriate inventory management response either in terms of inventory drawdown (or increase) and/or imports (or exports) of rice.

To effect the second nuance of price stabilization, the government tempers the seasonal variation of the price of rice primarily through the purchase of palay during harvests and the sale of rice especially during the lean months. In case there is an overall shortage of rice for the whole year, the government would need to import rice to augment domestic purchases primarily for the lean season. This is essentially what the National Food Authority does in its price stabilization mission.

It needs to be emphasized though that what NFA does is also what the private sector does in rice trading. The private sector purchases rice during harvests, sells to consumers all year round, and if allowed by the government and is profitable, imports rice to meet domestic supply shortfalls. In either the NFA or the private sector, resources are expended for the cost of domestic purchases, storing, transporting, processing, importing or exporting, and selling. The challenge is to ensure that the marketing margin is

reasonable enough in order for the traders to have reasonable profit but at the same it is not too high at the expense of consumers. The marketing margin must be enough to pay for the cost of all marketing related costs plus reasonable profits (on the average in the course of several months or years) in order to make the provision of marketing services sustainable. In short, the trading, storing, transporting and processing stage needs to be as efficient as possible in order to minimize the marketing margin

If the government intervenes in the marketing stage through a government corporation such as the National Food Authority, the challenge is to minimize the subsidy cost (if any) of government intervention in the rice marketing stage consistent with the price stabilization and food security concerns of the country. Heavy subsidization by the government in the marketing stage can have distortionary effects on the rice marketing system. The most long lasting adverse effect is that unclear and haphazard interventions by the government entity lead to business uncertainty which discourages the private sector to invest adequately in facilities, systems, and relationships needed for greater efficiencies in the rice marketing system. There are some economies of scale in the marketing system. The better integrated the system is and the more adequate facilities are, the lower the cost per unit of rice marketed would be, which can potentially benefit either the consumers (through lower retail prices) or the farmers (through higher farm gate prices) or both.

It needs to be pointed out that the **economic basis** for government intervention in the marketing system is far less apparent in the second nuance of price stabilization than in the first nuance. In terms of efficiency considerations, the possible basis for government intervention is that there are significant inefficiencies in the private rice marketing system either because of possible lack of competition or because the private sector does not have the wherewithal to invest in the appropriate facilities and systems for efficient rice marketing (which presumably the government intervention would address). There is an implicit assumption therefore that the government instrumentality involved in rice marketing (e.g., National Food Authority) would be more efficient and have better facilities than the private sector. If in fact the government instrumentality is **ex ante**

expected to be less efficient than the private sector and therefore needs to be subsidized, then the basis for government intervention (for this second nuance of price stabilization) is purely for **non-economic or political** reasons.

The **third** nuance of price stabilization is that the domestic price of rice is more stable than the world price of rice; that is, government intervention is such that domestic rice price for consumers is more stable than the world price of rice. In a completely open rice economy, the domestic price of rice would largely follow the gyrations in the world price of rice adjusted for changes in the exchange rate (as well as possible changes in the tariff rate on rice, which tends to be constant or are changed very infrequently or change very little over time, and international shipping costs for rice). Domestic supply and demand gaps are addressed through export and import of rice. Government intervention in the third nuance of price stabilization rests on the assumption that the gyrations in the world price of rice are too large for political comfort in the domestic arena; thus, the need for government intervention in order to shield the domestic economy somewhat from the presumably volatile world price of rice.

Assuming that there is some basis for de-linking the domestic rice price from the world rice price movements, the government has two alternative approaches for doing so. The **first approach** is for the government to still rely on the private sector to import and export rice but where the tariff on rice is adjusted to counteract the movements in the world price of rice. In this case, domestic price stabilization is undertaken through a variable tariff system such that the import tariff on rice is decreased when the world price of rice is high and is correspondingly increased when the world price of rice is low. In this intervention strategy, the government can rely fully on the private sector in rice trading with respect to imports and exports. The government does not have to expend resources to support a government instrumentality like the National Food Authority to undertake domestic price stabilization relative to world prices. Indeed, the government can potentially even earn from this approach through the tariff revenues from levies on imported rice.

The **second approach** is to have a government entity like the National Food Authority managing buffer rice stock and having the sole (or dominant) authority to import and export rice. In this case, de-linking domestic price from the world price of rice is determined solely on the pricing decisions of the government entity in the domestic market(s). The second option entails a lot more resources from the government as compared to the first option. The choice of the second option stems from a specific price stabilization strategy, which is the reliance on a government buffer stock policy managed by a government instrumentality like the National Food Authority. A corollary of the buffer stock strategy is that the government would rely on importing and exporting by the government instrumentality instead of on the use of variable tariff rates on private importation or exportation of rice. Implicit in this government preference for the second option is the assumption that the private sector has less leverage vis-à-vis foreign exporter-suppliers (or foreign importer-buyers as the case may be) or that it has less resources—financial or otherwise--than the government to undertake import and export of rice. Both presumptions do not seem to be compelling because international rice trading is primarily commercial involving substantially the private sector in the export countries (e.g., Thailand) and because the private sector has in fact greater financial wherewithal than the perennially financially strapped Philippine government. The more likely reason for the Philippine government not relying on the first approach to domestic price stabilization via the private sector trading cum variable tariff is that the second approach is the logical extension to the international trading arena of the buffer stock-cum-price stabilization strategy relying on a government instrumentality in the domestic economy.

Requirements for effective public buffer stock management. In their review of the experiences of developing Asian countries in price stabilization through buffer stock management in tandem with the use of trade policies, Islam and Thomas (1996) state the following as the conditions for a successful and effective program, quoting verbatim (p.2):

1. *The buffer stock agency must have an assured, flexible access to adequate financial resources since its requirements cannot be predicted.*
2. *The buffer stock agency must be in control of the timing of its purchases and sales. Inappropriate timing would detract from its ability to influence market prices.*
3. *Public stocks must be properly managed. Cost-effective purchases and sales must be made and stocks must be rolled over frequently to avoid spoilage in storage.*
4. *Timely and efficient management is also essential to avoid counter-speculation, when traders, lacking confidence in the public agency, refrain from buying in times of surplus and buy rather than sell in times of shortage.*
5. *If publicly held reduce or substitute for private storage, the success of the public effort is compromised. Policies should encourage private trade; otherwise the cost of public stock will be higher.*

In summary, there is some compelling basis for the government to intervene in rice distribution in times of calamities and emergencies. The intervention is primarily through the maintenance of an emergency reserve. The economic basis for the government to intervene in rice marketing in order to temper the seasonal variation in rice prices rests ultimately on the presumption that the private sector is less efficient and effective in providing the needed marketing services from the farm to the consumer than the government agency. Similarly, the economic basis for the government to intervene through the public management of a buffer stock plus the control of imports and exports of rice rests on the presumption that this is a more expeditious and effective way of stabilizing domestic rice prices relative to world rice prices rather than the reliance on the private sector to undertake the appropriate importing and exporting of rice together with the imposition of flexible and variable tariffs (and negative tariffs or subsidies where appropriate). However, as the lessons of the developing countries in managing buffer stock cum trade policies for price stabilization of food grains indicate, the conditions in order to have an effective and efficient public agency managing the buffer stock are extremely stringent indeed.

Rice Prices

***Domestic and international prices and price stabilization*.** **Table 1** presents the average annual deflated prices of rice for the whole Philippines at the farm, wholesale and retail levels during the 1990-2008 period.. The data are deflated using the consumer price index for the Philippines with 1994 as the base year. **Table 1** shows that the period 1990-2008 is characterized by two notable price spikes; i.e., 1995-1996 and 2008 with the highest being during the 1995-1996 period. Nonetheless, excluding the two price spikes, the real price of rice has largely been relatively stable without any pronounced secular trend.

As will be discussed later in the paper, the price spike in 1995-1996 was largely domestic in origin while the price spike in 2008 was global (but where nonetheless the Philippines played a significant role as the world's largest rice importer during the year). Excepting the two price spikes, the relative stability of the real price of rice is consistent with the price stabilization concern of the Philippine government. However, as will be discussed later, the price spikes are to some extent endogenous to the decisions and operations of the government's rice intervention strategy through the National Food Authority.

Table 2 compares the international price of rice and the Philippine wholesale rice price. The international price is represented by the f.o.b. Bangkok price of Thai rice, 35 % brokens. This is likely of a lower quality than the average Philippine rice by the 1990s, although this is what may be relevant for the provision of rice reserve for emergencies as well as the rice for the poor. (The lower the percentage of rice brokens is, the higher the quality. Cristina David uses an average of the price of Thai rice 15% brokens and Thai rice 35% brokens in her computations of the nominal rate of protection. However, this is

essentially a synthetic price, not a real market price.) Nonetheless, the prices of the Thai rice of different percentage of rice brokens tend to move together. Because the Philippines imports much of its rice from Vietnam, the Vietnam export price at 25% brokens is more direct comparator international price for the Philippine domestic rice price. However, the series starts in 1998 only and is intermittent (i.e., there were some months when there were no published export quotes). Thus, for longer period analysis, the Bangkok price at 35% is used in the paper (there is no series for 25% brokens for Bangkok rice). There is a strong correlation in the movement of prices of the Vietnam export quotes and Bangkok f.o.b. price, as reflected in the following regression:

Ln PV	=	1.107	+	0.878 Ln PB
		(6.3)		(46.7)

Adjusted R squared	=	0.95
RSME	=	0.056
N	=	118

Where

PV	=	Vietnam export price in US dollars
PB	=	Bangkok F.O.B. 35 % brokens in US dollars

Table 2 shows that the world price of rice in US dollar terms declined somewhat in the early 1990s, then shot up in 1995 to resume a gradual price decline until it reached bottom in 2001, after which there was a secular rise in the price capped by a sharp peak in 2008. Thus, the world price of rice during the 1990s and the 2000s can be characterized by two price cycles with price peaks in 1995 and in 2008. The pattern of Thai fob rice price in dollar terms is similar to the pattern of rice price movements domestically, which seems to suggest that domestic prices follow international prices. However, what matters for the domestic market is the peso value of the imported rice (and adjusted for handling and transport costs). Because the peso-US dollar rate changed substantially during the period, with major depreciation episodes during 1997-2004

before a significant peso appreciation in 2007, the pattern of the international price of rice in peso is heavily muted by the exchange rate changes. What comes out is a pronounced secular rise in the price of international price in peso terms during the period, highlighted by the sharp rise in 2008.

Figure 1 puts in starker relief the significant difference in the movement of the international price of rice in peso terms and of the domestic price of rice. Specifically, the domestic price of rice (in terms of the wholesale price and even of the farm price) was very much higher than the international price in peso terms (and adjusted for transport and handling costs) during the 1990s, especially in the early 1990s when the implicit nominal rate of protection of domestic rice was much more than 100 percent. The nominal rate of protection remained high in the latter 1990s, measuring more than 50 percent, but declined dramatically by 2004 to about 10 percent or less as the foreign price of rice started substantial rise while domestic prices continued to decline secularly since 1996 albeit very slowly. Indeed, as the rise in the international price of rice gathered further steam while domestic prices remained relatively stable until 2007, the nominal rate of protection turned zero or negative during 2005-2008. **Figure 1** also shows the Vietnam rice export price beginning 1998. The discussion above remains the same for the Vietnam price as the international referent price. (**Appendix Figures A.1 and A.2** show the yearly comparison between the Philippine wholesale price and Thailand export price (35 % brokens) and Vietnam export prices (25% brokens) respectively in peso terms and adjusted for transport and handling on a monthly basis.)

Table 2 and Figure 1 are all at **current prices**; i.e., not deflated. They bring out most forcefully the implicit major objective of the government's rice price policy, which is apparently one of rice price stability at current prices. The government has largely succeeded in its objective during the period despite significant gyrations in the exchange rate and in the world price in dollar terms. The exceptions include 1995-1996, which had political impact in the sense that the sitting administration's senatorial team did not fare well during the elections in part because of the sharp rise in the price of rice. The price peak in the domestic market in the mid-1990s is primarily determined by domestic

factors. Indeed, David (1997) attributes the 1995-1996 price peak as primarily a result of policy failure. The other exception is the recent –global rice crisis" of 2008, which some analysts view was partly caused by the overreaction of both the major exporting (e.g., India, Vietnam, Thailand) and importing (read: Philippines) countries to a tightening global rice situation as reflected by the secular rise in the world price of rice since 2003.

Below are regressions of the Philippine wholesale price of rice on the Bangkok export price (35 % brokens) for 1990-1998 and selected sub-periods, where PP is the Philippine wholesale price of rice and PT is the Bangkok f.o.b. price in peso terms and where the numbers in parentheses are the t-values:

1990-2008

ln PP =	10.796	-	0.111 ln PT			
	(60.4)		(-5.7)			
Adjusted R squared	=	0.13 ;	F	=	32.4	
RMSE	=	0.102;	N	=	218	

1990 - 1996

ln PP =	6.545	+	0.370 ln PT			
	(11.5)		(5.8)			
Adjusted R squared	=	0.28;	F	=	33.1	
RMSE	=	0.103;	N	=	84	

1997 - 2008

Ln PP =	11.325	-	0.168 ln PT			
	(52.9)		(-7.4)			
Adjusted R squared	=	0.29;	F	=	54.7	
RMSE	=	0.074;	N	=	134	

1990 – 1994

ln PP	=	11.567	-	0.204 ln PT			
		(17.3)		(-2.7)			
	Adjusted R squared		=	0.10;	F	=	7.3
	RMSE		=	0.07;	N	=	60

1994 – 1996

ln PP	=	3.81	+	0.676 ln PT			
		(3.9)		(8.2)			
	Adjusted R squared		=	0.65;	F	=	66.7
	RMSE		=	0.07;	N	=	36

1997 - 2000

ln PP	=	9.801	+	0.005 ln PT			
		(19.801)		(0.1)			
	Adjusted R squared		=	-0.02;	F	=	0.01
	RMSE		=	0.058;	N	=	48

2001 – 2004

ln PP	=	10.546	-	0.091 ln PT			
		(61.2)		(-4.9)			
	Adjusted R squared		=	0.33;	F	=	24.4
	RMSE		=	0.02;	N	=	48

The regression results above indicate that Philippine wholesale rice prices moved somewhat against the Bangkok export price for the whole 1990-2008 period, primarily during the 1997 – 2008 sub-period and most especially during the years since 2001. As will be shown later in the paper, the years since 1997 can be characterized by the greater effort of the National Food Authority towards rice price stabilization as reflected in the

rise of its rice stock and in the expenses for rice operations during the period. This appears to show the political importance given by the government to rice price stability after the results of the senatorial elections in the mid1990s; in short, rice is a political commodity in the country.

Table 2 and Figure 1 also show that the very high nominal rate of protection of the early 1990s eventually turned into a negative rate of protection by the mid 2000s. This remarkable shift in the nominal rate of protection has tremendous impact on the National Food Authority's operations and budget. The very high rate of protection could provide NFA some buffer on its finances (i.e., NFA could import rice cheaply and sell it at a much higher price domestically) in much of the 1990s. However, the pursuit of rice price stability domestically in the face of soaring international price in peso terms, which resulted in the sharp drop in the nominal rate of protection and the eventual turn to negative rate of protection, could only be done through heavy government subsidies of NFA operations.

Similarly, **Table 1 and Figure 1** suggest that the implicit policy bias of the Philippine government during the 1990-2008 period has been an overriding focus on rice consumers through rice price stability especially since the latter 1990s. The support to rice farmers through some reasonable rate of protection was largely a secondary corollary to the pursuit of rice price stability in the context of the changing international market conditions for rice.

National and regional rice prices, marketing margins and price volatility.

Figures 2 to 4 show the pattern of average annual farm, wholesale and retail prices of rice from 1990 to 2008 by region. The figures suggest the following:

1. Rice prices tend to move reasonably closely among the regions.

2. Farm gate prices seem to be more volatile than retail prices, and possibly even than wholesale prices.

The last observation that farm gate prices tend to be more volatile than retail or even wholesale prices is corroborated by **Table 3a** which shows the standard deviation of (deflated) farm gate, wholesale and retail rice prices for the whole country annually during 1990-2008 and by **Table 3b** which presents the standard deviation estimates at the regional level during the period. (**Appendix Tables A.1.a-A.1.c** present the standard deviation estimates per year.) The tables show that the standard deviation measure for farm gate prices is higher than those of wholesale prices and retail prices except most notably in 1995 when retail prices zoomed up. The table also suggests that wholesale rice prices tend to be more volatile than retail prices.

This pattern on relative price volatility among farm, wholesale and retail prices is probably not surprising because the storage function of the private sector is meant partly to help stabilize prices at the wholesale and retail levels. At the same time, the stability in the price of rice at the retail level is precisely the key objective of government intervention in rice marketing through buffer stock management. Thus, the greater stability in the price of rice at the retail level could be caused by the normal storage function of traders as well as by government interventions in rice marketing. The challenge is to determine whether indeed the government intervention was the dominant factor for the greater stability of the price of rice at the retail level.

Figures 5-7 show the monthly pattern of (deflated) farm gate, wholesale and retail prices of rice for the period 1990-2008. The tables show that prices are clustered within a narrow band, except for a few years most notably 1995, 1996 and 2008. As the tables indicate, rice prices shot up in the latter 1995 and early 1996 before gradually declining by the latter 1996; similarly, there was a sharp rise in the price of rice during the second and third quarters of 2008 before declining afterwards. Those three years of markedly different pattern of the movement of the price of rice are related to the sharp price increases that were noted earlier during 1995-1996 and the year 2008. Excepting the three

outlier years, the clustered prices suggest that there is some seasonality in the prices of rice, more pronounced for farm prices (with lower prices in the last quarter of the year) and less so for retail prices (although rice prices tend to rise somewhat during the third quarter of the year).

The clustering of prices in **Figures 5-7** is also evident among regions. For the most part, there is strong correlation between regional wholesale prices and Manila wholesale price during much of the period. Nonetheless, the correlation is not hard and fast; indeed, there are significant annual variations as well as differences in the extent of price correlation among the regions vis-à-vis Manila (see **Tables 4**). Two-thirds of all the regions have correlation coefficients with Manila wholesale rice price of at least 0.90 and the rest in the 80 percent. The lower correlation coefficients are largely in Mindanao. The same apparent weaker linkage between Mindanao wholesale prices and Manila prices is echoed in the results of regressions of regional wholesale prices on wholesale price of Metro Manila and on the previous month's regional wholesale price (see **Table 5** and **Appendix Table A.2**). The tables show that the long run coefficient is close to one (1) in most regions of Luzon and Visayas (and interestingly, ARMM) but the long run coefficients for most Mindanao regions hover in the 70s percent. It is possible that the long distance between Manila and Mindanao is a factor such that shortages and surpluses among Mindanao regions are mainly handled within the island and perhaps from Western Visayas, and not from Luzon. This likely allows for some de-linking of Mindanao prices from Manila prices.

From **Tables 4a and 4b** there also seems to be indication also that the correlation improves especially during periods of high price increases. This is probably not at all surprising because the shortage of domestic supply at the national level ultimately reverberates into the whole rice marketing system across the country.

Figure 8 presents the ratio of wholesale price of rice in the various regions of the country to the wholesale price of rice in Metro Manila. **Figure 8** brings out interesting insights. The *first one* is that a number of the regions have lower wholesale prices than in Metro

Manila while a few others have higher wholesale prices than Metro Manila. The regions which have largely higher wholesale prices than Metro Manila (e.g., ARMM, CALABARZON, Eastern Visayas, Central Visayas) tend to have mainly rice deficit provinces. Similarly, those regions which have lower wholesale prices than Metro Manila tend to have more provinces that are either self-sufficient or are surplus provinces in rice. The result is probably not surprising among rice deficit regions in the sense that Metro Manila is the main domestic market and therefore the transport and storage facilities are geared more for the main market called Metro Manila. Note however that a number of the rice deficit regions are poor regions, which means that the comparatively higher price of rice in the poor but rice deficit regions will have more adverse effect on the relatively poor regions.

The *second* interesting insight is that the ratios of regional wholesale rice prices to Metro Manila's wholesale rice price jump up and down during the period. This suggests that there does not seem to be a strong correlation between the regional wholesale price and the Manila wholesale price of rice in the short run. This result is well corroborated by both the elasticities from regression results in **Table 5** and the correlation coefficients in **Tables 4a and 4b.** **Table 5** shows the results of the natural logarithm of the deflated regional price as a function of the natural logarithm of the deflated Manila wholesale price and the one period-lagged logarithm of the deflated regional wholesale price. The results show that there is not that strong relationship between the Manila wholesale price and the regional price in the short run (i.e., within a month) but that there is strong relationship in the long run. **Appendix Table A.2** presents the regression results more starkly. The annual correlation coefficients vary substantially, with a few cases of even negative correlation between regional wholesale prices and the Manila wholesale price. Over the 1990-2008 period, however, the correlation coefficients between the regional wholesale prices and the Manila wholesale price are very high, in many cases in the 90 percent range. There is some regional variation. The regions with the strongest price correlation with Manila are Regions 3 (Central Luzon), 4 (Southern Luzon) and 5 (Bicol), which are essentially the neighboring regions of Manila, as well as Region 7 (Central Visayas), which is another key rice deficit area. The regions with the weakest price

correlation with Manila during the 1990-2008 period are the Mindanao regions, except for ARMM which is somewhat surprising given the high transport and logistics cost of moving goods between ARMM and Metro Manila.

A comparison of the volatility of rice prices during the 1990-2008 period with those of the 1974-1986 and 1957-1963 periods indicates that seasonal variation during the 1990s and 2000s was less than during the 1970s and the 1980s, which in turn was also less than during the 1957-1963 period (see **Table 6)**. Umali (1990, p. 194) attributes the lower seasonal price variation in the 1970s and 1980s as compared to the late 1950s and early 1960s to (a) the shift of rice production from rain-fed to irrigated water systems, (b) government rice distribution since NFA was"… relatively successful in defending the rice ceiling price during the period 1974 to 1986" (p.194), and (c) improvements in internal transport. The greater price stability of rice in the 1990s and 2000s is likely similarly caused by (a) more even rice production, (b) improvements in internal transport, and (c) government rice distribution. especially since the late 1990s as the National Food Authority expanded its rice buffer stock.

Prices, Marketing Efficiency and Policy

The ratios of farm price to wholesale price, wholesale price to retail price and farm price to retail price during 1990-2008 by region are presented in **Figures 9-11** respectively. The figures indicate that the wholesale to retail price ratio was relatively stable over the period while the ratio of farm price to wholesale price declined somewhat from the mid-1990s until the early 2000s before inching up again, although to a level that was still lower than in the early 1990s. The result begs for some explanation. One is that macroeconomic variables play a big role. Specifically, storing and transporting rice entails costs including financial costs. Higher interest rates lead to higher inventory costs, and, other things being equal, to higher marketing margin. Nominal interest rate largely declined secularly during the period while the real interest rates was more volatile with no clear pattern in the early 1990s but largely secularly declined since the late 1990s

except for a sharp rise in 2007 (see **Figures 12a and 12b.**). **Figures 12a and 12b** juxtapose the annual average ratio of farm price to wholesale price with the nominal and real interest rates during 1990-2008. The result is mixed: The ratio of farm price to wholesale price and the nominal interest rate declined secularly during the 1990s but the two diverged in the 2000 with the nominal interest rate declining further overall while the ratio of farm price to wholesale price inched up. The pattern in the 2000s is more consistent with the ex ante expectation of an inverse relationship between the two. However, that the two were positively correlated in the 1990s suggest that there are other factors, perhaps more important, that influence the ratio of farm price to wholesale price.

The ratio of farm price to the wholesale price and the ratio of farm price to the retail price are the indirect measures of marketing margin. The lower the ratios are, the higher is the marketing margins are. Although low ratios may indicate market inefficiency, there are likely other factors that can lead to the low ratios. In this regard, it would be useful to compare the Philippine ratios for rice with those of other countries (see **Table 7**). It is apparent from the table that government intervention plays a significant part in the determination of farm price, with an impact on the ratio of farm price to wholesale price. This is exemplified by India where is the ratio is equal to 1 or even slightly higher, suggesting that farm price and/or wholesale price is heavily subsidized so much so that the ex post ratio does not capture the cost of marketing. Similarly, the ratios for Thailand during 1996 and 2000 are suggestive of heavy government intervention, probably a high farm support price that masked the true cost of marketing. Clearly, in these cases, macroeconomic factors such as interest rates will have no bearing on the ex post ratio of farm price to the wholesale price. **Table 7** seems to indicate that Philippine marketing margins are lower than for Bangladesh and possibly Indonesia but higher than Thailand. In both Bangladesh and Indonesia, the marketing margin appears to be increasing while the margin in the Philippines has declined as a proportion of the wholesale price in recent years.

In view of the above discussion, it is not feasible to use the ratio of the farm price to wholesale (and correspondingly, the ratio of farm price to the retail price) to examine the

relative efficiency of the rice marketing system as well as the impact of government intervention on rice marketing and rice prices. To examine the above, the paper uses two regression models that have been used to determine the efficiency of the rice price system and the impact of government policies on rice prices. The two regression models are the so-called Ravallion-type models used by Umali (1990) and the regression models utilized by Yao,Shively and Masters (2005). The use of the two models is deliberate in that comparisons could be made with the authors' results and therefore provide a longer run and hopefully more robust evaluation of the rice marketing system and government policies.

Ravallion Regressions. Ravallion regressions can be used to test market integration between marketing levels, and thereby provide indication of the efficiency of the market system.; Umali (1990) may be the first to use Ravallion regressions to examine the Philippine rice marketing system. This paper follows Umali in part to compare her results for the 1970s and 1980s with the findings of the paper which focuses on the 1990s and the early 2000s, thereby providing insights into the evolution and effectiveness of the Philippine government interventions in the rice industry over the past few decades.

Geographically separated markets are integrated when prices in the said markets —..move together in response to stimuli from changing demand and supply and other economic conditions." (Farruk as quoted by Umali (1990, p.143). The faster and more accurate prices in the said markets react to such stimuli, the more integrated they are. (Ibid.) Informational, infrastructural and logistic, and policy barriers will reduce the degree of integration of markets. As a result, markets become less efficient as mechanisms for the allocation of scarce resources. At the extreme where markets are not interlinked at all, gluts or deficits in one market could not be readily be addressed by the appropriate movement of goods and services to and from other markets. The end result is lower social welfare to the whole economy. Market integration can be horizontal within the same marketing chain (say the wholesale markets of a given commodity like rice in various regions of the country) or vertical between marketing or processing levels situated in various locations of the country (e.g., farm, wholesale, retail). The degree of market integration can differ in the short run from the medium or long term, with the

expectation that markets tend to be more interlinked and integrated in the medium/long term as against in the short term.

Following Umali (1990), the Ravallion regression equations used to test for market integration between levels (i.e., farm, wholesale and retail) are as follows:

$$PF_{it} = \alpha_i PF_{it-1} + \beta_{i0}(PW_{it} - PW_{it-1}) + (\beta_{i0} + \beta_{i1}) PW_{it-1} + \lambda_i NFA_i$$

$$PR_{it} = \eta_i PR_{it-1} + \gamma_{i0}(PW_{it} - PW_{it-1}) + (\gamma_{i0} + \gamma_{i1}) PW_{it-1}$$

where

PF = farm price of rice (in milled rice equivalent), deflated

PW = wholesale price of rice, deflated

PR = retail price of rice, deflated

NFA = NFA intervention variable

i = indicates region

The farm price regression equation above states that farm price in a given region is a function of last period's farm price in the region, the change in the current period of the wholesale price in the region, last period's wholesale price in the region, and an NFA intervention variable. The intervention variable used is the ratio of NFA procurement to the annual regional rice output. Estimates were done using monthly data and quarterly data. When the quarterly data is used, the NFA intervention variable is the ratio of NFA procurement in the region during the quarter to the rice output of the region during the same quarter.

Similarly, the retail price regression equation above states that the retail price is a function of last period's retail price, changes in the wholesale price, and last period's

wholesale price. As an initial hypothesis, no NFA intervention variable is included in the equation on the presumption that NFA intervenes through the wholesale market, which is already captured in the wholesale price of rice. In the actual estimation, the retail price regression was estimated without and, for the national level estimates, with NFA intervention variable (i.e., ratio of NFA distribution to total rice consumption). The rationale for the inclusion of an NFA intervention variable is that the agency also has retail segment, albeit very small, that seems to be popular with the sitting Philippine president (their names tend to be emblazoned in this retail component of NFA). There are no quarterly or monthly regional rice consumption that the authors are aware of; hence, it is not possible to test the –with NFA" regressions.

The Ravallion regression equations for farm prices were estimated for the whole year and by season (i.e., main harvest season, dry season, and off season) given the pronounced seasonality of rice production and of farm prices. This suggests that the implicit assumption of constant marketing margins in the Ravallion model may not be met in using monthly data that do not consider the seasonality of rice production.

The Ravallion regression estimates can be used to determine whether or not there is market integration in the short run as well as to estimate the degree of market integration (see Umali, 1990, for an extended discussion). Short run full market integration between farm and wholesale markets, as strictly construed, means that the changes in the wholesale price during the current month are fully reflected in the farm price; that is:

$$\beta_{i0} = 1; \quad \beta_{i1} = 0 \; ; \quad \alpha_i = 0$$

Similarly, for the retail market and the wholesale market, short run full market integration requires:

$$\gamma_{i0} = 1; \quad \gamma_{i1} = 0; \quad \eta_i = 0$$

Short of full market integration, it is worth examining the degree of integration between markets; in effect, the relative importance of past local and reference prices and of policy variables. Timmer's Index of Market Connection (IMC), drawing from the values of the coefficients of the Ravallion regression estimates, provides a measure of the degree of market integration. The Index of Market Connection is determined as follows:

$$IMC = \alpha_i / (\beta_{i0} + \beta_{i1})$$

The formula above is for the farm to wholesale market integration. A similar formula for the index of market connection between the retail and wholesale markets can be constructed. The correspondence between the degree of market integration and the value of IMC is as follows:

IMC = 0	implies $\alpha_i = 0$	full integration between farm and wholesale markets
IMC < 1		high market integration between farm and wholesale markets
IMC > 1		low market integration between farm and wholesale markets
IMC = ∞	implies $\beta_{i0} = 0 = \beta_{i1}$	markets segmented

Table 8a and Table 8b present the farm –wholesale market integration results for the whole year using monthly data and quarterly data. **Table 9** presents the corresponding index of market connection for the farm-wholesale market integration results of **Tables 8a and 8b. Appendix Tables A.3.a – A.3.c** present the farm-wholesale market integration results using monthly data by production seasons. The production seasons are dry season (February to May), off season (June to September) and harvest season (October to January).

Virtually all the farm-wholesale market integration results using monthly data in **Table 8a** shows that there is *weak market integration* between the farm level and the wholesale

level in much of the country. In short, it is the past local farm prices that primarily determine the current farm prices. However, when quarterly data is used, the results in **Table 8b** show a completely different picture. Specifically, the quarterly results show that there is *strong market integration* in virtually all the regions except ARMM and marginally Eastern Visayas. The contrast between the monthly results and the quarterly results is best shown by the index of market concentration in **Table 9**: while the regression results using monthly data show IMC values of more than 1, and in a few cases at very high levels of more than 3, the regression results using quarterly data show IMC values very much lower than 1 with the exception of ARMM and marginally, Eastern Visayas (and the whole Philippines). In short, what the ***Ravallion regression results suggest is that price adjustments at the farm level vis-à-vis the wholesale level takes more than one month, but largely within one quarter, to complete***.

Umali's (1990) Ravallion regressions used monthly data. Like the results in **Appendix Tables A.3.a-A.3.c**, Umali's results show weak farm-wholesale market integration in virtually all of the country. Umali did not have quarterly results; hence no comparison could be made with the paper's results. Nonetheless, it is likely that the conclusion of farm price adjustment taking longer than one month but largely finishing within a quarter was also prevailing during the 1970s and the 1980s. This is just a reflection of the still inadequate infrastructural facilities in the country. Indeed, as the country's rice granaries are moving further away from Manila to such regions as Cagayan Valley and the Cotabato basin, the demands of the rice marketing system on the country's infrastructure has become greater while at the same time that the quality of infrastructure in the more far flung areas of the country leaves much to be desired.

The Ravallion regressions involving the retail price of rice by region are shown in **Tables 10a and 10b and Appendix A.4.a – A.4.c.** Like in the case of farm prices using monthly data, the regression results show weak long run market integration between the wholesale markets and the retail markets in the various regions of the country. The results seem to suggest that it takes more than a month for prices to adjust fully to stimuli coming from the wholesale market.

Regression results and effectiveness of NFA intervention. The weak market integration between various market levels may not always be due to structural factors such as the quality of infrastructural facilities in the regions and between regions. It can also be due to government intervention in the rice marketing system. Indeed, a key point of market intervention of the government is to temper the price movements in the market to be more consistent with the price stability and food security objectives of the government.

The big question is whether indeed such weak market integration implied by the Ravallion regression results do arise because of government intervention. In the farm-wholesale market integration regressions, a government intervention variable is included. The intervention variable for the farm-wholesale regressions is either the ratio of NFA procurement in the region during the month to the annual output of rice of the given region (for the regressions with monthly data) or the ratio of NFA procurement in the region during the quarter to the region's rice output during the same quarter (for the regressions with quarterly data). The analytic framework for Ravallion regressions at the retail level is that no government intervention variable needs to be included because much of NFA intervention in the rice market is done primarily at the wholesale level, which presumably means that the actual wholesale price of rice already incorporates the effect of NFA intervention.

The Ravallion regression results at the farm level regionally or nationally as well over the whole period or by season shown in **Tables 8a and 8b and Appendix Tables A.3.a – A.3.c** indicate that for the most part NFA intervention did not significantly influence farm prices especially. Where the NFA intervention variable is statistically significant, the sign of the coefficients was of the wrong, or more precisely, opposite of the presumptive impact of such NFA intervention on farm prices. *What the Ravallion regression estimates at the farm level indicates is that NFA domestic rice procurement was largely* ***ineffective*** *in influencing the farm level prices regionally and nationally.*

This finding is largely consistent with the finding of Umali (1990) that "...NFA paddy procurement continued to exhibit minimal influence on farm prices. Region 3 during the wet and off-season and Region 1 and 8 during the dry season displayed NFP coefficients that were statistically significantly different from 0 and negative. This may be due to the fact that although NFA made large purchases of paddy in these regions, the amount purchased was not sufficient to prevent farm prices from falling. Government intervention at the farm level was only effective in Region 6 during the dry season. Region 6 in the dry season showed a statistically significant and positive coefficient for NFP of 0.636" (p. 166).

Similar to the explanation of Umali, the negative relationship between NFA procurement and farm prices is indicative of the failure of the NFA intervention from preventing farm prices to fall.

The Umali dissertation is primarily on the (structure and) price performance of the Philippine rice marketing system, and only secondarily on the performance of Philippine rice price policy and NFA interventions. The Yao, Shively and Masters (2005) paper is specifically about the question of how successful the Philippine government is in its intervention in the country's rice market. As in the case of the Umali dissertation, the analysis relies on the estimation of price formation regressions that include government intervention variables. This paper also estimated the Yao, Shively and Masters (YSM) regressions with a slightly different time frame in order to further examine the impact of NFA interventions on the Philippine rice markets.

The YSM regression equation at the regional level is as follows (see Yao, Shively and Masters, 2005, p.5):

$$\Delta P_{it} = \alpha_i T_i + \beta_{it} NFA_i + \Sigma_{ijt} DM_{ijt} + \Sigma \theta_{iht} DY_{iht}$$

where

ΔP = change in the monthly price of rice (farm or retail)

T = unit step time trend

NFA = NFA intervention variable, either the change in the NFA stock or change in the NFA purchase or change in sales price

DM = dummy for months

DY = dummy for year

i = region; j = month; h = year

The YSM regression at the national level modifies the intervention variable and includes additional policy instruments (see Yao, Shively and Masters, 2005, p.5):

$$\Delta Pit = \alpha T + \beta NFA_t + \Sigma j DM_{jt} + \Sigma_h DY_{ht} + \gamma I_t + \eta \Delta R_t + \theta (I \times \Delta R)_t$$

where

NFA = changes in aggregate stock or target price of NFA

I = binary number where 1 is for years with rice importation, 0 otherwise

ΔR = change in international price of rice (Bangkok f.o.b.)

$I \times \Delta R$ = interaction term

The regression results of Yao, Shively and Masters show that, at the national level, government intervention through changes in NFA stock and in the support price have statistically significant effect on the farm price at the national level, the first negatively and the other positively. The positive relationship between changes in the support price and the farm price is expected. The authors consider the negative relationship between the changes in NFA stock and the change in the farm price as reasonable in that NFA does much of its purchasing during the "peak harvest months" of September and October when the farm price is low. Nonetheless, a stricter interpretation of the regression result is

that an increase in the NFA rice stock (presumably through higher procurement) will reduce the farm price, which is contrary to expectations.

An alternative interpretation of the negative relationship in Yao, Shively and Masters is that the increase in the NFA stock of rice leads to lower farm price because the increase in stock was largely from imports, which suggests that there is poor timing in the arrival of imports such that the imports occur during the harvest season. This alternative interpretation appears to be more consistent with some view that, due to delays in the release of funds to NFA, actual importation is delayed to the point that part of the rice imports arrive during the harvest season thereby dampening the price of rice at the farm level.

The international variables in the Yao, Shively and Masters regressions are not statistically significant. The authors attribute this to the very small percentage that imports play in the domestic rice market. While feasible, this interpretation is not compelling because in an open economy, prices are determined at the margin which will be the import price. The more robust explanation for the statistical insignificance of the international trade variables is that the level of protection of the domestic rice is large, which in effect insulates the domestic rice market from the variations in the international rice market.

Thus, the most robust finding of the national level analysis of Yao, Shively and Masters is the positive impact of the government support price or purchase price of rice on the market farm price. However, as the authors point out, the impact on the farm price is very small, almost negligible. Moreover, the increase in the support price also increases the retail price. Thus, overall, the net welfare of the increase in support price is negligible indeed.

In their regional analysis, Yao, Shively and Masters indicate that NFA stock draw downs of rice was effective in lowering the retail rice prices in Regions 1, 4., 5, 9, and 12; that producer support price program benefited Regions 4,6, 10, 12 and 13; and that NFA rice

stock increases (implying rice procurement) benefited Region 4. Thus the results of the regional analysis suggest that the impact of NFA intervention is mixed among the regions, with different regions benefiting from the various intervention measures, except for Region 4 which seems to be the most benefited of all. This varied impact on the regions may explain the muted impact of the NFA interventions at the national level.

This paper estimated the YSM regressions for both the farm price and the retail price, nationally and by region. In the regressions in the paper, however, the NFA intervention variable used is the level of NFA procurement or distribution in addition to the change in NFA stocks. This is because procurement or distribution is the more direct measure of NFA intervention, rather than the change in stock which can be due to imports also. **Tables 11 and Appendix Tables A.5.a-A.5.d** present the results. The national level results show that NFA distribution helped temper retail prices but that NFA procurement did not influence farm prices. The regional regressions show that only a few regions benefited from the interventions. Thus, on the rice procurement side, it is essentially Region 4 that benefited from it (using quarterly data) in terms of a resulting increase in the farm price while NFA procurement in Regions 6 and 13 did not prevent the fall in the farm price of rice (using quarterly data). On the retail and rice distribution side, only Regions 1 and 4 benefited from the NFA distribution through lower retail prices. The regression results suggest that NFA interventions (in terms of procurement or distribution) did not have statistically significant effect on the farm or retail prices of the other regions. The national level analysis also suggests that international prices did not have statistically significant impact on local prices, which is consistent with the historically high protection rate for rice and the apparently overriding price stabilization objective of the Philippine government, as was discussed earlier in the paper.

Like the results of the Yao, Shively and Masters paper, the results of the regressions indicate that the impact of NFA interventions is muted at the national level and that only a few regions benefited perceptively (in terms of statistically significant impact on local prices) from the NFA interventions. In contrast to the Yao, Shively and Masters paper, the results of the regressions in the paper suggest that, at the national level, it is in the

retail and consumer side that NFA interventions have had an effect rather than at the procurement and production side. This is probably more consistent with the revealed bias of the Philippine government towards domestic (nominal) rice price stability in the face of volatility in the international rice prices to the point that the ex post high nominal rate of protection in the early 1990s was totally eroded by the mid 2000s.

In summary, the regression results in Umali (1990), Yao, Shively and Masters (2005) and this paper point out that NFA interventions have not been overwhelmingly successful. At best, the impact was small; it was also mixed across regions. Indeed, for many regions, NFA interventions did not have statistically significant impact on their farm or retail prices.

A further look at rice prices and NFA interventions. It may be useful to look at the issue of the impact of NFA interventions on rice prices beyond regression results. One approach is to juxtapose the ratio of the farm price in a region to the national average farm price with the ratio of NFA procurement of rice to the region's rice output. This juxtaposition is shown in the series of regional graphs in **Figure 13**. The presumption here is that the farm price of a region would be higher than the national average farm price if NFA procures more of the region's output (i.e., NFA rice procurement in the region as a ratio of the region's rice output is high).A corollary to the previous statement is that the ratio of the region's farm price to the national average farm price increases as the ratio of NFA rice procurement in the region to the total regional rice output increases.

The series of graphs in **Figure 13** use annual data to make the patterns crisper and clearer. (Graphs involving monthly data were also prepared.) As the graphs suggest, there appears no correlation between the ratio of farm price to the national average farm price and the ratio of NFA procurement to the region's rice output. In a number of cases, the relationship even appears perverse; that is, the farm price ratio declines as the NFA procurement ratio rises or that the farm price ratio increases as the NFA procurement ratio declines. Examples of such perverse relationship are Eastern Visayas and Western

Visayas during 1998-2002 as well as Southern Tagalog and the Zamboanga Peninsula during 1999-2002. There are also examples where variations in the NFA procurement ratio have no bearing on the ratio of the regional farm price to the national average farm price; e.g., ARMM. In short, the series of graphs in **Figure 13** suggest that NF**A** procurement has been largely ineffective in influencing the regional farm price relative to the national average price.

What can explain for the failure of NFA procurement to impact on the farm price? A likely reason is the value of the percentage on the right hand of the graphs. As the graphs show, the ratio of NFA procurement to the regional output is very small, almost negligible in some cases. The highest ratio is at Region 4 with more than 10 percent in some years, followed by Regions 5, 3, 12 and ARMM at more than 5 percent in some years. In some cases, the procurement ratio is a miniscule less than 1 percent (Eastern and Central Visayas). Thus, the NFA is a very small and (given the volatility in the procurement ratio) inconsistent player in the rice purchasing business. Even if a substantial portion of the regional output is effectively not traded and is for the own consumption of the farmers themselves, the numbers nonetheless point out to an NFA that buys so small a share of regional (tradable) output to be able to effectively determine local prices instead of the local rice traders. Given the numbers, it is more the local traders that determine local prices at the farm level.

Figure 14 is a series of graphs that relate the ratio of regional retail and wholesale prices to the average national retail or wholesale prices with the regional distribution bias of NFA distribution of rice. The NFA distribution bias is measured by the share of a region to the total NFA distribution of rice as a ratio of the region's share if all regions have equal share of NFA distribution. Regions with NFA distribution bias measure much greater than 1 are the regions that are given priority by NFA in its distribution strategy of rice. Not surprisingly, Manila has a particularly high measure of NFA distribution bias. The other regions where NFA appears to give particular emphasis in its rice distribution are Southern Luzon (Calabarzon and Mimaropa), Central Luzon (at times), Bicol (at times) and Central Visayas (at times). Suplus regions like Cagayan Valley and

Socksargen are expectedly given less emphasis by NFA. Interestingly, much of Mindanao is given less priority by NFA in its distribution of rice. The reasons can be because Mindanao is relatively self-sufficient (although some provinces have low self-sufficiency ratios) and in part due to the relatively lower population density of the Mindanao regions as compared to the more industrialized National Urban Beltway area (Central Luzon, Metro Manila and Calabarzon).

In the series of graphs in **Figure 14**, it is apparent that in some regions there is some negative relationship between the NFA distribution bias and the ratio of the regional retail or wholesale price to the national average price, at least in some years during the period. Specifically, the regional price ratio tends to be lower when the NFA distribution bias increases. This is apparent for Regions 1, 4B, 5, 6, 7 and 8. The case of Metro Manila appears to be more reactive behavior for NFA in the sense that when the Manila retail or wholesale price rises significantly relative to the national average, NFA becomes more focused on Metro Manila by raising its distribution bias towards Metro Manila. This apparent reactive behavior is consistent with the bias by the government for rice price stability, especially in such a politically important region like Manila. The results in **Figure 14** seem to corroborate the apparent greater focus of NFA towards the rice consumer during the latter 1990s and the 2000s, as was discussed earlier in the paper.

Summary and an apparent puzzle. In summary, the regression results of Umali (1990), Yao, Shively, and Masters (2005) and this paper indicate that NFA interventions in the rice market, primarily through the domestic purchase of (rough) rice and distribution of milled rice sourced domestically and abroad has not been a resounding success in affecting the price of rice at the farm level and at the retail level. Indeed, the findings are that the impact had been very small if at all. The graphical juxtapositions also suggest that NFA procurement relative to the regional rice output has been largely ineffective in influencing the price of rice at the farm level.

However, this apparent small, even negligible, impact of NFA intervention in the rice market (as drawn from the regression results) flies in the face of the apparent success of

the Philippines in maintaining a relatively stable price of rice domestically as compared to the more volatile international price during the 1990s and the 2000s, at least up until recently. The apparent success of the country in maintaining a relatively more stable rice price has been done primarily through NFA. Similarly, the graphical juxtaposition of the relative regional retail prices with NFA distribution bias suggests that NFA regional distribution bias affects the relative regional retail price in some regions of the country, and that to some extent, there appears to be some bias for relative price parity (in the sense that sharp rises in the relative regional prices are addressed through the corresponding increase in the regional bias in NFA's rice distribution). This is consistent with the apparent overriding bias of NFA and the government for rice price stability and parity all over the country.

Thus, the big question and a puzzle arises: how can NFA which seems to have been largely ineffective in its rice purchase and distribution functions be largely effective in ensuring relatively greater rice price stability (in nominal terms) in the domestic market than the international market during the 1990s and the 2000s?

The answer is likely because of NFAs use of its dominant power to import rice. Specifically, it appears that the volume of NFA rice imports had been largely consistent with the natural growth of demand based on population growth and income growth taking into consideration the domestic output. In effect, the implicit bias is to import, in the face of the projected demand and domestic output, just enough to maintain domestic prices. In effect, NFAs import decisions determine the overall rice price in the country. At the same time, because the share of imports to total output is small and its domestic purchase increasingly miniscule, NFA has not had significant impact on local rice prices as against the private rice traders.

However, if the above analysis of the apparent NFA puzzle is correct, that is , that it is primarily the international trade –monopoly" of NFA that mattered in affecting overall relative rice price stability in the country, then **the current NFA is potentially redundant**! ***This is because the same result can be gotten through the use of flexible***

or variable tariff but relying on the private sector traders to do the importing or exporting. This approach does not cost much; in fact, the approach could earn income for the government as long as the government is willing to follow the long term trend of the world rice price as the basis for the long term price in the domestic market, with appropriate adjustment for tariffs and exchange rate changes. In view of the nearly zero nominal rate of protection in recent years and given the pressures for tariff reduction of commodities in regional trade agreements, the country will have little choice but to follow the long term trend of the world price of rice for its domestic price unless the government is willing to provide substantial subsidy to rice farmers and rice consumers. It is likely that this approach of relying on the private sector for international trading and on the use of a variable tariff to temper the domestic effect of changes in the world rice price could generate significant cost savings for the government than the current approach under NFA.

The Cost of NFA: Too Much for So Little?

The National Food Authority is a substantial component of the national budget for the agriculture sector as well as of the whole government corporate sector. For example, for the period 1998-2005, the direct subsidy to NFA (and excluding contingent liabilities from NFA's borrowings) averaged about Php 4.5 billion per year. This is equivalent to 37.4 percent of the average annual expenditures of the Department of Agriculture under the Office of the Secretary (where virtually all the major production programs of the Department including those of the regions are lodged). The average annual subsidy to NFA during the period is also equivalent to 186 per cent of the average annual expenditures of ALL the attached agencies of the Department of Agriculture. The national fiscal transfers to the NFA during the 1998-2005 dwarfed the total fiscal transfers of ALL of the other government corporations under the Department of Agriculture, including the National Irrigation Administration, Philippine Coconut Authority, National Crop Insurance Corporation, and the Philippine Rice Research Institute. In short, the National Food Authority has loomed large in the overall budget for

the agricultural sector in the country. This large role of NFA in the agricultural budget was even heightened during the past three years when the government subsidy of the NFA increased much further as the government attempted to temper domestic rice prices in the face of sharply rising world rice prices during 2007-2008.

Table 12 shows the profit and loss statement of NFA; **Table 13** shows NFA's balance sheet and **Table 14** presents the sources and uses of funds of NFA. The three tables are all interrelated. As the profit and loss statement shows, NFA has been largely losing in its operations, thereby requiring subsidies from the national government to survive. The balance sheet data in **Table 13** shows an essentially bankrupt corporation, with a negative net worth. As such, the only way that NFA could borrow funds if such borrowings are guaranteed by the national government. It is probably not surprising that the borrowings of NFA are virtually domestic credits as it is more difficult and costly for a bankrupt corporation to borrow internationally.

The large fiscal cost of NFA stems from both policy imperatives and operational inefficiency. The policy imperatives are intimately linked to the price stabilization objectives of the government. Specifically, one key policy mandate is to ―buy high and sell low". The mandate of ―buy high" is obviously geared for domestic purchases of rice although NFA has relied a lot on imports to beef up its rice stock. Up until the early 1990s when the nominal rate of protection of rice was high, the reliance on imports could be a mechanism for NFA to generate internal funds by ―buying low" from a foreign country and ―sell high" in the domestic market. However, as the nominal rate of protection dropped sharply with the sharp rise in the world price of rice in the 2006-2008 precisely, maintaining the domestic price of rice necessitated large fiscal subsidies by the national government. Thus, not surprisingly, the deficits of NFA in recent years were huge. During the 2000-2005 period, NFA's deficit accounted for 31 percent in 2002 and 43 percent in 2005 of the total deficit of all the (monitored) government corporations (World Bank, 2007, Table 10, p. 14).

The other major reason for the fiscal cost of NFA is operational inefficiency. The Coffrey International Development Report –Review of the National Food Authority's Operational Efficiency and Effectiveness" (March 2007) lays out many of the important operational issues that virtually assure that NFA operations are substantially higher than the competing private sector. Drawing from the Report, the following are note worthy:

1. NFA's stock turnover is only 4 times a year as compared to about 21 times a year for the private sector. This means, other things being equal, higher inventory financing and storage costs and higher rate of deterioration of stock which adds up to higher overall inventory unit costs compared to the private sector.
2. Poor financial management information system, lack of integrated logistics-related information system and out of date/inadequate computer facilities have led to ineffective monitoring of stocks and operations, serious backlogs in reconciliations of financial and inventory statements, inadequate use of financial statements pro-actively for management decisions, and to overall loose controls, both financial and physical. The result is wastage and lower operational efficiency.
3. Overstaffing and government bureaucratic rules prevent a more flexible deployment of staff consistent with the ebb and flow of rice trading in various parts of the country. The result is higher administrative costs than necessary.
4. Policy constraints (e.g., forward contracts not feasible) and bureaucratic processes (e..g, emphasis on IAC recommendations on volume of imports) leads to tight importing window for NFA and generally higher rice contract prices than the world price, even adjusted for freight cost.
5. The corporation has a weak equity base. As a result, it relies a lot on borrowings to finance a significant part of its operations. This means a growing interest cost as a drag to its overall financial performance.

The Report brings out other operational and organizational issues facing NFA; e.g., NFA's management structure and corporate governance leave much to be desired.

The upshot of the discussion above is that given the policy constraints (e.g. pricing, import procurement), organizational and governance inadequacies, and operational weaknesses, it is not surprising that the National Food Authority is a major money losing government corporation.

It must be noted that the experience of the National Food Authority is not unusual among public instrumentalities tasked to undertake price stabilization functions of basic commodities in developing countries. Even one of the more successful NFA-type institutions in the developing world, BULOG (Badan Ulrusan Logistic Nasional or National Food Logistics Agency) of Indonesia, had to rely at some point on substantial implicit subsidies from the government through subsidized interest rates on its outstanding credits with Bank of Indonesia (Indonesia's Central Bank) then later the Bank Rakyat Indonesia as well as relatively higher price paid for BULOG's rice delivered to the government's military and civil servants. The BULOG experience also shows that it is not easy to manage transitory surpluses and deficits in the face of weather-related production shocks as well as global price shocks. (See DAI, 2002.) And in the early 2000s, the agency was rocked with a series of financial scandals called Bulogate I, Bulogate II and Bulogate III, in part linked to Bulog's finances being partly used for election purposes (Guerin, 2003).

Are NFA's losses and the government subsidies worth it? Given the results of the previous sections that indicate that NFA's domestic rice purchasing and distribution interventions have not been effective in influencing farm prices and only mildly effective in influencing consumer prices at best, it can be concluded that the cost of NFA has been too much for so little benefit.

If NFA as it is now is expensive and ineffective, what is the way forward?

The Way Forward and Policy Implications

There are essentially two alternative options to undertake price stabilization for basic commodities; to wit:

1. Rely primarily on a government instrumentality like an NFA but managed better as well as given more operational leeway than the current NFA; and
2. Rely more on the private sector to undertake the rice trading and use variable tariffs or explicit subsidies to influence private sector behavior consistent with the government's price stabilization objectives

For the first option, given that NFA is virtually bankrupt, the current approach to government intervention relying on NFA as it is currently operated does not appear to be viable and sustainable simply because the agency cannot continue to finance operational losses from continued borrowing with an ever increasing interest and debt payment (Coffrey International Development Report , 2007). Thus, if the government were to continue to pursue Option 1 as its primary means of stabilizing rice prices, then NFA has to be recapitalized at the same time that substantial policy and bureaucratic changes in the national government and operational improvements at NFA have to be made. *These changes and improvements are spelled out in the Coffrey International Development Report (2007)*.

The experiences and lessons from BULOG are also relevant for the revitalized NFA in this regard. Specifically, BULOG explicitly compared the cost of price stabilization with the benefits from price stabilization, as a significant factor determining their operational strategy. An important by - product of this mindset is the pursuit of ―self-sufficiency on trend" instead of every year as a means of reducing cost to BULOG. This means that international trade is used to minimize storage costs for BULOG. BULOG also ensured that the marketing margins were wide enough to make it profitable for the private sector. This suggests that the government views the private sector as central to the rice marketing system, such that price distortions have to be minimized as much as possible. (See DAI, 2002.)

With respect to Option 2, given that NFA is virtually bankrupt, it is also unrealistic to expect that NFA can be operated as if it were a private corporation unless there is a massive infusion of equity into a new and revitalized NFA. However, it is not at all clear and compelling that indeed a massive equity infusion into NFA is enough to make it competitive with the private sector in the rice trading business, unless it is allowed to operate as a private corporation altogether. If NFA were to operate as a private firm however, it can be argued why not just rely on the private sector in the first place to do the rice trading but with clear regulatory regime and price stabilization intervention approaches? Unless, of course, there are indications that there is a possibility of collusion among private sector traders, in which case the government's agency provides competitive pressure to the private sector.

As discussed earlier in the paper, there are three nuances of price stabilization; i.e, a more stable domestic price relative to the world price, lower seasonal price variability, and prevention of sharp price spikes and fast resumption of supply chain after a calamity strikes an area. Of the three, the prevention of sharp price spikes and fast resumption of the supply chain during a calamity or disaster is the most compelling reason for government intervention in the rice market. More stable domestic prices relative to the global crises remain an important political imperative for the Philippines. The least compelling reason for government intervention in the rice marketing industry is to reduce seasonal price variability, in part because there is yet no compelling evidence of either a rice trading monopoly or a rice trading monopsony in the country.

A cursory look at rice trading in Asia indicates that rice trading is left to the private sector in capitalist countries that are net exporters (e.g., Thailand) or in high income countries where the share of rice in total family expenses is miniscule (e.g., Singapore, Japan, Korea, Hong Kong). (Countries like rice exporting Vietnam or Myanmar are best viewed as transitional economies in this regard, as government corporations play a significant role in the rice trading sector as well as in many sectors of the economy.) Indonesia and the Philippines are the two major developing East Asian countries that are net rice importers (although Indonesia has been a marginal exporter at times in recent years) and

which have a large population of rice consumers and rice farmers. So far, the high political salience of rice has meant that the governments had to have a government entity (i.e., either NFA or BULOG) that has to be engaged in rice trading, both as a seller and as a buyer. A key reason behind this is the deep concern about the thinness of the global rice market and the volatility of world rice prices, which can bring unwanted rise in the volatility of domestic rice prices and the possible attendant spill - over effects on wages and other sectors of the economy as well as on the political stability of the country.

It may be noted that historically the Philippines and Indonesia have been the two biggest rice importers in the world, so much so that their buying behavior affects world rice prices. (The latest example was the buying spree of the Philippines –the world's largest importer at present--in early 2008 that led to some extent to the skyrocketing of world rice prices at that time.) It must also be noted though that neither NFA nor BULOG have been very successful in this regard: in either case, there were instances when the agency got caught flatfooted with unexpected shocks in the international rice market as well as in the domestic market.

In view of the deep concern about the global rice market and the overriding emphasis on price stability domestically, a key issue is how can a purely private rice trading system ensure domestic price stability as well as reliability of supply for a primarily rice importing country like the Philippines? In principle, domestic price stabilization vis a vis global price variability can be done in a straightforward manner through a variable tariff system, wherein the tariff is reduced when the world price increases beyond a target price and the tariff is increased if the world price of rice decreases to a level below a target price. What is needed here is that the process of tariff rate changes for rice imports has to be less bureaucratic than it is now (with public hearings, etc.) and that it can be done anytime when it is needed , unlike today that the tariff changes need to be done through Congress unless the legislature is in recess, in which case the President can issue the tariff change executive order. This will clearly require a law that exempts the changes in the tariff rates of rice from the current strictures on rate setting; in effect, Congress cedes its inherent power to set the tariffs on rice imports.

The private sector can likely provide supply reliability if there is much greater policy certainty of its involvement in the international rice trade. Indeed, the private sector needs to be allowed to import (or export as the case may be) as is warranted in order to address domestic supply and demand mismatches as well as to manage rice inventory and thereby reduce cost. Unlike NFA that cannot undertake long term contracts with exporters, the private sector can, which would likely lead to greater certainty in supply of rice. The greater policy certainty allowing the private sector to trade internationally in rice could encourage private investments in logistic facilities as well as business relationships domestically and internationally. In this respect, international rice trading need not be much different from the importation (and domestic trade) of, say, wheat flour and yellow corn which are currently all handled by the private sector in the country.

The country's emergency rice reserves can be handled by (an appropriately scaled down) NFA or even by the private sector for the government. The emergency rice reserves can be expected to be primarily for the poor and near poor who would be particularly hard hit by price hikes in case of calamities. Thus, the rice stock can likely be of lower quality (i.e., higher brokens) which fetches lower price internationally. Although the private sector can manage the storage function for the government for the emergency reserves, it is likely that a scaled down NFA would have greater political salience because it still signals the government can have control over the strategic reserves especially in cases of emergency or calamity. Moreover, national and local agencies and officials are involved in the distribution of rice reserves during emergencies, hence it may be more expeditious to have the reserves under the control of a government instrumentality like a scaled down NFA.

Because rice stocks deteriorate over time unless there is high turnover, the scaled down NFA may need to have also a very limited market presence in the low quality market in the more depressed areas of the country to allow it to have a turnover of its rice stocks.

In summary, what seems to be the most sensible course of action is to trim down NFA's focus towards primarily the management of the strategic reserves, monitoring of the

global rice market that will help the government decide on the appropriate tariff on rice imports, and monitoring or regulating the private sector to prevent collusion and monopoly at the local level.

The trimmed down NFA has one significant impact, which is the reduction in the budget spent by the government on NFA subsidies. The amount that is released can be used more productively for more productivity enhancing agricultural functions like agricultural research and development, irrigation investments and improvement of facilities to monitor implementation of standards by the private sector. Studies have shown that the returns from agricultural research and development are particularly high, yet the Philippines lags behind competitor countries like Thailand and Malaysia and China in terms of the overall investment in agricultural research and development. Moreover, much of the R & D funding has been in rice, which is not quite surprising given the high political salience of rice in the country. Nonetheless, the country has large potentials in other agricultural crops and even fisheries, e.g., tropical fruits, mariculture. However, research and extension funding has been low and inadequate and the quality of support R & D institutions leaves much to be desired especially because other countries in the region have been investing a lot more than the Philippines for so long.

In short, playing catch up with the rest of the countries in the region would require substantial amount to build the human and physical capacity to undertake research, development and extension effectively. In the light of the tight budgetary constraint facing the Philippines, it is the realignment of funds from the hitherto large subsidies of the National Food Authority that will provide the significant leeway for the needed substantial increase in investments in agricultural R & D as well as other productivity enhancing investments in the sector (including farmer education, demonstration farms, and farm to market roads).

The above mentioned way forward of a trimmed down NFA to handle emergency reserves, much greater reliance on the private sector in tandem with a variable tariff system to handle overall domestic rice price stabilization, and the reallocation of much of

the subsidies to NFA toward productivity enhancing investments like agricultural research, development and extension would likely result to a more sustainable macro-level self-sufficiency in the country. This is because the proposed way forward addresses the two critical elements of macro level self-sufficiency; i.e., relative price stability of the major food grain and the higher earning potentials of farmers who are among the poorest in the country.

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Table 1: Rice Prices in the Philippines, (in constant 1994 prices)

Year	Farm Gate Price	Wholesale Price	Retail Price
1990	16.24	19.53	21.02
1991	13.69	16.94	18.60
1992	12.74	16.29	17.87
1993	13.38	17.36	19.08
1994	13.23	17.68	19.37
1995	15.22	20.55	22.30
1996	15.89	22.10	24.14
1997	14.66	20.31	22.32
1998	14.06	19.16	20.96
1999	12.59	18.15	19.92
2000	12.95	17.77	19.45
2001	11.77	16.49	18.19
2002	12.34	16.55	18.16
2003	11.95	16.08	17.75
2004	12.06	15.85	17.45
2005	12.36	16.12	17.63
2006	11.67	15.51	17.08
2007	12.17	15.93	17.43
2008	14.08	19.23	21.10

Table 2. Rice: International Price and Philippine Wholesale Price

Year	(a) Bangkok fob 35% in USD	(b) PHP/USD Exchange Rate	(a*b*1.2) Bangkok 35%in PHP - Adjusted for Transport and Handling Costs	Philippine wholesale Price
1990	201.98	28.00	5883.14	19,555.00
1991	223.80	26.67	7381.12	16,973.00
1992	217.20	25.32	6652.96	16,274.00
1993	192.12	27.79	6258.66	17,340.00
1994	219.06	24.15	6932.42	17,664.00
1995	290.63	26.21	8975.91	20,441.00
1996	275.63	26.29	8670.41	22,099.00
1997	246.65	37.17	8644.81	20,320.00
1998	250.22	39.07	12292.84	19,190.00
1999	210.17	40.62	9845.95	18,154.00
2000	167.02	49.90	8812.44	17,777.00
2001	149.01	51.79	9122.93	16,492.00
2002	170.73	53.52	10572.07	16,554.00
2003	178.13	55.45	11586.22	16,085.00
2004	223.17	56.18	15010.28	15,856.00
2005	262.08	53.61	17323.34	16,120.00
2006	272.25	49.47	16765.77	15,507.00
2007	300.25	41.74	16583.12	15,933.00
Sep-2008	635.00	48.09	35579.46	19,193.00

Table 3a: Standard Deviation of Philippine Deflated Rice Prices, by Year

Year	Farmgate	Wholesale	Retail	Average
1990	0.76	0.55	0.36	0.56
1991	1.04	0.85	0.72	0.87
1992	0.76	0.78	0.78	0.77
1993	0.66	0.92	0.93	0.84
1994	0.56	0.57	0.48	0.54
1995	1.54	2.81	3.28	2.54
1996	1.94	1.16	0.90	1.33
1997	0.84	0.48	0.41	0.58
1998	1.07	0.35	0.33	0.58
1999	0.87	0.43	0.35	0.55
2000	0.87	0.43	0.35	0.55
2001	0.49	0.25	0.21	0.32
2002	0.75	0.46	0.51	0.57
2003	0.64	0.37	0.28	0.43
2004	0.80	0.45	0.35	0.54
2005	0.92	0.57	0.43	0.64
2006	0.70	0.25	0.15	0.36
2007	0.58	0.34	0.34	0.42
2008	2.15	2.13	2.25	2.17

Table 3b: Standard Deviation of Deflated Rice Prices for the Whole Period, 1990-2008, by Region

Region	Farm Gate Price	Wholesale Price	Retail Price
Philippines	1.70	2.06	2.20
NCR	NA	2.29	2.42
CAR	2.17	2.25	2.30
1	2.19	2.29	2.33
2	2.02	2.11	2.24
3	2.01	2.28	2.43
4-A	2.09	2.84	3.04
4-B	2.14	2.32	2.47
5	1.86	2.25	2.66
6	2.01	2.16	2.21
7	1.67	2.38	2.83
8	1.71	2.15	2.19
9	1.65	1.94	2.03
10	1.51	1.98	2.04
11	1.56	1.92	2.02
12	1.91	2.10	1.93
13	1.50	1.70	1.78
ARMM	1.75	2.38	2.31

Table 4: Correlation Coefficients of Regional Wholesale Price with Manila Wholesale Price

Region	Whole Period	1995	2000	2004	2008
CAR	0.72	0.96	0.62	-0.78	0.92
1	0.92	0.96	0.83	0.27	0.95
2	0.95	0.96	0.56	0.22	0.96
3	0.92	0.95	0.92	0.80	0.95
4-A	0.95	0.86	0.79	0.78	0.98
4-B	0.97	0.94	0.85	0.45	0.93
5	0.93	0.94	0.14	0.29	0.96
6	0.95	0.89	0.53	0.69	0.97
7	0.99	0.97	0.87	0.11	0.96
8	0.75	0.95	0.92	0.22	0.96
9	0.90	0.95	0.83	0.07	0.75
10	0.95	0.96	0.83	0.35	0.78
11	0.90	0.96	0.74	0.28	0.96
12	0.83	0.93	0.74	0.49	0.92
13	0.91	0.86	0.72	0.31	0.94
ARMM	0.88	0.93	0.79	0.38	0.92

Note: The years 1995, 2000, 2004 and 2008 are indicative of the estimates, which were done on a yearly basis.

Table 5: Short Run and Long Run Elasticity of Regional Wholesale Prices with Manila Wholesale Price

Region	Short Run	Long Run
CAR	0.26	0.99
1	0.27	1.1
2	0.31	0.96
3	0.41	1.04
4-A	0.29	1.22
4-B	0.35	1.02
5	0.36	1.01
6	0.21	0.86
7	0.34	0.99
8	0.33	0.94
9	0.16	0.78
10	0.30	0.81
11	0.20	0.74
12	0.17	0.77
13	0.21	0.72
ARMM	0.25	1.07

Table 6: Standard Deviation of Paddy Rice Price, in Selected Regions

Region	Farm Gate			Wholesale		Retail		
	1957-1963	1974-1986	1990-2008	1974-1986	1990-2008	1952-1963	1974-1986	1990-2008
1	5.21	3.36	2.19	4.29	2.29	4.57	3.46	2.33
3	6.47	4.10	2.01	3.26	2.28		1.43	2.43
4-A	5.78	3.29	2.09	7.69	2.84	4.31	4.34	3.04
4-B			2.14		2.32			2.47
6	7.50	7.04	2.01	5.28	2.16	3.78	3.26	2.21
8	4.48	2.99	1.71	3.12	2.15	2.16	2.20	2.19
10		2.09	1.51	2.31	1.98		2.31	2.04
11	3.12	4.18[a]	1.56	2.10[a]	1.92	2.69	1.07[a]	2.02
12	5.53	3.43	1.91	4.04	2.10	2.89	2.78	1.93

[a] ____ 1978-86

Source: Umali, (1990), Table 5.1 p.195

Notes:

The Mindanao regions are somewhat different from the earlier periods with the addition of CARAGA. CARAGA's standard deviations are even lower than those of the other Mindanao regions.

Table 7: Ratio of farm price to wholesale price (in milled rice terms), selected countries

	Bangladesh	India	Indonesia	Philippines	Thailand
1985	0.73	0.71	0.71	0.80	0.76
1986	0.75	0.74	0.57	0.75	1.06
1987	0.72	0.81	0.56	0.84	1.15
1988	0.72	0.77	0.73	0.78	0.94
1989	0.74	0.67	0.75	0.94	0.77
1990	0.76	0.71	0.77	0.84	0.85
1991	0.76	1.03	0.81	0.77	0.83
1992	0.88	1.02	0.73	0.76	0.80
1993	0.76	0.99	0.70	0.76	1.08
1994	0.67	0.95	0.71	0.71	0.99
1995	0.75	1.06	0.69	0.75	0.98
1996	0.66	1.05	0.70	0.72	1.11
1997	0.54	0.79	0.72	0.72	0.84
1998	0.57	0.77	0.56	0.72	0.60
1999	0.62	0.96	0.66	0.69	0.98
2000	0.59	1.00	0.68	0.73	0.99
2001	0.57	0.95	0.68	0.71	0.97
2002	0.62	-	0.63	0.75	0.95
2003	0.54	-	0.58	0.74	1.01
2004	0.75	-	0.73	0.74	0.93

Table 8a: Ravallion Regressions: Monthly Farm Price (Robust)

	(1) fphil^	(2) freg1	(3) freg2	(4) freg3	(5) freg4a	(6) freg4b	(7) freg5^	(8) freg6
Farm price, previous pd.	0.780***	0.539***	0.709***	0.659***	0.636***	0.495***	0.554***	0.656***
	(0.0753)	(0.0896)	(0.0607)	(0.0688)	(0.0915)	(0.0920)	(0.0702)	(0.117)
Wholesale price, previous pd.	0.0637	0.211*	0.113	0.0845	0.150	0.262***	0.216***	0.117
	(0.0746)	(0.0954)	(0.0664)	(0.0708)	(0.0816)	(0.0584)	(0.0619)	(0.122)
Change in wholesale price	0.607***	1.003***	0.663***	0.736***	0.291	0.950***	0.887***	0.853***
	(0.170)	(0.171)	(0.105)	(0.172)	(0.209)	(0.102)	(0.145)	(0.179)
Ratio of Procurement and Prod'n	-7.065	-50.28*	-26.91	-16.88	-18.23*	-15.48*	-17.14	-31.82
	(15.75)	(20.69)	(19.74)	(17.36)	(7.285)	(6.999)	(15.43)	(35.76)
dum9596	0.386	0.950**	0.564	0.799*	0.360	0.745**	0.432	0.648**
	(0.210)	(0.296)	(0.290)	(0.318)	(0.356)	(0.279)	(0.259)	(0.219)
dum9799	0.136	0.238	0.263	0.265	0.0752	0.269	0.0984	0.289
	(0.158)	(0.244)	(0.213)	(0.245)	(0.257)	(0.245)	(0.185)	(0.154)
_cons	1.682**	2.818*	1.933*	3.116**	2.020*	1.823*	1.485	2.382***
	(0.590)	(1.172)	(0.842)	(1.058)	(0.860)	(0.780)	(0.756)	(0.706)
N	156	156	156	156	156	156	156	156
adj. R^2			0.859		0.840			0.903
Durbin's alternative test for autocorrelation								
chi2			1.682		2.957			3.601
Prob > chi2			0.1946		0.0855			0.0578

	(9) freg7	(10) freg8^	(11) freg9	(12) freg10	(13) freg11	(14) freg12^	(15) freg13	(16) farmm
Farm price, previous pd.	0.624***	0.403*	0.526***	0.617***	0.503***	0.620***	0.503***	0.534***
	(0.0829)	(0.161)	(0.0800)	(0.0808)	(0.135)	(0.0875)	(0.103)	(0.0764)
Wholesale price, previous pd.	0.0415	0.338**	0.265**	0.173*	0.302*	0.193*	0.284*	0.253***
	(0.0550)	(0.108)	(0.0979)	(0.0767)	(0.132)	(0.0926)	(0.110)	(0.0725)
Change in wholesale price	0.370***	0.570***	0.874***	0.685***	0.707***	0.817***	0.894***	0.179
	(0.0997)	(0.147)	(0.177)	(0.142)	(0.0990)	(0.0786)	(0.155)	(0.132)
Ratio of Procurement and Prod'n	-478.4	-184.9	-111.9**	-45.77	7.801	-17.32	-1859.1***	-18.48
	(294.3)	(101.0)	(37.45)	(33.46)	(13.27)	(9.506)	(444.8)	(9.378)
dum9596	0.424	0.145	-0.0716	0.149	0.332	0.592**	0.363	-0.637
	(0.333)	(0.314)	(0.340)	(0.214)	(0.244)	(0.202)	(0.296)	(0.358)
dum9799	0.0751	0.181	-0.0867	-0.115	0.152	0.376**	-0.123	-0.330
	(0.224)	(0.285)	(0.255)	(0.192)	(0.163)	(0.140)	(0.203)	(0.263)
_cons	4.221***	1.190	1.385	1.747*	0.870	1.814**	1.232	1.448
	(1.071)	(1.039)	(1.160)	(0.844)	(0.784)	(0.568)	(0.982)	(0.863)
N	156	156	156	156	156	156	156	156
adj. R^2	0.595		0.755	0.808	0.832		0.806	0.606
Durbin's alternative test for autocorrelation								
chi2	0.202		0.338	0.008	0.017		1.817	0.290
Prob > chi2	0.6534		0.5612	0.9281	0.8948		0.1777	0.5905

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table 8a: Ravallion Regressions: Quarterly Farm Price (Robust)

	(1) fqphil	(2) fqreg1	(3) fqreg2	(4) fqreg3	(5) fqreg4a	(6) fqreg4b	(7) fqreg5	(8) fqreg6
Farm price, previous pd.	0.0682	0.170	0.102	0.266*	0.130	0.105	-0.103	0.0381
	(0.0993)	(0.108)	(0.116)	(0.114)	(0.0990)	(0.146)	(0.148)	(0.161)
Wholesale price, previous pd.	0.608***	0.668***	0.696***	0.457***	0.457***	0.668***	0.735***	0.713***
	(0.0736)	(0.116)	(0.111)	(0.107)	(0.0806)	(0.118)	(0.0977)	(0.121)
Change in wholesale price	0.730***	1.159***	0.947***	0.789***	0.570***	0.775***	0.811***	0.946***
	(0.154)	(0.151)	(0.149)	(0.130)	(0.0615)	(0.0537)	(0.0981)	(0.139)
Ratio of Procurement and Prod'n	-10.33	-2.041	-12.62	-11.27	-7.908***	-6.391**	-2.738	-13.74**
	(5.721)	(2.801)	(7.648)	(7.873)	(2.051)	(1.964)	(2.453)	(4.982)
_cons	1.554	0.288	0.522	2.146	3.261**	-0.0406	0.379	0.690
	(0.926)	(1.313)	(1.196)	(1.352)	(0.978)	(0.703)	(0.691)	(1.044)
N	52	52	52	52	52	52	52	52
adj. R^2	0.860	0.827	0.816	0.755	0.848	0.903	0.847	0.883
Durbin's alternative test for autocorrelation								
chi2	0.043	0.009	0.203	2.733	0.538	0.048	0.170	0.447
Prob > chi2	0.8357	0.9241	0.6526	0.0983	0.4632	0.8266	0.6799	0.5039

	(9) fqreg7	(10) fqreg8	(11) fqreg9	(12) fqreg10	(13) fqreg11	(14) fqreg12	(15) fqreg13	(16) fqarmm
Farm price, previous pd.	0.188	0.405*	0.0859	0.294*	-0.0556	0.0341	0.185	0.365**
	(0.128)	(0.161)	(0.127)	(0.122)	(0.223)	(0.117)	(0.160)	(0.120)
Wholesale price, previous pd.	0.208**	0.374**	0.514***	0.377***	0.812***	0.850***	0.566***	0.247***
	(0.0683)	(0.110)	(0.0855)	(0.0838)	(0.173)	(0.108)	(0.128)	(0.0652)
Change in wholesale price	0.333*	0.398***	0.744***	0.714***	0.752***	0.792***	1.038***	0.314*
	(0.131)	(0.0735)	(0.124)	(0.0943)	(0.106)	(0.0789)	(0.0836)	(0.140)
Ratio of Procurement and Prod'n	-117.3	-20.17	-22.98**	-8.299	0.333	-5.554***	-373.4***	-1.665
	(83.10)	(11.49)	(7.446)	(5.993)	(1.691)	(1.434)	(45.62)	(1.565)
_cons	7.097***	0.578	2.611	2.116	-0.970	-0.962	0.335	3.524**
	(1.366)	(0.972)	(1.345)	(1.170)	(0.743)	(0.543)	(1.180)	(1.147)
N	52	51	52	52	52	52	51	52
adj. R^2	0.341	0.800	0.669	0.727	0.804	0.931	0.783	0.554
Durbin's alternative test for autocorrelation								
chi2	0.213	3.811	0.462	0.015	0.007	0.913	3.814	0.145
Prob > chi2	0.6447	0.0501	0.4968	0.9014	0.9336	0.3392	0.0508	0.7038

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 9: Index of Market Concentration (IMC) of Farm Gate to Wholesale Market, by Region

Region	Monthly	Quarterly	α
Philippines	6.00	1.12	n.s
1	2.00	0.25	n.s
2	3.53	0.15	n.s
3	4.06	0.58	**
4-A	3.58	0.28	n.s
4-B	1.49	0.16	n.s
5	2.03	0.14	n.s
6	2.87	0.04	n.s
7	9.60	0.92	n.s
8	1.11	1.08	*
9	2.18	0.17	n.s
10	3.92	0.77	**
11	1.45	0.07	n.s
12	1.84	0.04	n.s
13	1.87	0.31	n.s
ARMM	3.39	4.00	***

Notes:

$$IMC = \frac{\alpha}{\beta_0 + \beta_1}$$

* p < 0.01, ** p < 0.05, *** p < 0.10

Table 10a: Ravallion Regressions: Monthly Retail Prices (Robust)

	(1) rphil	(2) rmm^	(3) rcar	(4) rreg1^	(5) rreg2	(6) rreg3	(7) rreg4a	(8) rreg4b	(9) rreg5^
Retail price, previous pd.	0.596***	0.673***	0.683***	0.758***	0.616***	0.667***	0.831***	0.670***	0.731***
	(0.0866)	(0.111)	(0.0620)	(0.0463)	(0.0605)	(0.0649)	(0.0430)	(0.0443)	(0.0585)
Wholesale price, previous pd.	0.437***	0.324**	0.310***	0.225***	0.411***	0.335***	0.179***	0.344***	0.321***
	(0.0889)	(0.104)	(0.0609)	(0.0440)	(0.0643)	(0.0621)	(0.0467)	(0.0454)	(0.0621)
Change in wholesale price	0.890***	0.577***	0.815***	0.953***	0.899***	0.976***	0.873***	0.783***	0.957***
	(0.0721)	(0.130)	(0.0733)	(0.0668)	(0.0770)	(0.0297)	(0.0605)	(0.0442)	(0.144)
dum9596	0.0327	0.275	0.157	0.161	-0.00214	0.182	0.0140	0.128	0.0969
	(0.0565)	(0.212)	(0.161)	(0.0932)	(0.0883)	(0.117)	(0.0754)	(0.0842)	(0.149)
dum9799	-0.0160	0.0470	-0.0360	0.129*	-0.0528	0.103*	0.0507	0.0794	-0.0576
	(0.0350)	(0.126)	(0.0627)	(0.0510)	(0.0535)	(0.0515)	(0.0695)	(0.0591)	(0.0797)
_cons	0.0980	0.698	0.548	0.617**	0.134	0.477	0.0903	0.267	-0.349
	(0.183)	(0.567)	(0.332)	(0.217)	(0.223)	(0.247)	(0.154)	(0.219)	(0.487)
N	227	227	227	227	227	227	227	227	227
adj. R^2	0.995		0.978		0.982	0.993	0.991	0.990	
Durbin's alternative test for autocorrelation									
chi2	0.243		1.940		1.699	3.369	1.173	0.484	
Prob > chi2	0.6223		0.1637		0.1924	0.0664	0.2788	0.4865	

	(10) rreg6	(11) rreg7^	(12) rreg8	(13) rreg9	(14) rreg10	(15) rreg11	(16) rreg12	(17) rreg13	(18) rarmm
Retail price, previous pd.	0.845***	0.832***	0.617***	0.673***	0.654***	0.612***	0.538***	0.754***	0.648***
	(0.0467)	(0.0388)	(0.0832)	(0.0689)	(0.0567)	(0.0451)	(0.0662)	(0.0468)	(0.0636)
Wholesale price, previous pd.	0.186***	0.226***	0.353***	0.336***	0.373***	0.435***	0.461***	0.294***	0.360***
	(0.0477)	(0.0449)	(0.0745)	(0.0700)	(0.0559)	(0.0416)	(0.0416)	(0.0510)	(0.0653)
Change in wholesale price	0.947***	0.702***	0.929***	0.805***	0.779***	0.880***	0.731***	0.866***	0.831***
	(0.0956)	(0.0760)	(0.103)	(0.0465)	(0.0584)	(0.0728)	(0.0826)	(0.0832)	(0.0550)
dum9596	-0.0612	-0.203	0.268*	0.132	-0.00817	-0.0351	-0.169	-0.155	-0.0489
	(0.153)	(0.132)	(0.113)	(0.0953)	(0.114)	(0.123)	(0.140)	(0.102)	(0.108)
dum9799	0.00885	-0.216**	0.0554	-0.0200	-0.0888	-0.0237	-0.0904	-0.0919	-0.248**
	(0.0968)	(0.0718)	(0.0609)	(0.0541)	(0.0686)	(0.0707)	(0.0795)	(0.0585)	(0.0776)
_cons	-0.124	-0.631*	1.071**	0.259	0.0935	-0.217	0.820	-0.426	0.405
	(0.521)	(0.300)	(0.391)	(0.274)	(0.345)	(0.437)	(0.654)	(0.404)	(0.261)
N	227	227	227	227	227	227	227	227	227
adj. R^2	0.971		0.976	0.984	0.976	0.978	0.975	0.979	0.986
Durbin's alternative test for autocorrelation									
chi2	0.024		0.644	1.860	1.452	0.565	1.157	3.072	0.844
Prob > chi2	0.8767		0.4224	0.1727	0.2282	0.4521	0.2820	0.0796	0.3584

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table 10b: Ravallion Regressions: Quarterly Retail Prices (Robust)

	(1) rqphil^	(2) rqmm^	(3) rqcar^	(4) rqreg1^	(5) rqreg2^	(6) rqreg3^	(7) rqreg4a^	(8) rqreg4b^	(9) rqreg5^
rqphilp	0.751***	0.788***	0.864***	0.678**	0.715***	0.878***	0.646**	0.697***	0.692**
	(0.154)	(0.216)	(0.148)	(0.204)	(0.156)	(0.0989)	(0.199)	(0.160)	(0.207)
wqphilp	0.262	0.223	0.150	0.328	0.289	0.128	0.359	0.309	0.320
	(0.154)	(0.221)	(0.146)	(0.203)	(0.157)	(0.100)	(0.201)	(0.163)	(0.208)
wqphilch	0.975***	0.992***	0.992***	0.992***	0.965***	1.001***	0.945***	0.954***	0.973***
	(0.0260)	(0.0116)	(0.0121)	(0.0118)	(0.0303)	(0.00675)	(0.0605)	(0.0424)	(0.0240)
_cons	-0.226	-0.175	-0.232	-0.0896	-0.0549	-0.101	-0.0614	-0.0775	-0.192
	(0.179)	(0.201)	(0.144)	(0.0886)	(0.133)	(0.0676)	(0.123)	(0.175)	(0.147)
N	75	75	75	75	75	75	75	75	75
adj. R^2									

	(10) rqreg6^	(11) rqreg7^	(12) rqreg8^	(13) rqreg9^	(14) rqreg10^	(15) rqreg11^	(16) rqreg12^	(17) rqreg13^	(18) rqarmm^
rqreg5p	0.534*	0.845***	0.649***	0.673***	0.561**	0.479	0.450	0.777***	0.720***
	(0.209)	(0.0912)	(0.111)	(0.183)	(0.212)	(0.279)	(0.255)	(0.125)	(0.185)
wqreg5p	0.496*	0.185	0.357**	0.336	0.461*	0.538	0.581*	0.239	0.290
	(0.205)	(0.0993)	(0.114)	(0.183)	(0.203)	(0.272)	(0.256)	(0.126)	(0.186)
wqreg5ch	0.974***	0.979***	0.972***	1.000***	0.904***	0.962***	0.935***	0.985***	0.987***
	(0.0435)	(0.0385)	(0.0202)	(0.00428)	(0.0720)	(0.0370)	(0.0637)	(0.0156)	(0.0210)
_cons	-0.466	-0.555	-0.0865	-0.136	-0.339	-0.254	-0.462	-0.272	-0.156
	(0.413)	(0.418)	(0.143)	(0.151)	(0.475)	(0.322)	(0.373)	(0.232)	(0.122)
N	75	75	75	75	75	75	75	75	75
adj. R^2									

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table 11: YSM Regressions: Farm and Retail, Philippines

	(1) rphilch^	(2) fphilch^
time	0.00109	0.000639
	(0.000674)	(0.00107)
distphil	-0.00000184*	
	(0.000000876)	
procphil		0.00000132
		(0.00000191)
bkkch	-0.0000261	0.0000250
	(0.0000948)	(0.0000818)
dumjan	-0.818**	
	(0.305)	
dumfeb	-0.711*	0.0552
	(0.342)	(0.146)
dummar	-0.692*	-0.149
	(0.341)	(0.154)
dumapr	-0.696*	-0.0502
	(0.339)	(0.144)
dummay	-0.631	-0.118
	(0.323)	(0.141)
dumjun	-0.602*	-0.0524
	(0.286)	(0.140)
dumjul	-0.303	-0.190
	(0.268)	(0.156)
dumaug		-0.489**
		(0.183)
dumsep	-0.588*	-1.267***
	(0.236)	(0.177)
dumoct	-1.143***	-0.788***
	(0.310)	(0.190)
dumnov	-1.158**	-0.407*
	(0.346)	(0.166)
dumdec	-0.859**	-0.0409
	(0.326)	(0.149)
dum91	-0.274**	-0.120
	(0.0907)	(0.150)

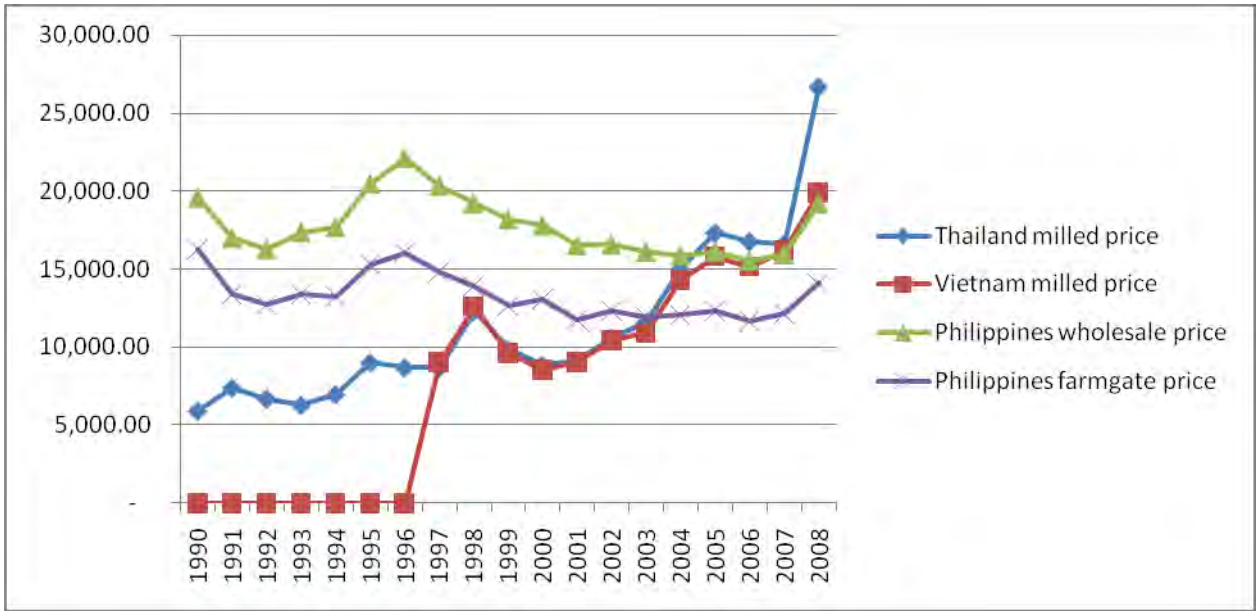
Continued on next page.

Table 11: Shively Farm and Retail Philippine Level - *Continued*

	(1) rphilch^	(2) fphilch^
dum92	0.0389	0.139
	(0.0927)	(0.138)
dum93	0.155	0.168
	(0.115)	(0.157)
dum94	-0.0706	0.132
	(0.116)	(0.123)
dum95	0.251	0.410
	(0.472)	(0.216)
dum96	-0.0570	-0.110
	(0.202)	(0.219)
dum97	-0.109	0.115
	(0.117)	(0.144)
dum98	-0.00628	-0.00264
	(0.0776)	(0.161)
dum99	-0.0381	-0.0378
	(0.106)	(0.156)
dum00	-0.0405	0.0368
	(0.0842)	(0.167)
dum01	-0.121	0.0202
	(0.107)	(0.161)
dum02	0.00259	0.0719
	(0.0809)	(0.160)
dum03	-0.0794	-0.0104
	(0.0897)	(0.155)
dum04	-0.0480	0.0653
	(0.0935)	(0.165)
dum05	0.0840	0.0533
	(0.0954)	(0.220)
_cons	0.715*	0.128
	(0.327)	(0.163)
N	203	203
adj. R^2	0.210	0.417
Durbin-Watson statistic	1.924528	1.969824

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Prais-Winsten AR(1) regression

Figure 1: Domestic and Foreign Rice Prices (Landed Cost), in Pesos, 1990-2008



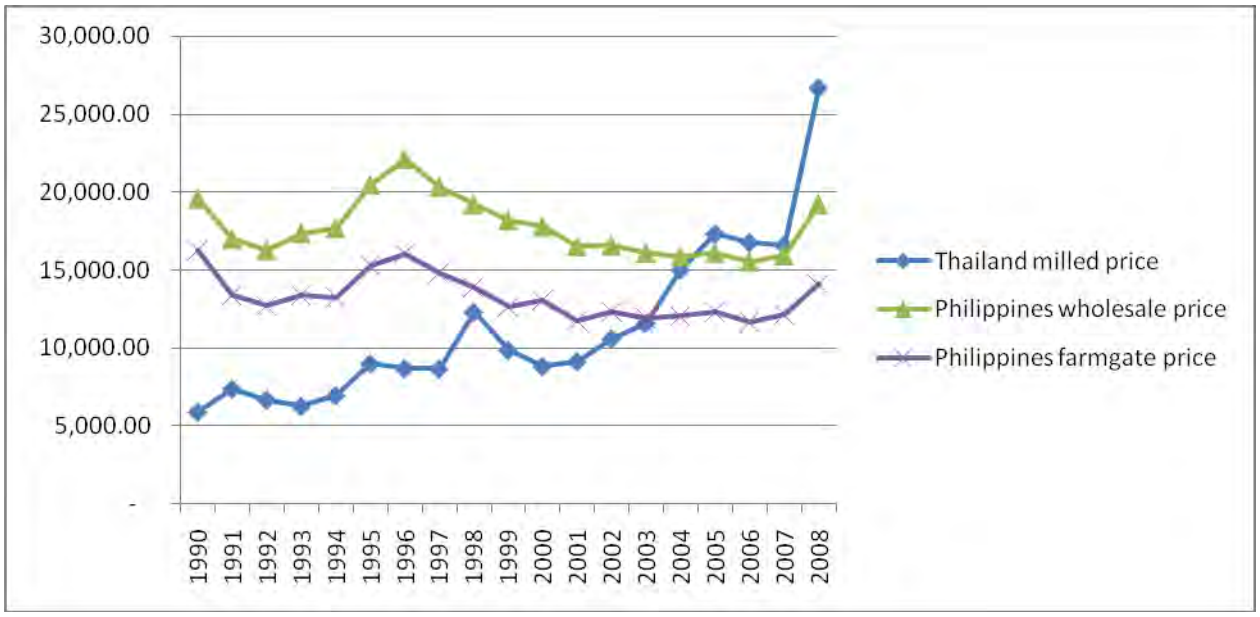


Figure 2: Average Deflated Farm Gate Prices, by Region, 1990-2008

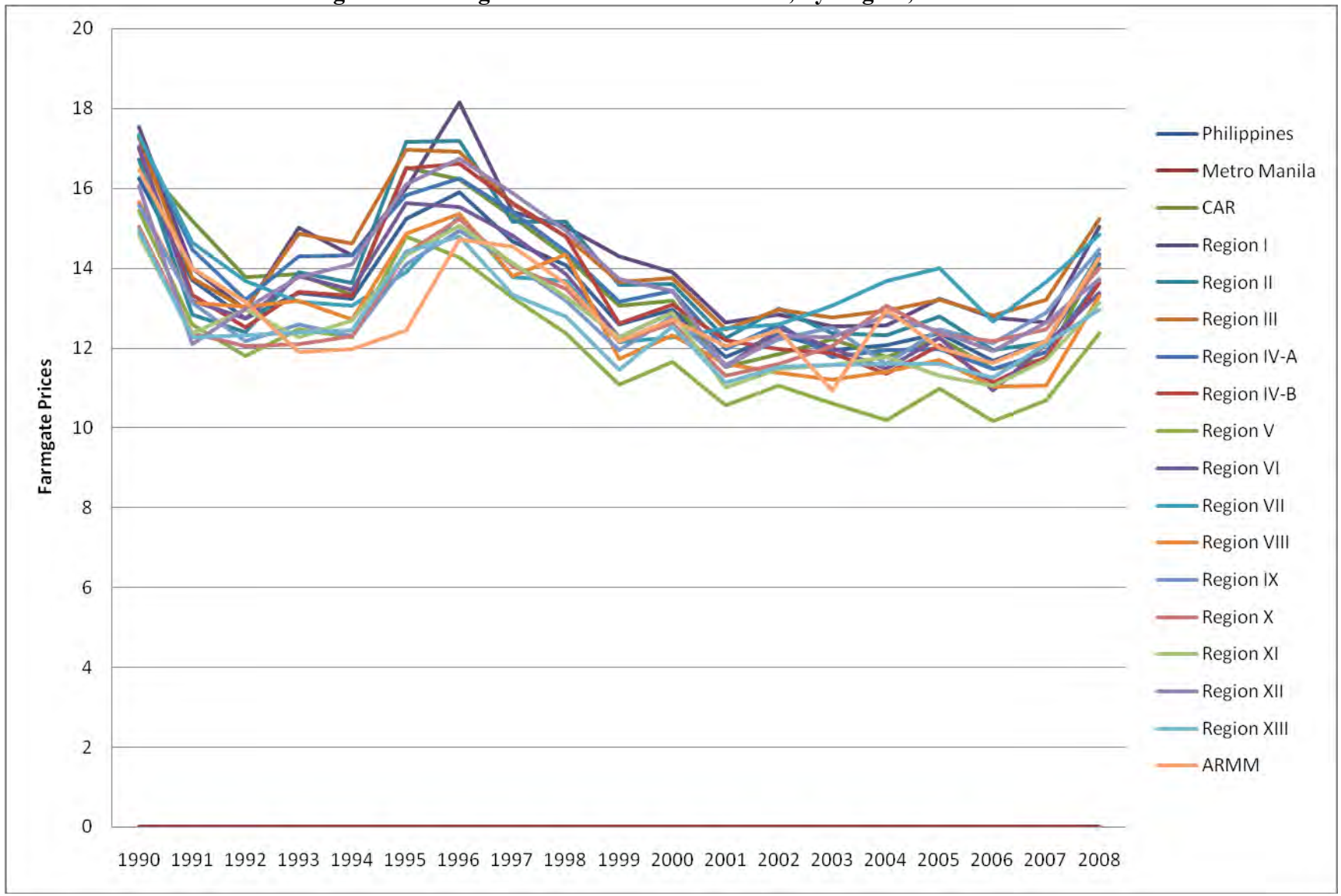


Figure 3: Average Deflated Wholesale Prices, by Region, 1990-2008

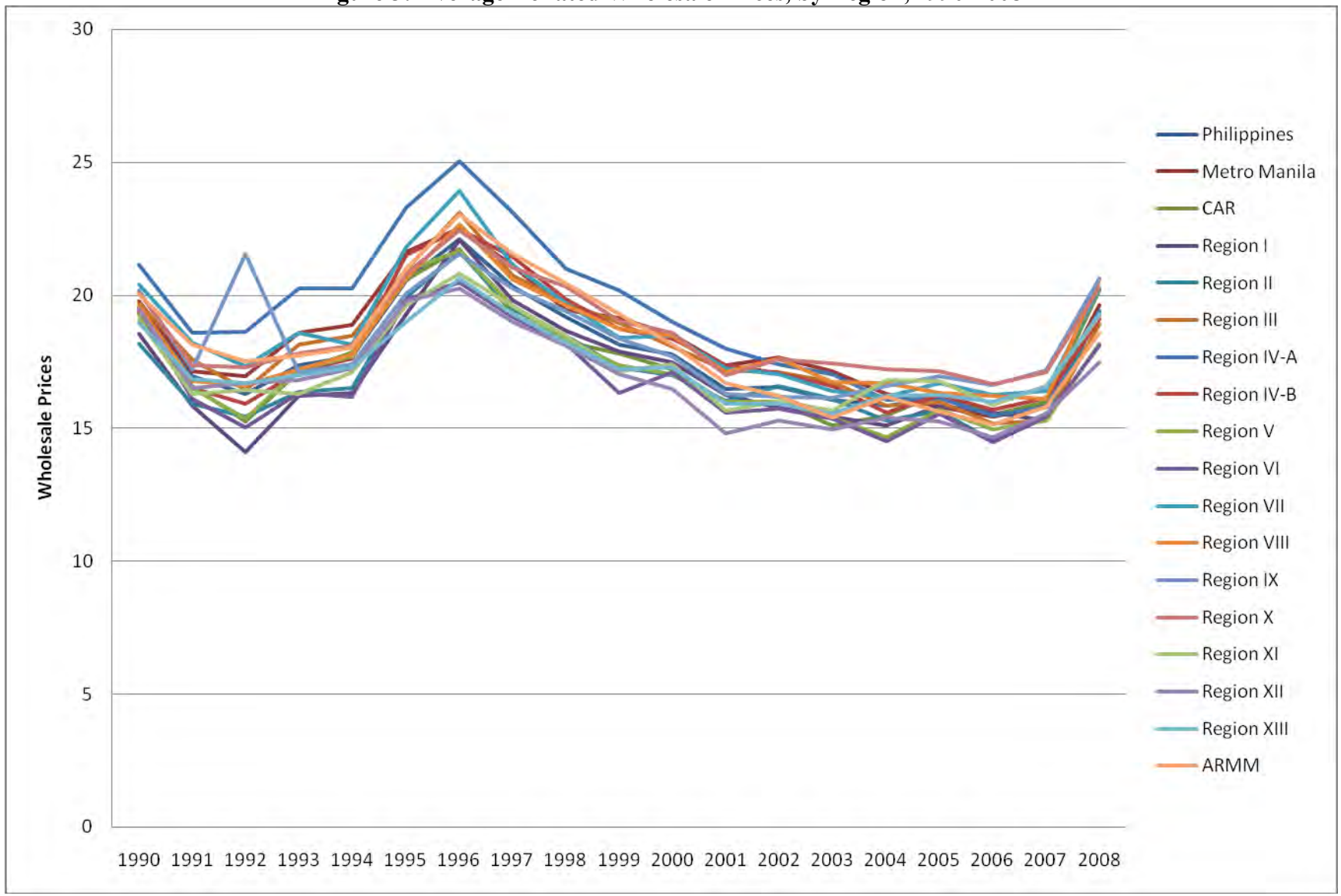


Figure 4: Average Deflated Retail Prices, by Region, 1990-2008

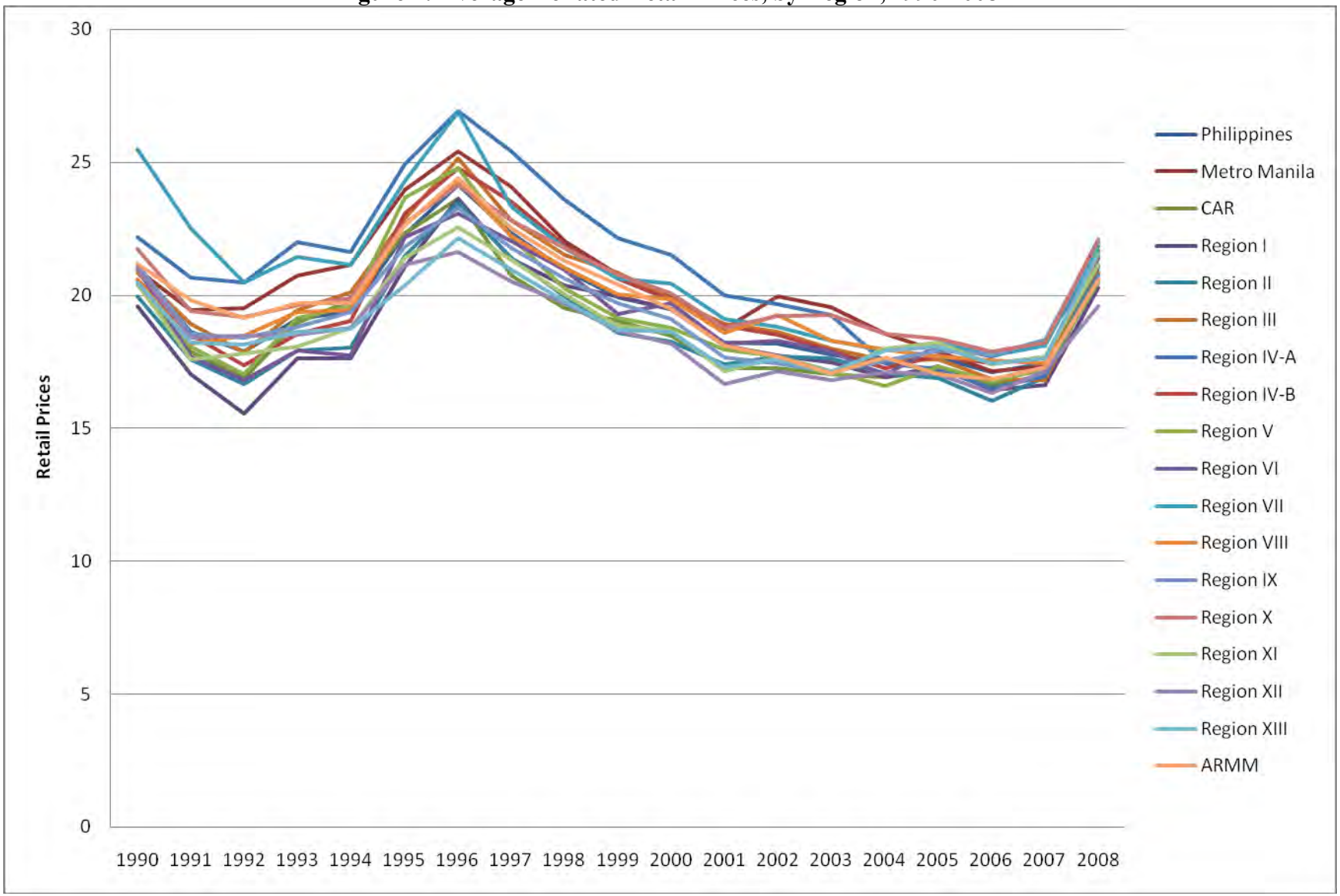


Figure 5: Monthly Deflated Farm Gate Price Movement, 1990-2008

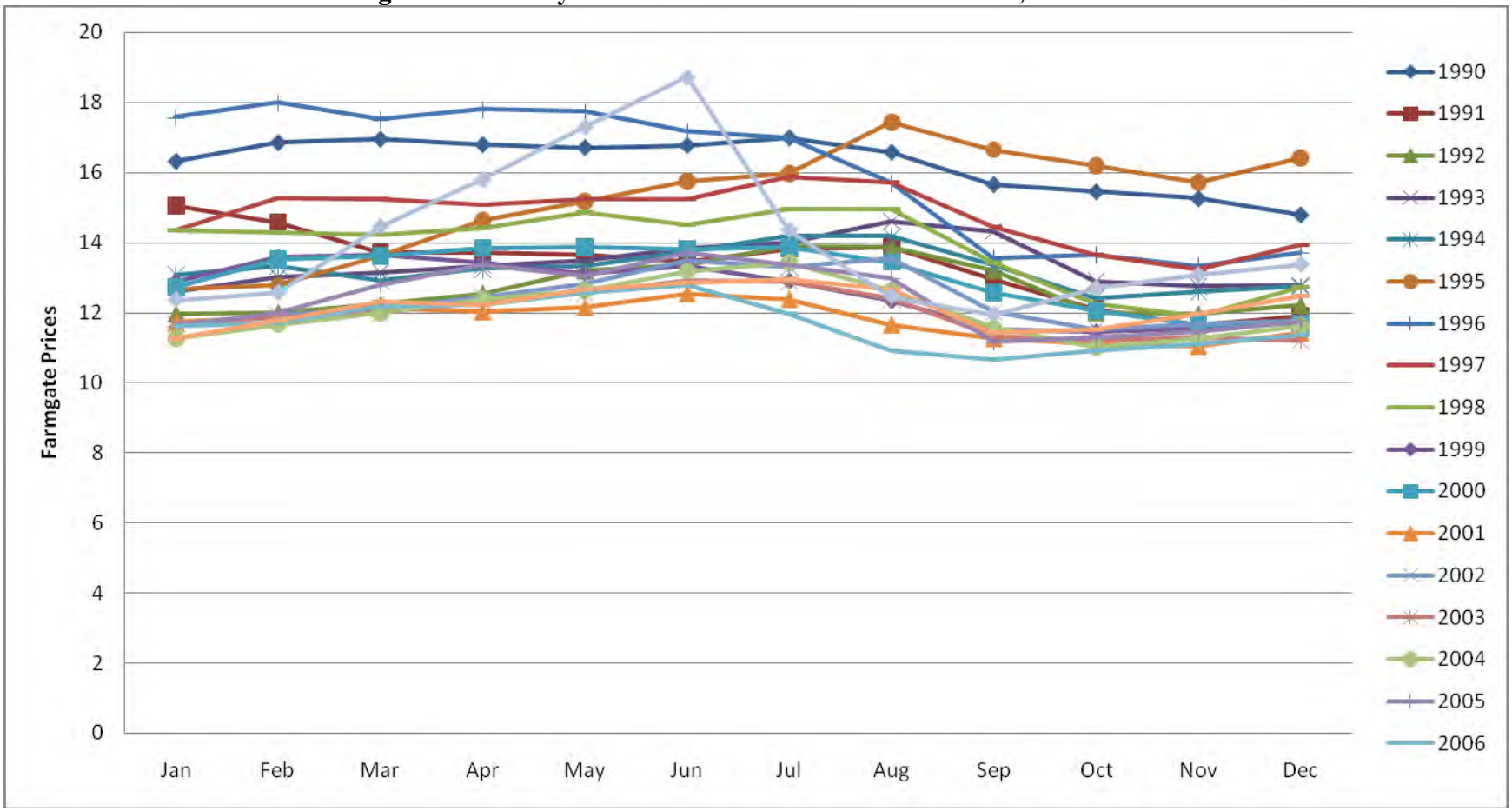


Figure 6: Monthly Deflated Wholesale Price Movement, 1990-2008

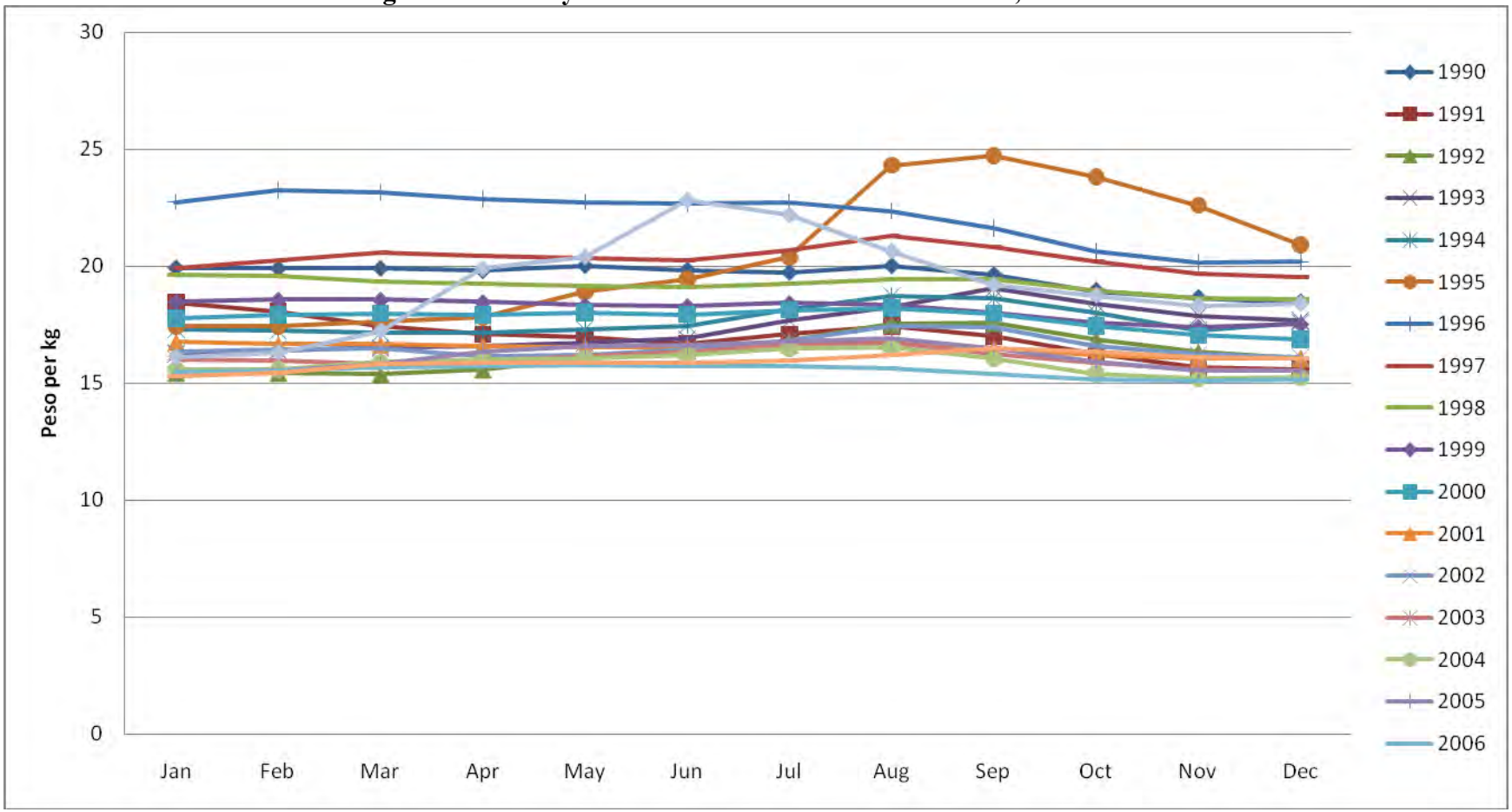


Figure 7: Monthly Deflated Retail Price Movement, 1990-2008

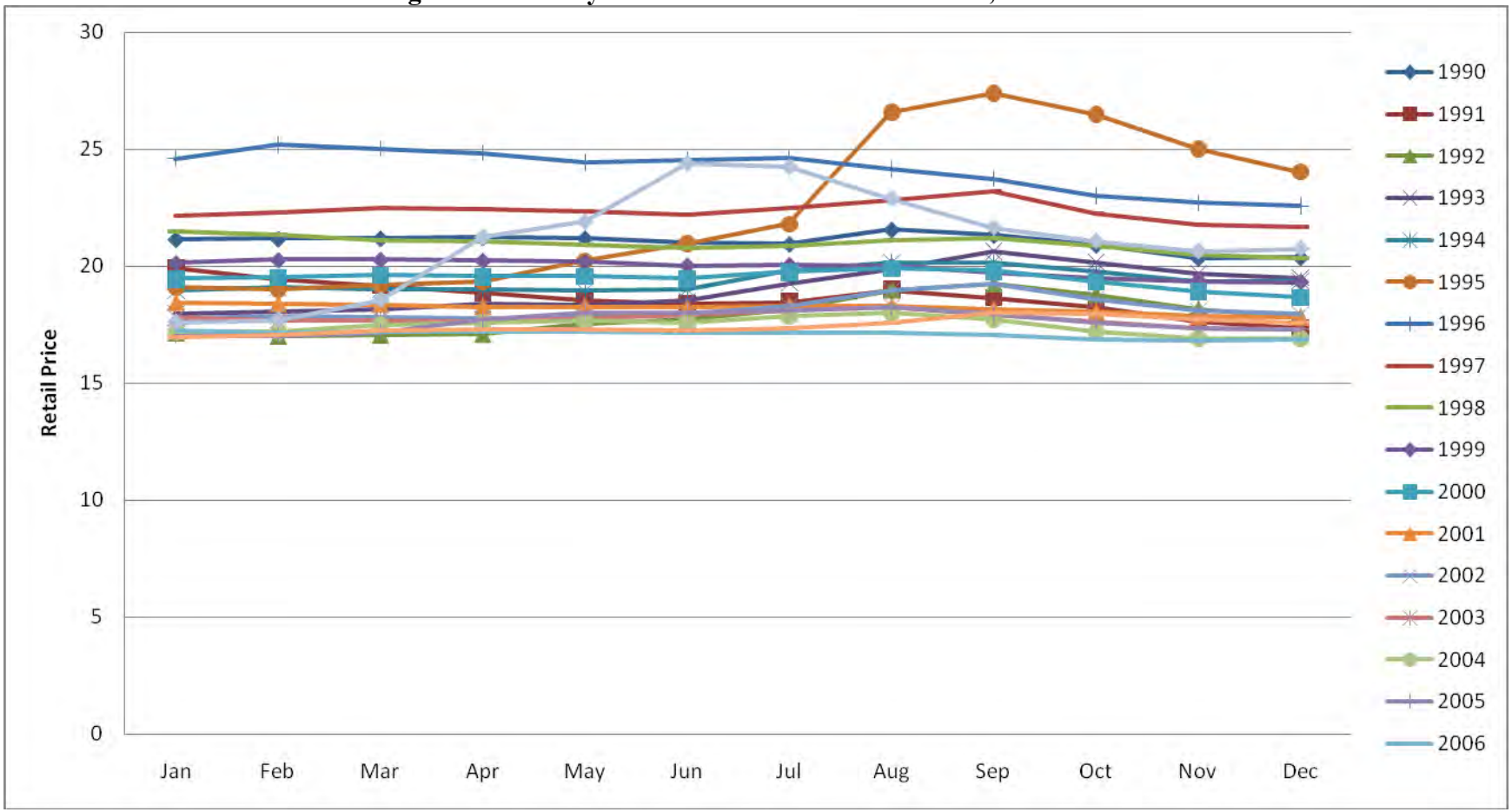


Figure 8: Regional Wholesale Prices as a Ratio of Manila Wholesale Prices, 1990-2008

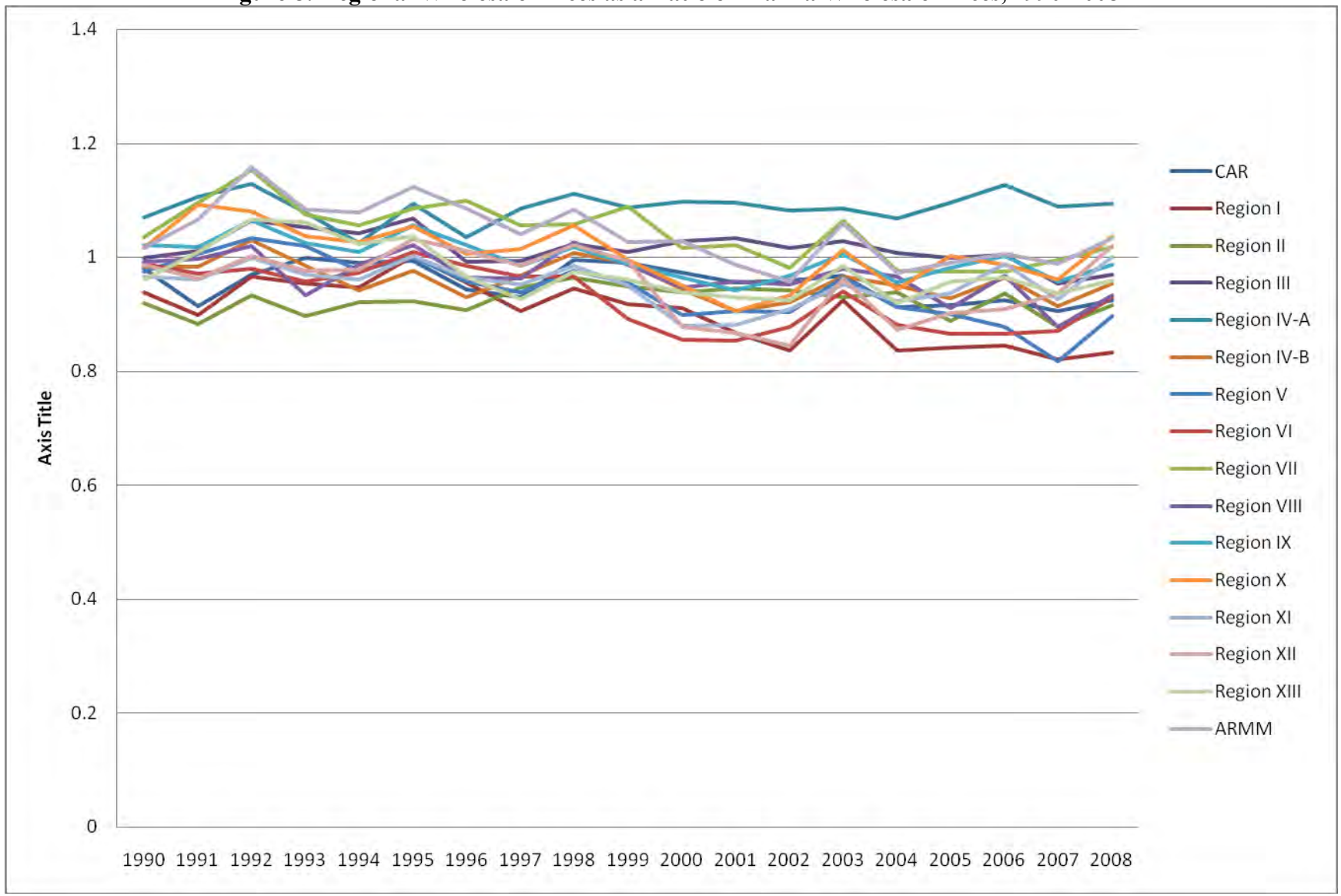


Figure 9: Farm Gate Prices to Wholesale Prices Ratio (Deflated Prices), by Region, 1990-2008

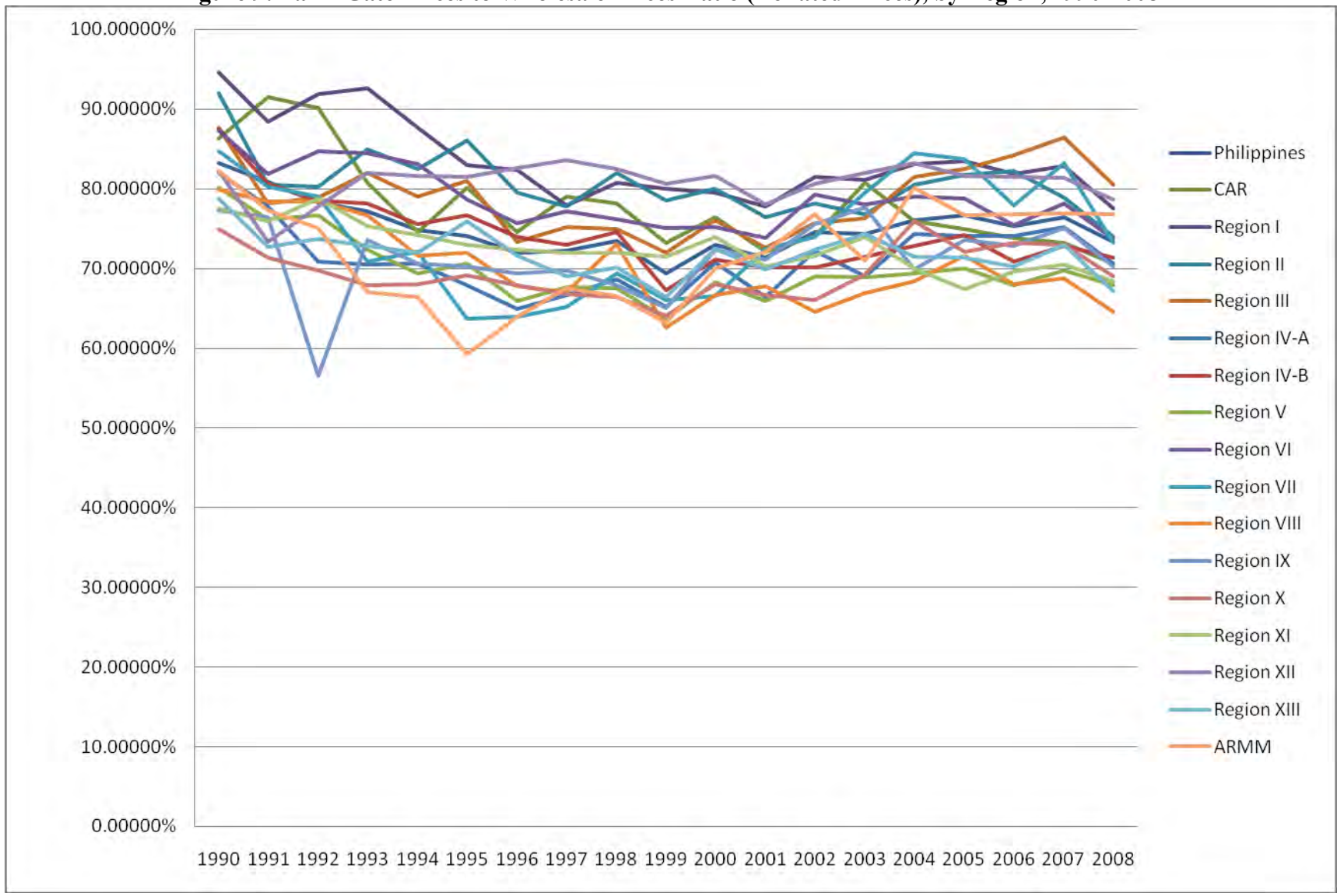


Figure 10: Wholesale Prices to Retail Prices Ratio (Deflated Prices), by Region, 1990-2008

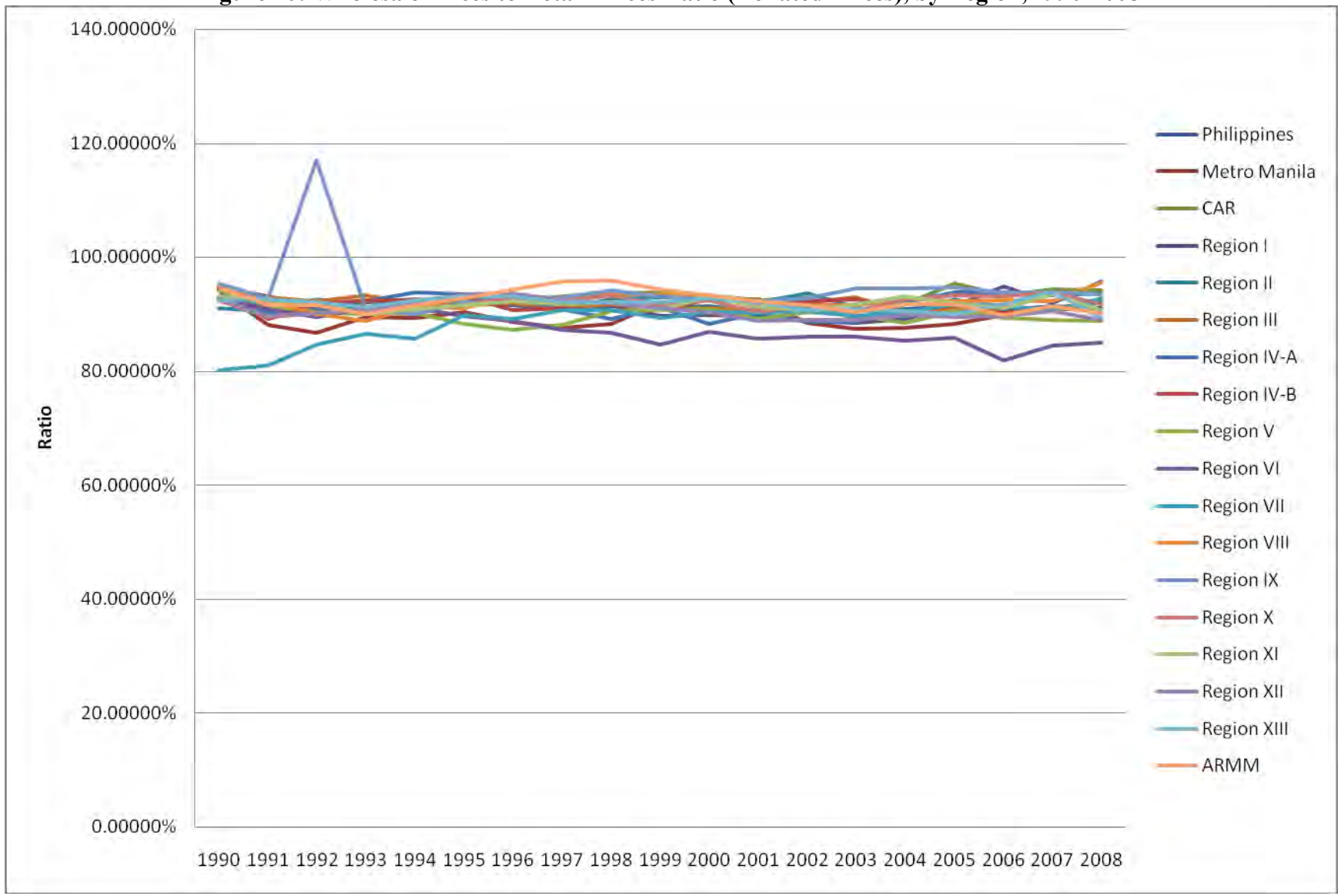


Figure 11: Farm Gate Prices to Retail Prices (Deflated Prices), by Region, 1990-2008

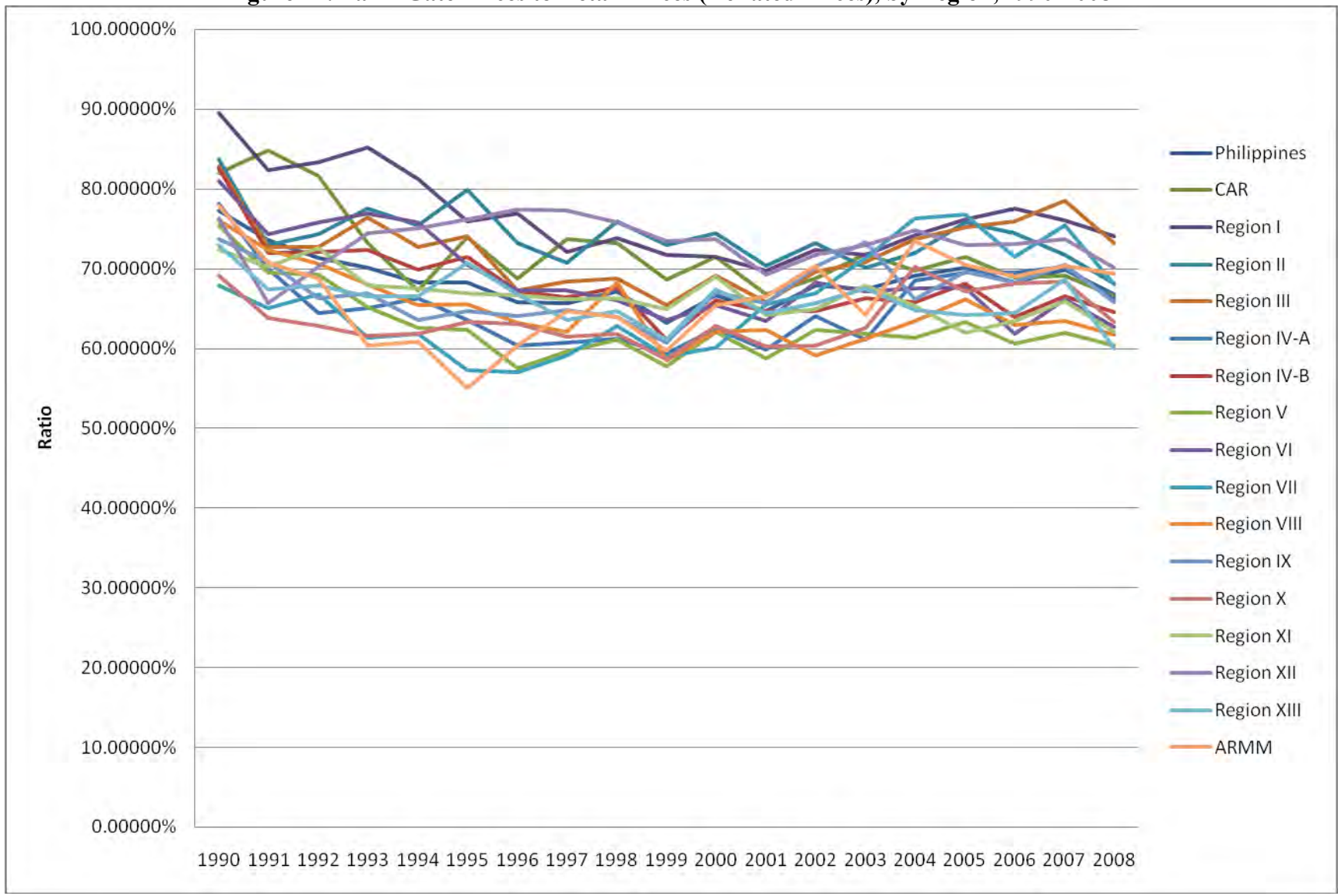


Figure 13: Regional Farm Price Ratio and NFA Procurement Ratio

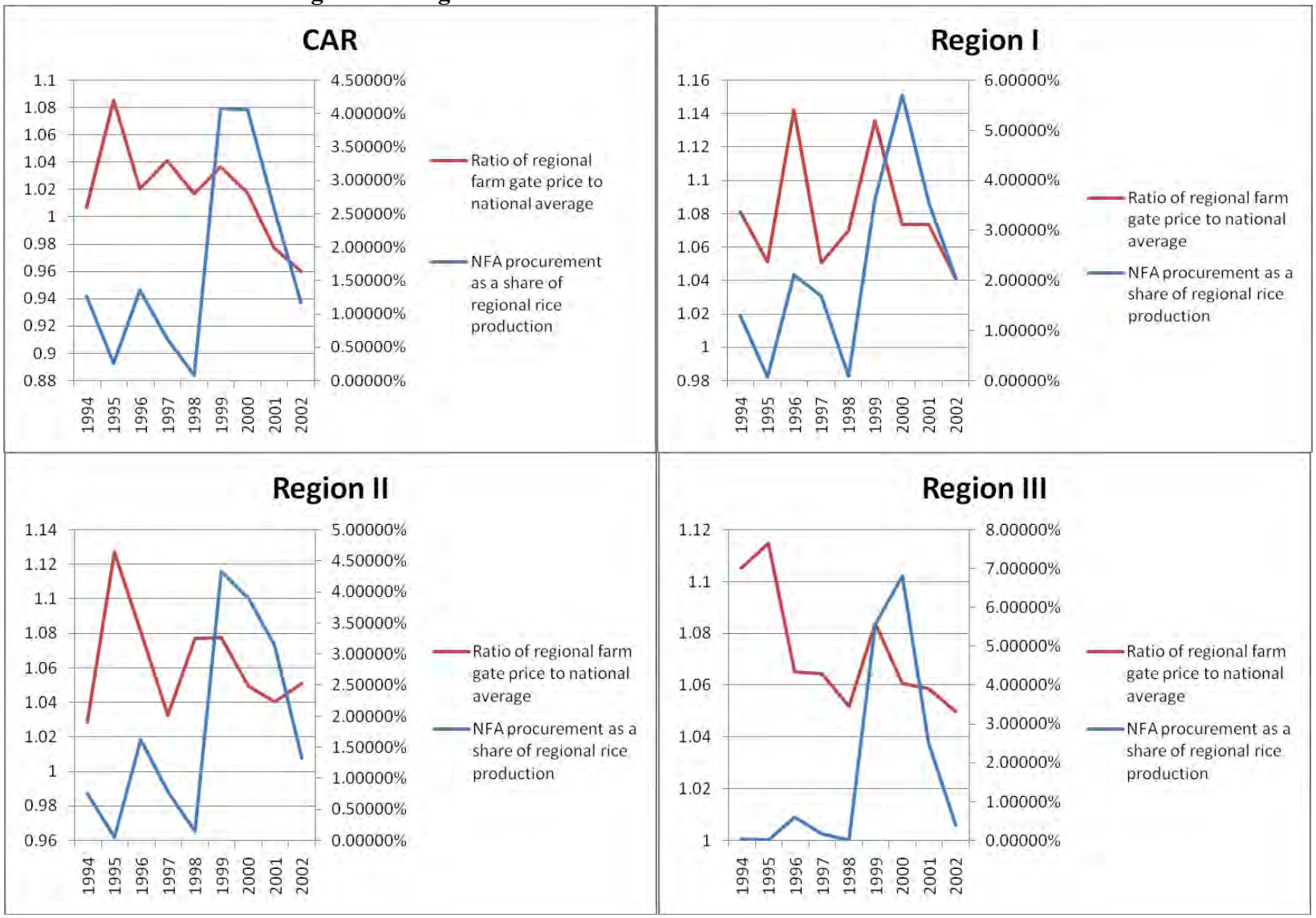


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Figure 13: Regional Farm Price Ratio and NFA Procurement Ratio – *Continued*

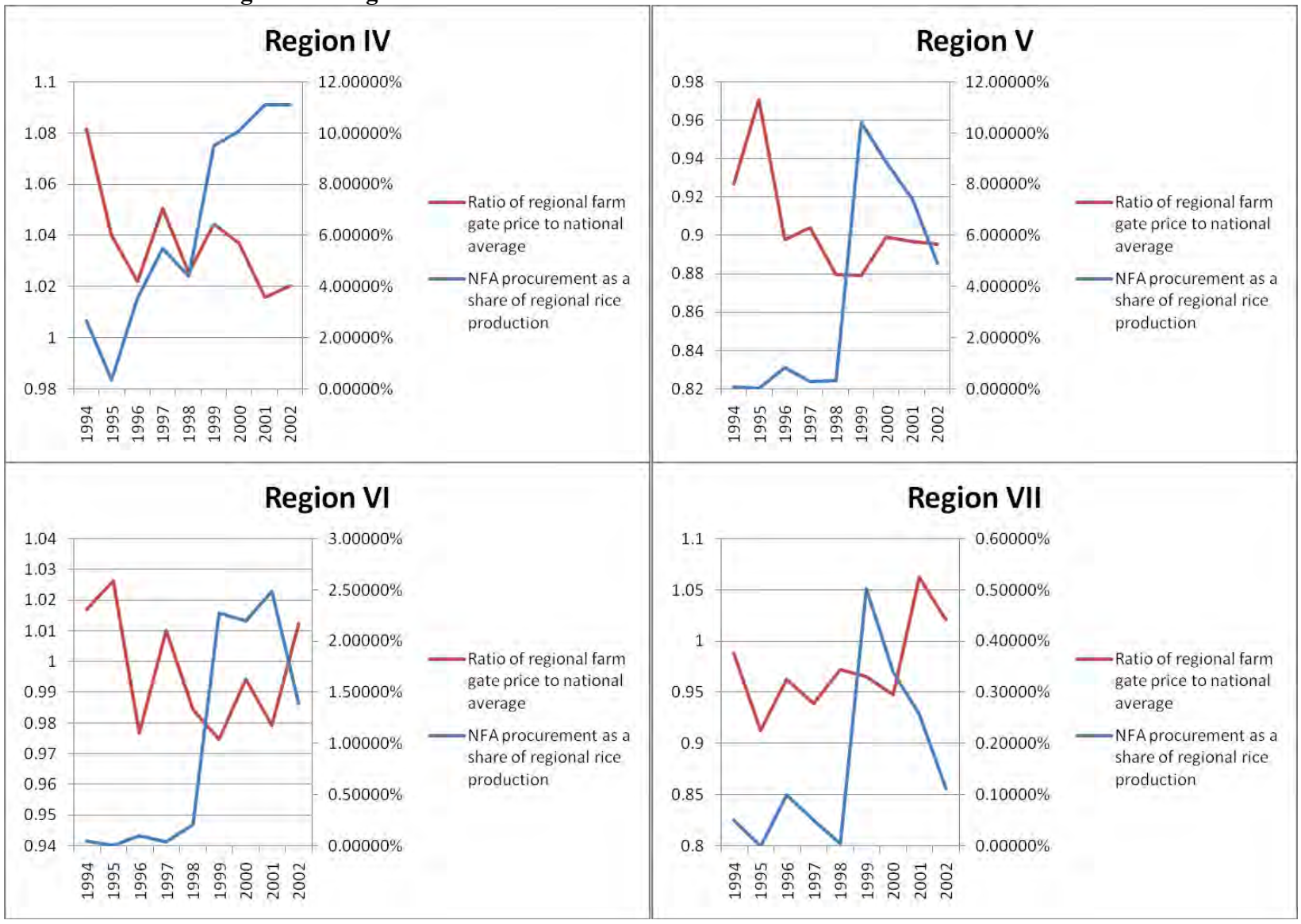

Figure 13: Regional Farm Price Ratio and NFA Procurement Ratio – *Continued*

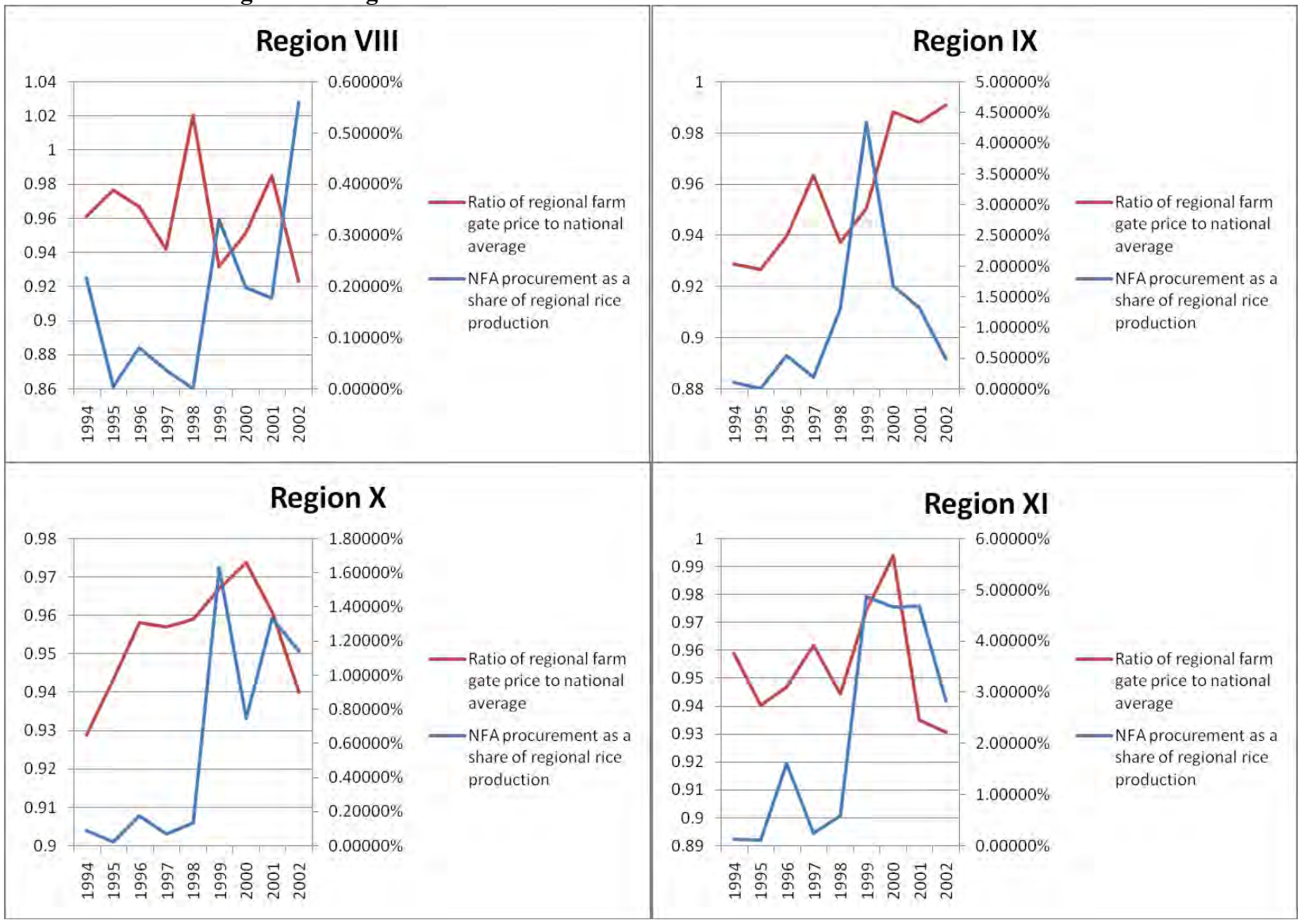

Figure 13: Regional Farm Price Ratio and NFA Procurement Ratio – *Continued*

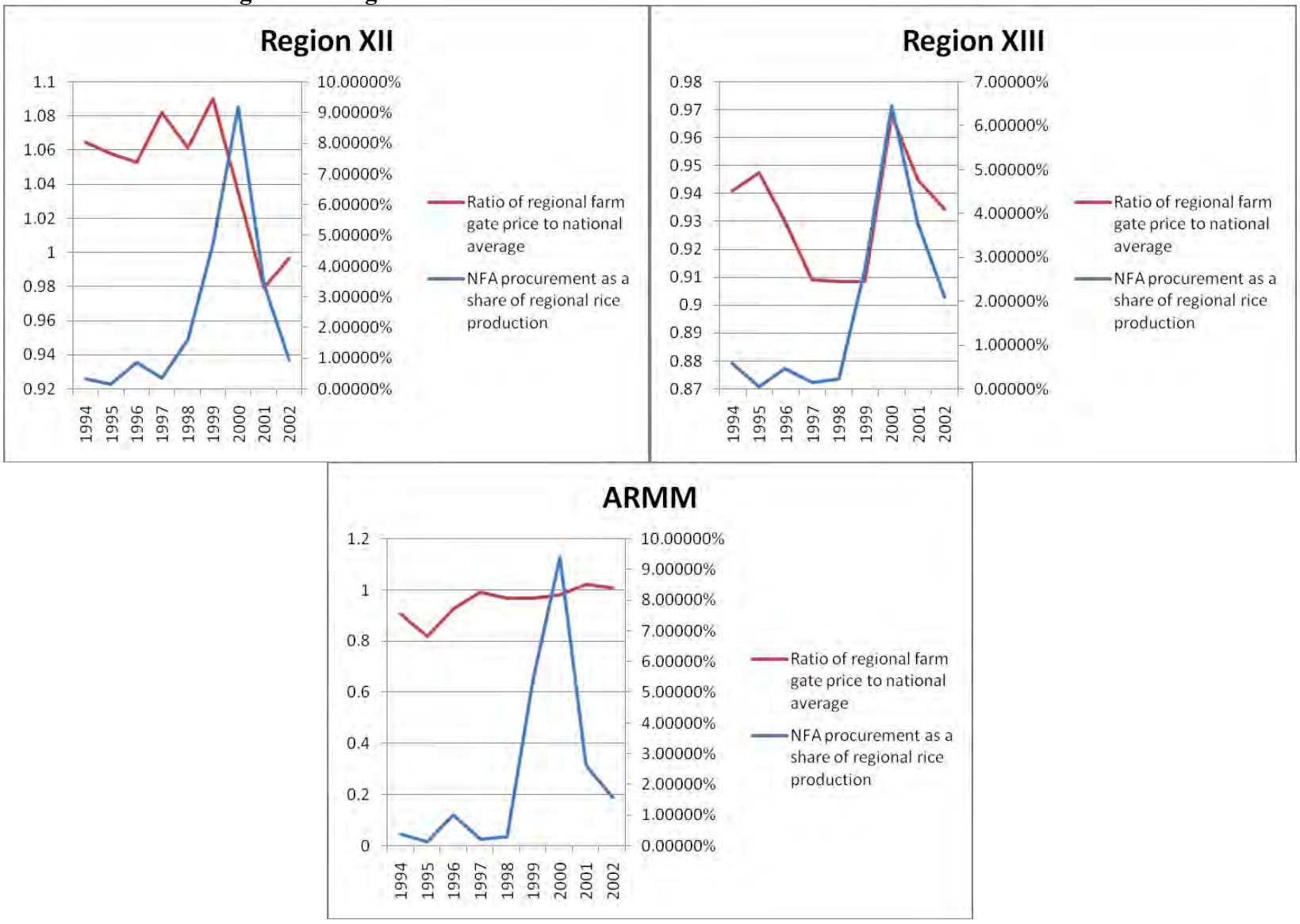

Figure 14: Regional Retail Price Ratio and NFA Distribution Bias

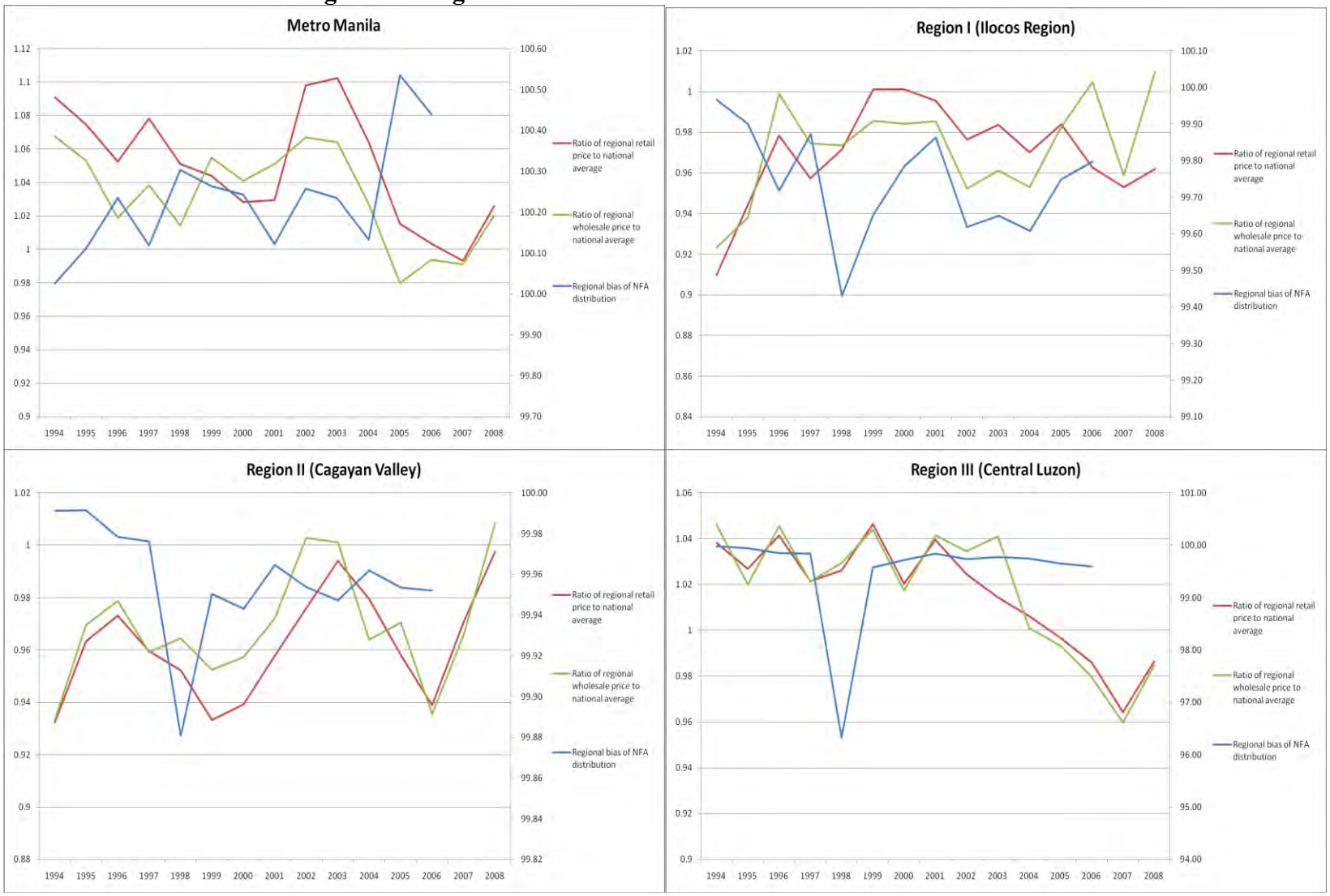

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Figure 14: Regional Retail Price Ratio and NFA Distribution Bias - *Continued*

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Figure 14: Regional Retail Price Ratio and NFA Distribution Bias - *Continued*

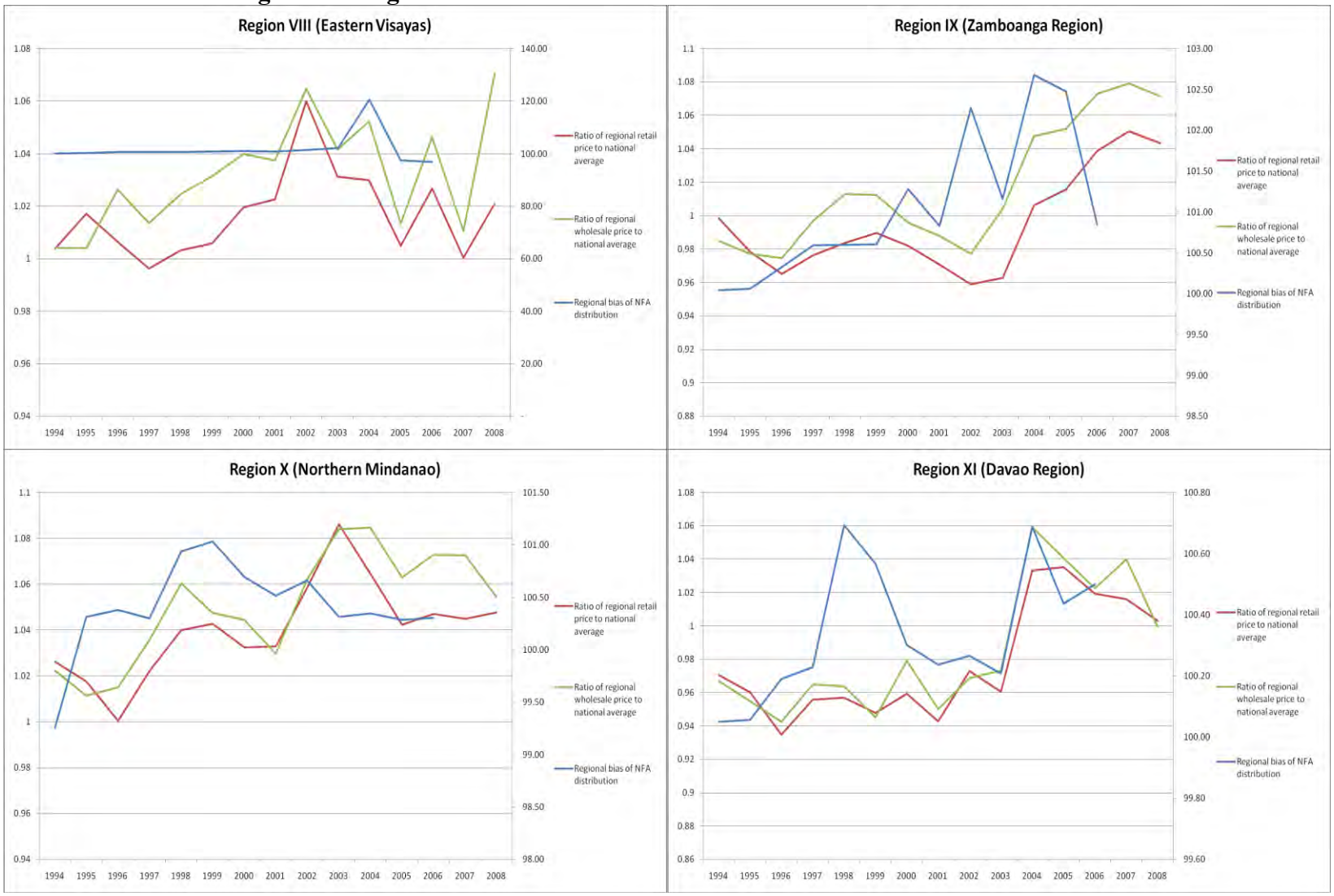

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Figure 14: Regional Retail Price Ratio and NFA Distribution Bias - *Continued*

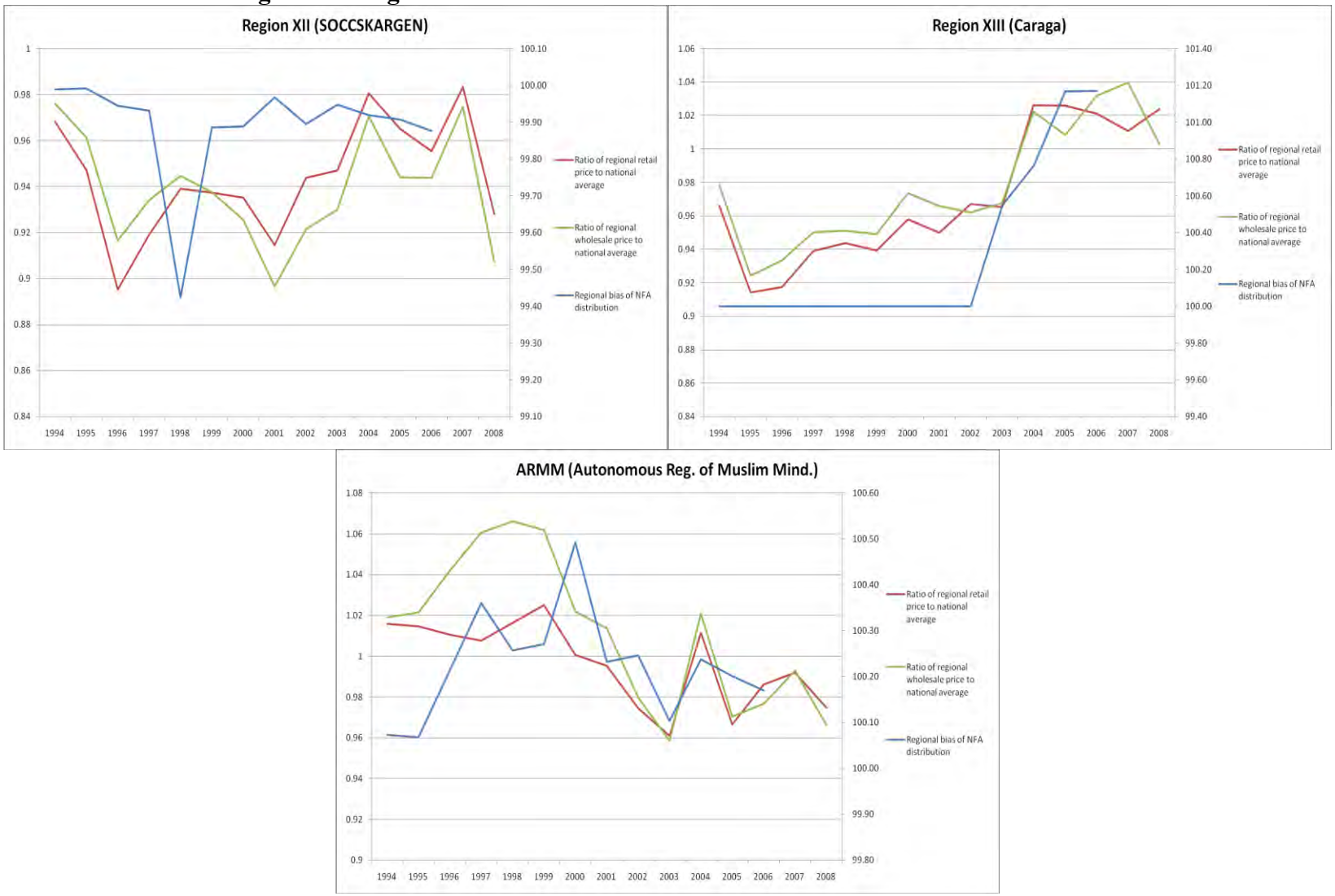

Table A.1a: Standard Deviation of Rice Farm Gate Prices (Deflated), by Region

Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Philippines	0.76	1.04	0.76	0.66	0.56	1.54	1.94	0.84	1.07	0.87	0.87	0.49	0.75	0.64	0.80	0.92	0.70	0.58	2.15
NCR	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
CAR	0.83	0.85	1.57	1.39	0.76	1.97	2.42	1.35	0.82	1.54	1.17	0.79	0.66	0.78	0.93	1.09	0.99	0.73	2.58
1	0.58	1.60	1.05	0.99	1.07	2.79	3.10	1.07	1.02	1.16	1.04	0.94	0.94	1.00	1.15	1.11	0.85	0.69	1.78
2	1.45	0.87	1.03	0.94	0.73	2.15	2.71	1.15	1.25	1.42	1.43	0.74	1.24	0.90	1.15	1.16	0.63	0.83	2.71
3	0.50	1.06	0.36	1.01	1.03	2.41	3.06	0.94	0.92	1.17	0.91	0.55	0.91	1.00	1.11	1.01	0.98	1.05	2.65
4-A	0.78	1.41	0.68	0.95	0.87	2.24	2.80	0.77	0.94	0.88	1.00	0.92	0.61	0.24	0.62	0.57	0.71	0.48	2.51
4-B	0.99	0.95	0.78	0.97	0.82	2.98	1.59	1.21	1.61	0.71	0.75	0.49	0.55	1.09	0.78	1.14	0.68	0.85	2.03
5	1.15	1.18	0.99	0.92	0.45	1.78	1.89	0.82	1.01	1.00	0.97	0.68	0.45	0.97	1.35	0.94	0.69	0.43	1.92
6	1.62	1.63	1.32	1.18	0.95	1.63	1.92	1.31	1.65	0.59	1.05	0.62	1.03	1.17	0.73	1.43	1.11	1.02	1.58
7	1.02	2.20	1.17	0.72	0.51	1.22	1.19	1.13	1.11	0.94	1.67	0.85	0.81	0.86	1.58	1.45	0.95	0.85	2.19
8	0.77	1.06	1.29	1.34	0.59	2.14	1.69	0.80	1.34	0.63	1.04	0.37	0.18	0.23	0.71	0.82	0.30	0.79	1.64
9	1.61	1.43	1.55	0.86	0.83	1.16	2.24	0.71	1.67	0.81	0.98	0.58	0.92	0.50	1.36	1.33	0.99	0.99	2.02
10	1.37	1.07	0.96	0.63	0.75	1.30	1.68	0.68	1.13	0.76	0.69	0.91	0.89	0.58	1.56	0.78	0.83	0.67	2.02
11	0.71	0.87	0.95	0.77	0.83	1.52	1.47	0.59	1.06	0.56	0.99	0.66	0.94	0.46	1.56	1.12	0.71	0.56	2.03
12	1.10	1.45	1.48	0.74	0.88	1.44	1.50	0.72	1.21	0.83	1.22	0.56	1.11	0.99	1.40	1.19	1.01	1.09	1.94
13	0.48	0.75	0.61	0.34	0.70	1.50	1.64	0.81	1.01	0.71	0.94	0.55	1.37	0.58	1.67	1.16	0.50	0.51	1.78
ARMM	0.61	0.98	0.65	0.50	0.89	1.19	1.17	1.27	1.59	0.72	0.57	0.56	1.08	0.95	1.17	0.87	1.34	0.62	2.92
Philippines	0.76	1.04	0.76	0.66	0.56	1.54	1.94	0.84	1.07	0.87	0.87	0.49	0.75	0.64	0.80	0.92	0.70	0.58	2.15

Table A.1b: Standard Deviation of Rice Wholesale Prices (Deflated), by Region

Region	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Philippines	0.55	0.85	0.78	0.92	0.57	2.81	1.16	0.48	0.35	0.43	0.43	0.25	0.46	0.37	0.45	0.57	0.25	0.34	2.13
NCR	0.82	0.55	0.84	1.44	1.46	3.44	2.01	0.54	0.46	0.25	0.29	0.16	0.52	0.25	0.50	0.29	0.17	0.81	2.27
CAR	1.27	0.52	0.29	1.61	0.50	3.84	0.80	0.80	0.24	0.54	0.44	0.26	0.74	0.21	1.00	0.29	0.16	0.68	2.08
1	0.72	0.90	0.42	1.60	0.68	3.52	1.20	0.91	0.34	0.39	0.43	0.43	0.39	0.20	0.12	0.54	0.44	0.69	2.42
2	0.65	0.50	0.50	0.90	0.63	3.13	1.24	0.65	0.28	0.62	0.60	0.19	0.72	0.55	0.61	0.44	0.13	1.41	1.73
3	0.35	0.61	0.38	1.56	0.34	3.49	0.76	0.35	0.28	0.33	0.35	0.20	0.43	0.28	0.38	0.53	0.12	0.31	2.04
4-A	0.27	0.88	0.66	0.55	0.21	4.03	1.00	0.48	0.81	0.40	0.32	0.27	0.29	0.31	0.49	0.41	0.12	0.60	1.90
4-B	0.33	1.01	0.47	1.12	0.34	3.99	0.75	0.46	0.27	0.26	0.28	0.36	0.29	0.48	0.41	0.97	0.26	0.54	2.00
5	0.61	1.14	1.00	1.52	0.54	3.28	1.73	0.43	0.38	0.71	0.41	0.29	0.35	0.35	0.23	0.60	0.23	0.50	2.09
6	1.51	1.18	1.01	1.55	0.51	2.63	1.58	1.29	1.02	0.48	0.93	0.49	0.79	0.68	0.44	1.28	0.81	0.82	1.95
7	0.54	1.16	1.14	1.06	1.27	3.21	1.48	0.56	0.49	0.69	0.66	0.36	0.45	0.28	0.44	0.65	0.27	0.40	2.43
8	0.89	0.84	1.55	1.01	0.77	3.12	1.37	0.36	0.42	0.42	0.42	0.34	0.39	0.31	0.44	0.28	0.18	0.31	2.27
9	1.01	0.91	0.85	0.58	0.95	1.85	1.15	0.49	0.70	0.38	0.50	0.13	0.26	0.38	0.68	0.74	0.31	0.21	2.73
10	0.96	1.42	1.29	0.72	1.06	2.32	1.21	0.49	0.61	0.71	0.64	0.35	0.90	0.47	0.58	0.58	0.36	0.38	2.64
11	0.69	0.97	1.25	0.53	0.78	2.26	1.25	0.85	1.04	0.73	0.85	0.46	1.29	0.88	1.21	1.10	0.57	0.48	2.96
12	0.85	1.30	1.69	0.43	0.94	1.76	1.28	0.82	0.75	0.60	0.57	0.63	1.33	1.11	1.45	1.45	1.06	0.90	2.84
13	0.58	1.16	1.19	0.51	1.08	1.55	0.91	0.76	0.50	0.31	0.44	0.29	0.80	0.48	0.78	0.53	0.19	0.24	2.85
ARMM	0.43	1.22	1.24	0.82	1.02	2.54	1.22	0.38	0.37	0.26	0.55	0.30	0.23	0.39	0.55	0.22	0.39	0.56	2.20

Table A.1c: Standard Deviation of Rice Retail Prices (Deflated), by Region

	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
Philippines	0.36	0.72	0.78	0.93	0.48	3.28	0.90	0.41	0.33	0.35	0.35	0.21	0.51	0.28	0.35	0.43	0.15	0.34	2.25
NCR	0.49	0.55	0.56	1.08	0.54	3.52	0.34	0.39	0.59	0.18	0.41	0.22	0.30	0.20	0.45	0.25	0.16	0.58	2.23
CAR	0.76	0.64	0.39	1.43	0.57	3.74	1.03	0.50	0.22	0.34	0.37	0.25	0.63	0.10	0.56	0.37	0.18	0.83	2.12
1	0.67	0.67	0.35	1.61	0.68	3.94	1.13	0.62	0.19	0.39	0.37	0.48	0.39	0.25	0.32	0.29	0.30	0.37	2.43
2	0.61	0.65	0.33	1.24	0.58	3.61	1.10	0.56	0.32	0.40	0.48	0.16	0.94	0.36	0.33	0.30	0.18	1.26	1.91
3	0.27	0.56	0.39	1.59	0.35	3.64	0.79	0.30	0.27	0.26	0.36	0.22	0.48	0.35	0.30	0.29	0.18	0.40	2.17
4-A	0.45	0.53	1.20	0.46	0.27	4.28	0.65	0.37	0.72	0.36	0.48	0.38	0.40	0.32	0.53	0.33	0.11	0.73	1.87
4-B	0.32	0.56	0.42	1.17	0.29	4.15	0.57	0.26	0.42	0.23	0.28	0.26	0.26	0.28	0.26	0.81	0.13	0.38	1.98
5	0.36	1.07	1.16	1.55	0.43	5.03	1.68	0.28	0.64	0.48	0.29	0.25	0.24	0.34	0.25	0.61	0.21	0.36	1.85
6	1.80	0.99	0.77	1.34	0.43	3.46	0.98	0.94	0.58	0.32	0.78	0.33	0.73	0.68	0.57	1.10	0.55	0.60	1.92
7	0.54	1.63	0.60	0.84	1.11	3.24	1.53	0.42	0.24	0.47	0.60	0.28	0.42	0.14	0.29	0.57	0.09	0.39	2.39
8	0.78	0.50	1.51	0.67	0.78	3.39	1.45	0.49	0.40	0.47	0.38	0.34	0.57	0.33	0.37	0.24	0.19	0.22	2.34
9	0.70	0.84	1.06	0.42	1.18	1.89	0.97	0.36	0.58	0.39	0.54	0.24	0.34	0.29	0.62	0.60	0.23	0.25	2.63
10	0.57	1.20	1.05	0.73	1.03	2.60	0.76	0.24	0.57	0.49	0.58	0.20	0.75	0.36	0.49	0.30	0.19	0.17	2.91
11	0.59	1.02	1.48	0.74	0.72	2.49	0.83	0.59	0.78	0.41	0.50	0.34	1.51	0.75	1.13	0.71	0.33	0.29	3.30
12	0.54	0.81	1.33	0.62	0.68	2.00	0.92	0.60	0.70	0.57	0.67	0.25	0.96	0.71	1.03	1.13	0.56	0.61	3.17
13	0.45	1.02	1.45	0.45	0.82	1.70	0.76	0.63	0.44	0.35	0.36	0.27	1.01	0.45	0.71	0.28	0.15	0.16	3.08
ARMM	0.39	1.07	1.18	0.57	0.79	2.70	1.16	0.26	0.28	0.36	0.24	0.31	0.25	0.30	0.59	0.18	0.33	0.43	2.62

Table A.3a: Ravallion Regressions: Monthly Farm Price (Dry Season)

	(1) fphil	(2) freg1	(3) freg2	(4) freg3	(5) freg4a	(6) freg4b	(7) freg5	(8) freg6
Farm price, previous pd.	0.673***	0.770***	0.655***	0.606***	0.411**	0.440**	0.714***	0.695***
	(0.103)	(0.0895)	(0.0870)	(0.144)	(0.140)	(0.139)	(0.158)	(0.107)
Wholesale price, previous pd.	0.205*	0.132	0.248**	0.235	0.427**	0.356**	0.172	0.165
	(0.0906)	(0.0896)	(0.0817)	(0.137)	(0.125)	(0.111)	(0.125)	(0.101)
Change in wholesale price	0.759***	0.657***	0.294	0.132	1.085**	0.905**	0.630*	0.646***
	(0.207)	(0.178)	(0.183)	(0.560)	(0.369)	(0.274)	(0.239)	(0.172)
Ratio of Procurement and Production	-19.58	-23.92	-27.67	-18.18	-13.51	-13.82	-8.670	-111.4
	(20.00)	(41.31)	(20.87)	(27.38)	(24.02)	(16.51)	(12.97)	(74.20)
dum9596	0.239	0.444*	0.542	0.720	-0.0312	0.469	0.252	0.612*
	(0.169)	(0.216)	(0.284)	(0.367)	(0.467)	(0.335)	(0.352)	(0.240)
dum9799	-0.0463	0.0486	-0.0523	-0.0893	-0.455	0.181	0.00114	0.234
	(0.139)	(0.161)	(0.209)	(0.304)	(0.415)	(0.279)	(0.251)	(0.182)
_cons	0.895	1.134*	0.865	1.480	0.0816	1.121	0.546	1.466
	(0.524)	(0.506)	(0.744)	(1.019)	(1.089)	(1.004)	(0.929)	(0.752)
N	52	52	52	52	52	52	52	52
adj. R^2	0.973	0.977	0.948	0.906	0.871	0.891	0.905	0.957
Durbin's alternative test for autocorrelation								
chi2	0.275	1.997	0.415	0.810	0.947	3.580	0.142	0.342
Prob > chi2	0.6001	0.1576	0.5195	0.3682	0.3304	0.0585	0.7065	0.5588

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

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Table A.3a: Ravallion Regressions: Monthly Farm Price (Dry Season) - *Continued*

	(9) freg7^	(10) freg8^	(11) freg9	(12) freg10	(13) freg11	(14) freg12	(15) freg13	(16) farmm^
Farm price, previous pd.	0.870***	0.510***	0.573***	0.720***	0.361*	0.491**	0.383**	0.594***
	(0.154)	(0.0982)	(0.139)	(0.106)	(0.160)	(0.157)	(0.129)	(0.123)
Wholesale price, previous pd.	-0.000836	0.244*	0.266	0.129	0.393*	0.455*	0.424**	0.188
	(0.0820)	(0.121)	(0.151)	(0.0943)	(0.163)	(0.176)	(0.128)	(0.101)
Change in wholesale price	0.304	0.382	0.218	0.473*	0.891**	0.861***	0.688**	-0.0653
	(0.153)	(0.320)	(0.284)	(0.221)	(0.310)	(0.177)	(0.246)	(0.172)
Ratio of Procurement and Production	498.7	-113.1	-84.89	-29.36	36.55	-51.75	-2280.1***	12.71
	(633.1)	(87.61)	(99.24)	(30.15)	(58.45)	(56.76)	(579.0)	(27.95)
dum9596	0.0124	0.335	-0.0173	-0.0436	0.519	-0.163	0.216	-0.111
	(0.394)	(0.413)	(0.438)	(0.299)	(0.395)	(0.343)	(0.355)	(0.515)
dum9799	-0.367	0.0441	-0.264	-0.215	0.370	0.0467	-0.144	-0.145
	(0.302)	(0.344)	(0.401)	(0.268)	(0.316)	(0.215)	(0.272)	(0.369)
_cons	2.082	1.579	1.051	1.558	1.140	-0.379	0.526	1.908
	(1.359)	(1.806)	(1.592)	(1.019)	(1.516)	(1.051)	(1.304)	(0.988)
N	52	52	52	52	52	52	52	52
adj. R^2			0.789	0.865	0.774	0.947	0.838	
Durbin's alternative test for autocorrelation								
chi2			2.124	0.208	0.671	0.027	1.189	
Prob > chi2			0.1450	0.6480	0.4128	0.8698	0.2755	

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table A.3b: Ravallion Regressions: Monthly Farm Price (Harvest Season)

	(1) fphil	(2) freg1	(3) freg2	(4) freg3	(5) freg4a	(6) freg4b	(7) freg5	(8) freg6
fphilp	0.700***	0.123	0.275*	0.657***	0.514**	0.270	0.319*	0.391***
	(0.149)	(0.182)	(0.126)	(0.132)	(0.163)	(0.137)	(0.128)	(0.106)
wphilp	0.184	0.379	0.406**	0.0182	0.182	0.443***	0.438***	0.559***
	(0.114)	(0.200)	(0.135)	(0.128)	(0.113)	(0.111)	(0.105)	(0.0931)
wphilch	0.620***	0.844*	0.609**	0.257	-0.226	0.494**	1.242***	1.025***
	(0.152)	(0.324)	(0.221)	(0.316)	(0.240)	(0.150)	(0.265)	(0.160)
procphil	-34.51	-60.05	-149.1**	-27.61	-12.96	-9.438	-59.83**	-73.65*
	(23.49)	(33.08)	(44.08)	(30.46)	(11.55)	(7.855)	(21.88)	(31.10)
dum9596	0.200	1.620*	0.711	1.435*	0.0296	0.400	0.342	-0.381
	(0.294)	(0.703)	(0.461)	(0.621)	(0.592)	(0.345)	(0.353)	(0.283)
dum9799	-0.0994	0.662	0.311	0.546	0.120	-0.126	-0.0370	-0.404*
	(0.209)	(0.474)	(0.296)	(0.431)	(0.384)	(0.244)	(0.230)	(0.174)
_cons	0.739	4.972*	2.362	3.951*	2.633*	1.099	0.345	-1.156
	(0.843)	(1.922)	(1.222)	(1.566)	(1.177)	(0.842)	(0.884)	(0.781)
N	52	52	52	52	52	52	52	52
adj. R^2	0.932	0.703	0.867	0.772	0.811	0.931	0.914	0.944
Durbin's alternative test for autocorrelation								
chi2	0.912	0.000	0.250	1.728	0.545	0.144	0.763	0.050
Prob > chi2	0.3395	0.9877	0.6169	0.1887	0.4602	0.7039	0.3823	0.8224

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Continued on next page.

Table A.3b: Ravallion Regressions: Monthly Farm Price (Harvest Season) - *Continued*

	(9) freg7	(10) freg8	(11) freg9	(12) freg10	(13) freg11	(14) freg12^	(15) freg13	(16) farmm
freg7p	0.247*	0.194	0.491***	0.516***	0.458***	0.650***	0.584***	0.358*
	(0.110)	(0.130)	(0.120)	(0.117)	(0.127)	(0.116)	(0.108)	(0.137)
wreg7p	0.0894	0.492***	0.389**	0.386***	0.441***	0.241*	0.212	0.465**
	(0.0737)	(0.115)	(0.129)	(0.0909)	(0.112)	(0.0994)	(0.116)	(0.148)
wreg7ch	0.447*	0.214	0.973***	0.813***	0.811***	0.743***	0.618***	0.712
	(0.179)	(0.175)	(0.217)	(0.124)	(0.104)	(0.143)	(0.151)	(0.395)
procreg7	-1128.8**	-1095.3	-89.10	-25.32	20.21	-18.94	-454.7	-8.068
	(353.9)	(749.8)	(57.25)	(40.69)	(15.31)	(10.04)	(769.8)	(25.31)
dum9596	1.114*	0.0345	-0.307	-0.292	-0.170	0.526*	0.632	-1.204
	(0.513)	(0.457)	(0.524)	(0.349)	(0.292)	(0.228)	(0.347)	(0.812)
dum9799	0.522	0.209	-0.246	-0.683**	-0.0548	0.306*	0.0221	-0.667
	(0.294)	(0.294)	(0.394)	(0.246)	(0.181)	(0.144)	(0.237)	(0.619)
_cons	7.823***	0.874	-0.404	-0.865	-0.916	0.749	1.104	-0.223
	(1.629)	(1.343)	(1.910)	(1.330)	(0.902)	(0.578)	(1.238)	(2.206)
N	52	52	52	52	52	52	52	52
adj. R^2	0.606	0.837	0.750	0.850	0.922		0.878	0.511
Durbin's alternative test for autocorrelation								
chi2	0.626	0.001	0.005	0.177	0.346		0.032	3.413
Prob > chi2	0.4290	0.9757	0.9437	0.6742	0.5562		0.8572	0.0647

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

^Newey-West HAC Standard Errors

Table A. 3c: Ravallion Farm Price (Off Season)

	(1) fphil	(2) freg1	(3) freg2	(4) freg3	(5) freg4a	(6) freg4b	(7) freg5	(8) freg6
Farm price, previous pd.	1.217***	0.531*	0.741***	0.625***	0.661**	0.651**	0.457**	0.739***
	(0.164)	(0.210)	(0.185)	(0.169)	(0.188)	(0.194)	(0.147)	(0.133)
Wholesale price, previous pd.	-0.264	0.155	0.0919	0.0180	0.0910	-0.0541	0.109	0.00214
	(0.133)	(0.187)	(0.187)	(0.150)	(0.125)	(0.233)	(0.146)	(0.122)
Change in wholesale price	0.683***	1.112***	0.700**	0.995***	0.338	1.045***	0.990***	0.756***
	(0.142)	(0.217)	(0.211)	(0.210)	(0.197)	(0.196)	(0.161)	(0.111)
Ratio of Procurement and Prod'n	119.1	105.3	54.88	67.38	-21.32	21.65	-48.36	-94.63
	(95.96)	(167.4)	(165.0)	(106.0)	(60.07)	(76.07)	(45.34)	(138.1)
dum9596	0.162	1.141	0.361	0.507	0.866	1.560	0.847	0.464
	(0.442)	(0.718)	(0.723)	(0.822)	(0.596)	(0.784)	(0.634)	(0.490)
dum9799	0.316	0.215	0.164	0.403	0.251	0.919	0.474	0.362
	(0.270)	(0.430)	(0.448)	(0.484)	(0.388)	(0.516)	(0.372)	(0.308)
_cons	1.235	3.873*	1.724	4.698*	2.696	5.040*	4.314**	2.939*
	(1.298)	(1.682)	(2.000)	(2.149)	(1.380)	(2.311)	(1.578)	(1.402)
N	52	52	52	52	52	52	52	52
adj. R^2	0.893	0.871	0.776	0.731	0.842	0.842	0.816	0.881
Durbin's alternative test for autocorrelation								
chi2	0.021	1.454	1.750	1.878	1.440	0.042	0.444	1.832
Prob > chi2	0.2280	0.1858	0.1706	0.2301	0.9578	0.8371	0.5051	0.1758

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Continued on next page.

Table A. 3c: Ravallion Farm Price (Off Season) - *Continued*

	(9) freg7	(10) freg8^	(11) freg9	(12) freg10^	(13) freg11^	(14) freg12	(15) freg13	(16) farmm
Farm price, previous pd.	0.730***	0.433	0.475**	0.594**	0.503*	0.810***	0.276	0.583***
	(0.134)	(0.227)	(0.169)	(0.208)	(0.192)	(0.157)	(0.162)	(0.145)
Wholesale price, previous pd.	-0.0595	0.311	0.112	0.0933	0.309	-0.0302	0.336	0.242
	(0.132)	(0.167)	(0.199)	(0.171)	(0.206)	(0.174)	(0.191)	(0.141)
Change in wholesale price	0.341	0.865***	0.984***	0.718**	0.657***	0.774***	1.073***	-0.0890
	(0.207)	(0.185)	(0.255)	(0.207)	(0.140)	(0.107)	(0.234)	(0.328)
Ratio of Procurement and Prod'n	-379.5	-2396.3	-170.2	-177.2	-69.90	-37.72	-5174.8	-17.21
	(925.7)	(1812.0)	(102.3)	(153.4)	(53.41)	(46.07)	(5489.5)	(75.01)
dum9596	0.978	-0.285	0.375	0.429	0.242	0.510	0.629	-0.930
	(0.948)	(0.630)	(0.778)	(0.587)	(0.513)	(0.438)	(0.548)	(0.939)
dum9799	0.247	0.437	0.223	0.299	0.0353	0.261	-0.325	-0.581
	(0.541)	(0.632)	(0.544)	(0.412)	(0.271)	(0.270)	(0.399)	(0.638)
_cons	4.332	1.407	4.701	3.338	0.707	2.834	3.314	1.151
	(2.664)	(1.914)	(2.766)	(2.291)	(1.774)	(1.510)	(2.240)	(2.319)
N	52	52	52	52	52	52	52	52
adj. R^2	0.508		0.617			0.912	0.682	0.446
Durbin's alternative test for autocorrelation								
chi2	0.348		1.221			1.769	1.463	0.021
Prob > chi2	0.5554		0.2692			0.1835	0.2265	0.8844

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table A.4a: Ravallion Regressions: Monthly Retail Price (Dry Season)

	(1) rphil	(2) rmm	(3) rcar	(4) rreg1	(5) rreg2	(6) rreg3^	(7) rreg4a	(8) rreg4b	(9) rreg5
Retail price, previous pd.	0.693***	0.804***	0.853***	0.869***	0.636***	0.591***	0.872***	0.665***	0.821***
	(0.0729)	(0.0526)	(0.0845)	(0.0738)	(0.0864)	(0.146)	(0.0573)	(0.0821)	(0.0462)
Wholesale price, previous pd.	0.318***	0.182***	0.196*	0.128	0.375***	0.425**	0.131*	0.366***	0.182***
	(0.0729)	(0.0471)	(0.0791)	(0.0725)	(0.0929)	(0.144)	(0.0608)	(0.0830)	(0.0501)
Change in wholesale price	0.914***	0.437***	0.701***	0.963***	0.813***	1.071***	0.738***	0.882***	0.749***
	(0.0304)	(0.0552)	(0.0803)	(0.0548)	(0.0702)	(0.0378)	(0.0558)	(0.0479)	(0.0466)
dum9596	-0.0252	0.0526	-0.210	-0.00793	0.0895	0.214	-0.0332	-0.00155	0.0340
	(0.0493)	(0.166)	(0.160)	(0.101)	(0.152)	(0.206)	(0.114)	(0.103)	(0.0944)
dum9799	0.0541	0.128	-0.225	0.0249	0.0200	0.126	0.0432	0.112	0.0722
	(0.0428)	(0.141)	(0.114)	(0.0881)	(0.120)	(0.0954)	(0.0958)	(0.0997)	(0.0716)
_cons	0.282	0.661	-0.531	0.225	0.342	0.333	0.146	-0.0280	0.274
	(0.182)	(0.512)	(0.450)	(0.296)	(0.386)	(0.446)	(0.262)	(0.316)	(0.227)
N	76	76	76	76	76	76	76	76	76
adj. R^2	0.998	0.978	0.977	0.989	0.980		0.993	0.991	0.994
Durbin's alternative test for autocorrelation									
chi2	0.111	0.853	0.403	2.418	0.023		0.187	2.292	0.167
Prob > chi2	0.7385	0.3556	0.5253	0.1199	0.8799		0.6655	0.1300	0.6827

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

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Table A.4a: Ravallion Regressions: Monthly Retail Price (Dry Season) - *Continued*

	(10) rreg6	(11) rreg7	(12) rreg8	(13) rreg9^	(14) rreg10	(15) rreg11	(16) rreg12	(17) rreg13	(18) rarmm
Retail price, previous pd.	0.891***	0.803***	0.704***	0.632***	0.651***	0.470***	0.414***	0.759***	0.562***
	(0.0543)	(0.0446)	(0.0776)	(0.0772)	(0.0893)	(0.0810)	(0.0837)	(0.0674)	(0.0983)
Wholesale price, previous pd.	0.0925	0.277***	0.234**	0.371***	0.368***	0.516***	0.574***	0.269***	0.419***
	(0.0504)	(0.0596)	(0.0715)	(0.0767)	(0.0833)	(0.0784)	(0.0777)	(0.0665)	(0.0942)
Change in wholesale price	0.795***	0.671***	0.580***	0.876***	0.767***	0.763***	0.662***	0.799***	0.865***
	(0.0524)	(0.0790)	(0.0709)	(0.0678)	(0.0606)	(0.0490)	(0.0483)	(0.0497)	(0.0582)
dum9596	0.154	-0.281	0.195	0.143	-0.0441	0.137	-0.326**	-0.0671	0.165
	(0.109)	(0.196)	(0.154)	(0.0915)	(0.136)	(0.0996)	(0.109)	(0.0858)	(0.146)
dum9799	0.0348	-0.384*	0.201	-0.0100	0.0360	0.221*	0.0168	-0.0252	-0.131
	(0.0956)	(0.160)	(0.118)	(0.0681)	(0.117)	(0.0861)	(0.0823)	(0.0695)	(0.120)
_cons	0.489	-0.919	1.488**	0.381	0.226	0.921*	1.226**	-0.112	0.946*
	(0.368)	(0.493)	(0.478)	(0.312)	(0.521)	(0.350)	(0.398)	(0.326)	(0.441)
N	76	76	76	76	76	76	76	76	76
adj. R^2	0.985	0.977	0.978		0.979	0.987	0.984	0.987	0.983
Durbin's alternative test for autocorrelation									
chi2	0.006	0.974	0.010		0.016	0.284	0.557	0.071	0.044
Prob > chi2	0.9406	0.3238	0.9221		0.8984	0.5940	.4554	0.7895	0.8339

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table A.4b: Ravallion Regressions: Monthly Retail Price (Harvest Season)

	(1) rphil^	(2) rmm	(3) rcar	(4) rreg1	(5) rreg2	(6) rreg3	(7) rreg4a	(9) rreg5	(8) rreg4b^
Retail price, previous pd.	0.636***	0.564***	0.681***	0.638***	0.749***	0.683***	0.767***	0.716***	0.653***
	(0.102)	(0.0900)	(0.0794)	(0.0726)	(0.0883)	(0.0812)	(0.0550)	(0.0482)	(0.0686)
Wholesale price, previous pd.	0.354**	0.452***	0.265***	0.281***	0.244*	0.292***	0.234***	0.284***	0.337***
	(0.106)	(0.0967)	(0.0762)	(0.0788)	(0.101)	(0.0827)	(0.0601)	(0.0588)	(0.0711)
Change in wholesale price	0.614***	0.580***	0.563***	0.724***	0.707***	0.779***	0.754***	0.642***	0.628***
	(0.0517)	(0.148)	(0.0633)	(0.0681)	(0.0746)	(0.0645)	(0.0611)	(0.0842)	(0.129)
dum9596	0.133	0.628	0.0326	0.410**	-0.0227	0.282*	-0.0402	0.106	0.101
	(0.113)	(0.418)	(0.161)	(0.153)	(0.155)	(0.123)	(0.149)	(0.144)	(0.213)
dum9799	0.0348	-0.120	0.0816	0.395***	-0.0192	0.129	0.0578	0.0759	0.0597
	(0.0476)	(0.290)	(0.101)	(0.108)	(0.101)	(0.0880)	(0.1000)	(0.0836)	(0.128)
_cons	0.721**	0.685	1.279**	1.737***	0.442	0.874**	0.335		0.721
	(0.244)	(1.107)	(0.431)	(0.380)	(0.410)	(0.313)	(0.286)	0.482	(0.573)
N	75	75	75	75	75	75	75	(0.304)	75
adj. R^2		0.913	0.981	0.984	0.983	0.993	0.994	75	
Durbin's alternative test for autocorrelation									
chi2		0.112	0.088	2.962	0.047	0.004	0.342	1.909	
Prob > chi2		0.7382	0.7663	0.0852	0.8289	0.9523	0.5585	0.1670	

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

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Table A.4b: Ravallion Regressions: Monthly Retail Price (Harvest Season) - *Continued*

	(9) rreg5	(10) rreg6	(11) rreg7	(12) rreg8	(13) rreg9^	(14) rreg10	(15) rreg11	(16) rreg12^	(17) rreg13	(18) rarmm
Retail price, previous pd.	0.716***	0.910***	0.954***	0.682***	0.669***	0.767***	0.503***	0.498***	0.776***	0.921***
	(0.0482)	(0.0463)	(0.0512)	(0.0918)	(0.0794)	(0.0635)	(0.0790)	(0.108)	(0.0429)	(0.0492)
Wholesale price, previous pd.	0.284***	0.0547	0.0321	0.317***	0.344***	0.195*	0.476***	0.444***	0.191***	0.0935*
	(0.0588)	(0.0529)	(0.0754)	(0.0916)	(0.0844)	(0.0750)	(0.0854)	(0.0903)	(0.0492)	(0.0432)
Change in wholesale price	0.642***	0.737***	0.322**	0.796***	0.641***	0.577***	0.719***	0.578***	0.566***	0.586***
	(0.0842)	(0.0555)	(0.0985)	(0.0673)	(0.0774)	(0.0519)	(0.0539)	(0.0806)	(0.0560)	(0.0763)
dum9596	0.106	-0.142	-0.0281	0.0874	-0.00716	0.0642	0.335*	0.0375	0.0524	-0.171
	(0.144)	(0.139)	(0.258)	(0.171)	(0.103)	(0.146)	(0.154)	(0.133)	(0.115)	(0.215)
dum9799	0.0759	0.0585	0.0197	-0.0280	-0.0337	0.0221	0.191	-0.0405	0.0427	-0.0957
	(0.0836)	(0.0977)	(0.161)	(0.114)	(0.0801)	(0.107)	(0.0996)	(0.0980)	(0.0779)	(0.0823)
_cons	0.482	0.707	0.174	0.463	0.194	0.994*	1.079*	1.802**	0.835*	-0.00719
	(0.304)	(0.384)	(0.633)	(0.502)	(0.347)	(0.486)	(0.471)	(0.621)	(0.402)	(0.425)
N	75	75	75	75	75	75	75	75	75	75
adj. R^2	0.993	0.984	0.976	0.980		0.980	0.979		0.981	
Durbin's alternative test for autocorrelation										
chi2	1.909	0.003	0.773	1.365		1.824	0.887		1.227	
Prob > chi2	0.1670	0.9563	0.3792	0.2427		0.1769	0.3462		0.2680	

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table A.4c: Ravallion Regressions: Monthly Retail Price (Off Season)

	(1) rphil	(2) rmm	(3) rcar	(4) rreg1	(5) rreg2^	(6) rreg3	(7) rreg4a	(8) rreg4b	(9) rreg5
Retail price, previous pd.	0.635***	0.544***	0.547***	0.922***	0.546***	0.733***	0.896***	0.674***	0.900***
	(0.120)	(0.0946)	(0.0801)	(0.0734)	(0.121)	(0.0890)	(0.0693)	(0.0758)	(0.125)
Wholesale price, previous pd.	0.422**	0.451***	0.434***	0.0934	0.500***	0.266**	0.131	0.333***	0.203
	(0.126)	(0.0905)	(0.0838)	(0.0685)	(0.131)	(0.0933)	(0.0729)	(0.0790)	(0.135)
Change in wholesale price	1.000***	0.768***	0.878***	1.086***	0.999***	1.007***	0.939***	0.786***	1.054***
	(0.0327)	(0.0710)	(0.0459)	(0.0501)	(0.0786)	(0.0342)	(0.0610)	(0.0304)	(0.0666)
dum9596	0.00278	0.152	0.616***	0.0638	0.00712	0.0513	0.0531	0.330**	0.108
	(0.0924)	(0.273)	(0.172)	(0.141)	(0.161)	(0.115)	(0.186)	(0.112)	(0.265)
dum9799	-0.0609	0.125	0.0130	-0.0293	-0.0684	0.103	0.00480	0.128	-0.287
	(0.0638)	(0.200)	(0.114)	(0.0996)	(0.0704)	(0.0807)	(0.136)	(0.0851)	(0.169)
									-1.514*
_cons	-0.394	0.863	0.893*	-0.139	-0.0789	0.418	-0.292	0.337	(0.606)
	(0.257)	(0.704)	(0.381)	(0.361)	(0.382)	(0.275)	(0.399)	(0.278)	76
N	76	76	76	76	76	76	76	76	0.972
adj. R^2	0.995	0.960	0.983	0.989		0.994	0.987	0.994	0.458
Durbin's alternative test for autocorrelation									
chi2	0.997	2.308	0.730	1.403		3.551	0.063	0.019	0.4985
Prob > chi2	0.3180	.1287	0.3929	0.2363		0.0595	0.8025	0.8894	

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Continued on next page.

Table A.4c: Ravallion Regressions: Monthly Retail Price (Off Season) - *Continued*

	(10) rreg6	(11) rreg7^	(12) rreg8	(13) rreg9	(14) rreg10	(15) rreg11	(16) rreg12	(17) rreg13	(18) rarmm
Retail price, previous pd.	0.925***	0.791***	0.428***	0.686***	0.561***	0.661***	0.462***	0.651***	0.725***
	(0.105)	(0.0698)	(0.0943)	(0.112)	(0.105)	(0.0961)	(0.103)	(0.126)	(0.0894)
Wholesale price, previous pd.	0.137	0.261**	0.525***	0.319**	0.486***	0.447***	0.597***	0.448**	0.281**
	(0.103)	(0.0763)	(0.0943)	(0.113)	(0.111)	(0.103)	(0.110)	(0.139)	(0.0933)
Change in wholesale price	1.064***	0.826***	1.151***	0.866***	0.893***	0.998***	0.788***	0.953***	0.920***
	(0.0608)	(0.101)	(0.0488)	(0.0552)	(0.0587)	(0.0367)	(0.0418)	(0.0389)	(0.0614)
dum9596	0.121	-0.190	0.412*	0.301*	0.0552	-0.310*	-0.306	-0.268	-0.0902
	(0.248)	(0.277)	(0.169)	(0.147)	(0.185)	(0.151)	(0.193)	(0.135)	(0.157)
dum9799	-0.0152	-0.147	0.128	-0.00608	-0.155	-0.298**	-0.243	-0.241*	-0.162
	(0.176)	(0.102)	(0.110)	(0.104)	(0.133)	(0.112)	(0.133)	(0.102)	(0.129)
_cons	-0.776	-0.397	1.546***	0.307	-0.181	-1.311**	-0.115	-1.145**	0.320
	(0.696)	(0.493)	(0.424)	(0.406)	(0.538)	(0.433)	(0.555)	(0.395)	(0.378)
N	76	76	76	76	76	76	76	76	76
adj. R^2	0.957		0.983	0.981	0.971	0.977	0.961	0.977	0.987
Durbin's alternative test for autocorrelation									
chi2	2.282		0.005	0.121	2.680	0.300	0.099	0.189	1.445
Prob > chi2	0.1309		0.9458	0.7277	0.1016	0.5839	0.7531	0.6638	0.2293

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table A.5a: YSM Regressions: Monthly Farm, with Level of Procurement

	(1) freg1ch	(2) freg2ch	(3) freg3ch	(4) freg4ach	(5) freg4bch	(6) freg5ch	(7) freg6ch	(8) freg7ch
time	-0.000708	0.000982	-0.000559	0.000270	0.000338	-0.000214	0.000688	-0.00214
	(0.00156)	(0.00171)	(0.00185)	(0.00169)	(0.00196)	(0.00177)	(0.00171)	(0.00230)
Procurement	0.00000342	0.0000133	-0.0000141	0.0000191	0.00000931	-0.0000344	0.00000902	-0.00403**
	(0.0000273)	(0.0000232)	(0.0000156)	(0.0000160)	(0.0000186)	(0.0000388)	(0.0000252)	(0.00132)
dumjan	0.702**	0.615*	0	0.842**	0.233	0	0.462	0.491
	(0.264)	(0.267)	(.)	(0.323)	(0.374)	(.)	(0.272)	(0.358)
dumfeb	0.290	0.774**	-0.0582	0.946**	0.820*	0.516	0.753**	-0.227
	(0.278)	(0.269)	(0.288)	(0.338)	(0.392)	(0.277)	(0.271)	(0.361)
dummar	0.203	0.501	-0.371	0.352	0.136	-0.150	0.786**	-0.198
	(0.278)	(0.266)	(0.288)	(0.335)	(0.388)	(0.280)	(0.266)	(0.360)
dumapr	0.206	0.534*	-0.264	0.0859	0.571	0.227	0.841**	0.289
	(0.277)	(0.257)	(0.288)	(0.316)	(0.366)	(0.297)	(0.271)	(0.359)
dummay	0.154	0.381	-0.112	0.873**	0.596	0.357	0.671*	0.145
	(0.276)	(0.256)	(0.289)	(0.313)	(0.363)	(0.283)	(0.272)	(0.361)
dumjun	0.105	0.482	0.0785	0.685*	0.543	0.190	0.285	-0.383
	(0.280)	(0.264)	(0.287)	(0.335)	(0.388)	(0.277)	(0.274)	(0.357)
dumjul	0.163	0.384	-0.340	0.733*	0.688	0.478	0.389	-0.746*
	(0.284)	(0.270)	(0.287)	(0.346)	(0.401)	(0.277)	(0.275)	(0.365)
dumaug	0.454	0.0920	-0.155	0.487	0.318	0.0906	-0.307	-0.0700
	(0.284)	(0.270)	(0.288)	(0.350)	(0.406)	(0.277)	(0.274)	(0.366)
dumsep	-1.107***	-0.701**	-1.492***	-0.0120	-0.899*	-0.981***	-1.316***	-1.101**
	(0.284)	(0.269)	(0.288)	(0.350)	(0.405)	(0.277)	(0.265)	(0.366)
dumoct	-1.813***	-0.912***	-1.449***	-0.406	-0.489	-0.816**	0	-0.978**
	(0.261)	(0.257)	(0.288)	(0.305)	(0.353)	(0.282)	(.)	(0.359)
dumnov	0	0	0.0321	0	0	0.282	0.722**	-0.189
	(.)	(.)	(0.299)	(.)	(.)	(0.285)	(0.256)	(0.349)
dumdec	0.144	0.459	-0.00594	0.567*	0.431	0.826**	0.698**	0
	(0.240)	(0.256)	(0.297)	(0.272)	(0.316)	(0.279)	(0.261)	(.)
dum90	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-0.601*	-0.0458	-0.238	-0.335	-0.193	-0.140	-0.151	0.132
	(0.284)	(0.303)	(0.334)	(0.315)	(0.365)	(0.321)	(0.303)	(0.425)
dum92	0.0924	0.160	0.138	0.0851	0.0360	0.0437	0.158	-0.0377
	(0.275)	(0.294)	(0.324)	(0.305)	(0.353)	(0.313)	(0.295)	(0.401)
dum93	0.0513	0.389	0.173	0.152	0.214	0.0610	0.192	-0.169
	(0.270)	(0.291)	(0.322)	(0.297)	(0.344)	(0.307)	(0.297)	(0.398)
dum94	-0.232	0.0466	-0.130	-0.0478	0.0325	0.0515	0.171	-0.217
	(0.264)	(0.286)	(0.315)	(0.291)	(0.338)	(0.302)	(0.293)	(0.389)
dum95	0.333	0.639*	0.451	0.463	0.395	0.266	0.397	0.0546
	(0.261)	(0.283)	(0.308)	(0.289)	(0.334)	(0.296)	(0.286)	(0.382)
dum96	-0.322	-0.189	-0.331	-0.290	-0.0276	-0.0488	-0.117	-0.171
	(0.253)	(0.272)	(0.301)	(0.281)	(0.326)	(0.289)	(0.280)	(0.372)
dum97	-0.0467	0.163	0.0992	0.0873	0.0400	-0.0285	0.108	-0.132
	(0.251)	(0.271)	(0.299)	(0.277)	(0.322)	(0.287)	(0.276)	(0.369)

Continued on next page.

	(1) freg1ch	(2) freg2ch	(3) freg3ch	(4) freg4ach	(5) freg4bch	(6) freg5ch	(7) freg6ch	(8) freg7ch
dum98	-0.0509	0.0945	-0.0267	-0.0628	-0.110	-0.0470	-0.00537	-0.156
	(0.252)	(0.271)	(0.297)	(0.277)	(0.321)	(0.285)	(0.273)	(0.367)
dum99	-0.128	-0.0483	-0.0000479	-0.0950	-0.0986	0.124	0.0183	0.168
	(0.251)	(0.273)	(0.299)	(0.280)	(0.324)	(0.309)	(0.266)	(0.363)
dum00	-0.0348	0.0368	0.177	-0.0374	0.0776	0.164	0.0471	-0.00358
	(0.261)	(0.274)	(0.307)	(0.282)	(0.327)	(0.301)	(0.267)	(0.364)
dum01	-0.128	0.0438	0.0624	-0.0946	0.00806	0.103	0.0000435	0.153
	(0.257)	(0.275)	(0.300)	(0.288)	(0.333)	(0.300)	(0.271)	(0.369)
dum02	0.0467	0.112	0.121	-0.0767	-0.0909	0.127	0.0922	0.127
	(0.258)	(0.275)	(0.304)	(0.293)	(0.340)	(0.298)	(0.275)	(0.375)
dum03	-0.0561	0.00518	0.0261	-0.0712	0.00114	0.0472	-0.0183	0.0622
	(0.272)	(0.281)	(0.310)	(0.296)	(0.343)	(0.300)	(0.282)	(0.383)
dum04	0.0207	0.0852	0.188	-0.104	-0.0220	0.161	0.0615	0.105
	(0.270)	(0.288)	(0.318)	(0.304)	(0.352)	(0.308)	(0.287)	(0.392)
dum05	0.111	0.0854	0.0962	-0.0134	0.0706	0.110	0.0201	0.145
	(0.277)	(0.296)	(0.326)	(0.307)	(0.356)	(0.314)	(0.295)	(0.402)
dum06	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	0.144	-0.458	0.358	-0.535	-0.361	-0.113	-0.502	0.557
	(0.331)	(0.331)	(0.337)	(0.377)	(0.437)	(0.319)	(0.349)	(0.450)
N	203	203	203	203	203	203	203	203
adj. R^2	0.465	0.267	0.234	0.144	0.147	0.222	0.349	0.093
Durbin-Watson d-statistic	2.040138	2.290893	2.377124	2.32144	2.439047	2.555805	2.71869	2.456515

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Continued on next page.

Table A.5a: YSM Regressions: Monthly Farm, with Level of Procurement - *Continued*

	(9) freg8ch	(10) freg9ch	(11) freg10ch	(12) freg11ch	(13) freg12ch	(14) freg13ch	(15) farmmch
time	0.000148	0.00152	0.000351	0.00116	0.000763	0.00116	0.00106
	(0.00245)	(0.00196)	(0.00159)	(0.00184)	(0.00151)	(0.00171)	(0.00217)
Procurement	-0.000230	0.0000544	-0.000129	0.0000313	0.00000645	-0.00886**	0.0000214
	(0.000367)	(0.000145)	(0.0000873)	(0.0000675)	(0.0000226)	(0.00333)	(0.000103)
dumjan	0	0.438	0.0621	0	0.649**	0	0.286
	(.)	(0.306)	(0.244)	(.)	(0.238)	(.)	(0.360)
dumfeb	0.0523	0.256	0.271	0.0432	0.543*	0.0867	0.0242
	(0.372)	(0.306)	(0.247)	(0.274)	(0.239)	(0.274)	(0.361)
dummar	0.225	0.0371	-0.0184	0.228	0.690**	-0.358	0.603
	(0.372)	(0.301)	(0.243)	(0.274)	(0.237)	(0.274)	(0.355)
dumapr	0.0669	0.285	0.328	-0.288	0.906***	0.0148	0.367
	(0.392)	(0.300)	(0.234)	(0.275)	(0.238)	(0.278)	(0.362)
dummay	0.361	0.0828	0.0345	-0.214	0.609*	0.00883	0.265
	(0.382)	(0.307)	(0.233)	(0.274)	(0.239)	(0.274)	(0.363)
dumjun	0.534	0.275	-0.134	-0.285	0.470	-0.167	0.212
	(0.372)	(0.311)	(0.234)	(0.274)	(0.238)	(0.274)	(0.365)
dumjul	0.0771	0.0406	0.0718	0.125	0.673**	0.312	0.431
	(0.371)	(0.312)	(0.244)	(0.274)	(0.240)	(0.274)	(0.365)
dumaug	0.587	-0.594	-0.0280	-0.277	0.100	-0.360	-0.157
	(0.372)	(0.308)	(0.246)	(0.274)	(0.238)	(0.274)	(0.361)
dumsep	-0.203	-1.128***	-1.103***	-0.933***	-1.313***	-0.871**	-0.606
	(0.372)	(0.303)	(0.245)	(0.274)	(0.234)	(0.274)	(0.358)
dumoct	-0.398	-0.975**	-0.948***	-0.828**	0	-0.730**	0.102
	(0.372)	(0.291)	(0.234)	(0.284)	(.)	(0.274)	(0.342)
dumnov	-0.209	0	0	-0.670*	0.542*	-0.645*	0
	(0.376)	(.)	(.)	(0.287)	(0.223)	(0.277)	(.)
dumdec	0.169	-0.104	0.138	-0.103	0.776***	-0.276	-0.121
	(0.373)	(0.291)	(0.234)	(0.278)	(0.226)	(0.274)	(0.345)
dum90	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-0.101	-0.0492	0.152	-0.0555	-0.192	-0.186	-0.108
	(0.443)	(0.350)	(0.275)	(0.318)	(0.270)	(0.318)	(0.406)
dum92	0.237	0.159	0.220	0.0979	0.192	0.0737	0.176
	(0.420)	(0.332)	(0.267)	(0.311)	(0.262)	(0.309)	(0.394)
dum93	-0.0302	0.285	0.0931	0.145	0.189	0.0973	0.00229
	(0.412)	(0.331)	(0.267)	(0.308)	(0.258)	(0.301)	(0.383)
dum94	0.115	0.233	0.259	0.145	0.139	0.00605	0.146
	(0.410)	(0.330)	(0.266)	(0.309)	(0.255)	(0.294)	(0.372)
dum95	0.223	0.273	0.225	0.406	0.383	0.292	0.269
	(0.405)	(0.322)	(0.261)	(0.302)	(0.249)	(0.288)	(0.365)
dum96	-0.242	-0.0136	-0.0620	-0.0599	-0.122	-0.236	-0.0241
	(0.395)	(0.312)	(0.253)	(0.290)	(0.242)	(0.284)	(0.359)
dum97	0.00605	0.285	0.0712	0.152	0.104	0.00320	0.0491
	(0.390)	(0.310)	(0.250)	(0.290)	(0.240)	(0.281)	(0.356)

Continued on next page.

Table A.5a: YSM Regressions: Monthly Farm, with Level of Procurement - *Continued*

	(9) freg8ch	(10) freg9ch	(11) freg10ch	(12) freg11ch	(13) freg12ch	(14) freg13ch	(15) farmmch
dum98	0.0879	-0.131	-0.0295	-0.0951	-0.108	-0.0966	-0.196
	(0.387)	(0.303)	(0.247)	(0.286)	(0.235)	(0.280)	(0.354)
dum99	-0.0658	0.0747	0.0638	0.0766	0.0101	-0.110	0.165
	(0.382)	(0.307)	(0.242)	(0.281)	(0.232)	(0.280)	(0.366)
dum00	-0.108	0.0450	0.249	-0.0615	-0.130	-0.0398	0.00623
	(0.384)	(0.304)	(0.251)	(0.283)	(0.243)	(0.282)	(0.393)
dum01	-0.0372	-0.0489	0.151	-0.0442	-0.0282	-0.0996	-0.152
	(0.388)	(0.307)	(0.252)	(0.287)	(0.236)	(0.285)	(0.363)
dum02	0.0875	0.0866	0.110	0.0474	0.0699	-0.0530	0.0373
	(0.394)	(0.312)	(0.251)	(0.290)	(0.240)	(0.290)	(0.367)
dum03	-0.0246	0.0353	0.143	0.00506	-0.00585	-0.0911	-0.0181
	(0.401)	(0.318)	(0.255)	(0.296)	(0.245)	(0.296)	(0.374)
dum04	-0.00465	-0.0597	-0.00772	0.0218	0.0394	0.250	-0.0181
	(0.411)	(0.326)	(0.261)	(0.303)	(0.251)	(0.330)	(0.383)
dum05	-0.0119	-0.0739	0.0642	-0.0965	-0.0746	-0.0466	-0.0929
	(0.422)	(0.335)	(0.268)	(0.311)	(0.258)	(0.318)	(0.394)
dum06	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	-0.124	-0.144	0.0198	0.0673	-0.520	0.155	-0.271
	(0.444)	(0.391)	(0.316)	(0.335)	(0.307)	(0.314)	(0.401)
N	203	203	203	203	203	203	203
adj. R^2	-0.054	0.172	0.226	0.072	0.402	0.107	-0.031
Durbin-Watson d-statistic	2.801014	2.50492	2.530034	2.516219	2.316282	2.495205	2.544482

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.5b: YSM Regressions: Quarterly Farm, with Level of Procurement

	(1) fqreg1ch	(2) fqreg2ch	(3) fqreg3ch	(4) fqreg4ach	(5) fqreg4bch	(6) fqreg5ch	(7) fqreg6ch	(8) fqreg7ch
time	-0.00187	0.00585	-0.000224	-0.00241	0.00385	0.00439	-0.00913	-0.0139
	(0.0136)	(0.0131)	(0.0131)	(0.0135)	(0.00994)	(0.0117)	(0.0113)	(0.0147)
Procurement	0.0000272	-0.00000904	0.00000823	0.0000182	0.0000404*	-0.0000146	-0.0000501*	-0.00181
	(0.0000305)	(0.0000230)	(0.0000138)	(0.0000204)	(0.0000151)	(0.0000344)	(0.0000212)	(0.00109)
dumq1	0.785*	2.706***	2.454***	0.296	-0.217	0.374	-0.117	1.718***
	(0.390)	(0.384)	(0.405)	(0.408)	(0.301)	(0.348)	(0.297)	(0.403)
dumq2	0.339	2.730***	2.011***	-0.412	0.0541	0	0	1.847***
	(0.375)	(0.342)	(0.373)	(0.424)	(0.313)	(.)	(.)	(0.405)
dumq3	0	1.715***	1.761***	0	0	-0.0865	-1.995***	0.450
	(.)	(0.403)	(0.410)	(.)	(.)	(0.356)	(0.288)	(0.428)
dumq4	-2.863***	0	0	-2.099**	-3.038***	-1.538***	-1.933***	0
	(0.535)	(.)	(.)	(0.710)	(0.523)	(0.321)	(0.344)	(.)
dum90	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-1.453	0.0149	-1.028	-1.242	-0.854	-0.167	-0.999	-0.399
	(0.812)	(0.732)	(0.769)	(0.838)	(0.617)	(0.689)	(0.635)	(0.859)
dum92	0.00575	0.429	0.196	0.194	0.207	0.444	0.196	-0.226
	(0.779)	(0.711)	(0.748)	(0.805)	(0.593)	(0.670)	(0.618)	(0.821)
dum93	0.367	0.916	0.603	0.407	0.706	0.656	-0.0920	-0.370
	(0.770)	(0.715)	(0.747)	(0.783)	(0.577)	(0.662)	(0.637)	(0.823)
dum94	-0.547	0.253	-0.291	-0.162	0.348	0.309	-0.220	-0.400
	(0.746)	(0.703)	(0.728)	(0.767)	(0.566)	(0.650)	(0.629)	(0.803)
dum95	1.026	1.421*	1.216	1.051	1.851**	1.222	0.463	0.391
	(0.738)	(0.693)	(0.708)	(0.765)	(0.564)	(0.633)	(0.608)	(0.785)
dum96	-0.802	-0.469	-0.833	-0.611	-0.213	-0.283	-0.804	-0.437
	(0.704)	(0.650)	(0.685)	(0.731)	(0.539)	(0.611)	(0.588)	(0.752)

Continued on next page.

Table A.5b: YSM Regressions: Quarterly Farm, with Level of Procurement - *Continued*

	(1) fqreg1ch	(2) fqreg2ch	(3) fqreg3ch	(4) fqreg4ach	(5) fqreg4bch	(6) fqreg5ch	(7) fqreg6ch	(8) fqreg7ch
dum97	-0.0458	0.403	0.396	0.284	0.251	0.297	-0.317	-0.263
	(0.694)	(0.646)	(0.676)	(0.715)	(0.527)	(0.603)	(0.574)	(0.740)
dum98	-0.0754	0.180	-0.128	-0.125	-0.143	0.0466	-0.459	-0.159
	(0.698)	(0.645)	(0.668)	(0.712)	(0.525)	(0.595)	(0.560)	(0.733)
dum99	-0.387	-0.0789	-0.302	-0.320	-0.364	0.0861	0.0559	0.0839
	(0.686)	(0.638)	(0.664)	(0.724)	(0.533)	(0.664)	(0.529)	(0.706)
dum00	-0.319	0.402	0.0192	0.0445	-0.0118	0.699	0.167	-0.00326
	(0.723)	(0.641)	(0.684)	(0.728)	(0.537)	(0.633)	(0.529)	(0.707)
dum01	-0.517	0.200	-0.0607	-0.201	-0.376	0.0833	0.0115	0.369
	(0.700)	(0.639)	(0.659)	(0.749)	(0.552)	(0.626)	(0.532)	(0.713)
dum02	0.0901	0.442	0.250	0.0156	-0.405	0.488	0.208	0.377
	(0.699)	(0.634)	(0.668)	(0.763)	(0.562)	(0.614)	(0.539)	(0.724)
dum03	-0.388	-0.0322	-0.000712	-0.172	-0.346	0.0734	0.242	0.229
	(0.745)	(0.645)	(0.679)	(0.761)	(0.561)	(0.610)	(0.551)	(0.737)
dum04	0.0102	0.114	0.264	-0.121	-0.310	0.402	0.242	0.303
	(0.728)	(0.660)	(0.695)	(0.783)	(0.577)	(0.627)	(0.561)	(0.753)
dum05	0.204	0.306	0.193	0.232	0.360	0.236	0.106	0.378
	(0.745)	(0.678)	(0.713)	(0.772)	(0.569)	(0.638)	(0.577)	(0.772)
dum06	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	0.477	-2.266**	-1.705*	0.367	0.0680	-0.152	1.492*	-0.449
	(0.685)	(0.772)	(0.759)	(0.696)	(0.513)	(0.646)	(0.593)	(0.850)
N	67	67	67	67	67	67	67	67
adj. R^2	0.582	0.547	0.400	0.225	0.556	0.337	0.611	0.273
Durbin-Watson d-statistic	2.633364	2.423854	2.636594	2.826111	2.440906	2.828205	2.708325	2.728024

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Continued on next page.

Table A.5b: YSM Regressions: Quarterly Farm, with Level of Procurement - *Continued*

	(9) fqreg8ch	(10) fqreg9ch	(11) fqreg10ch	(12) fqreg11ch	(13) fqreg12ch	(14) fqreg13ch	(15) fqarmmch
time	0.000311	0.00439	0.000815	0.0116	-0.000596	0.00471	0.00498
	(0.0122)	(0.0135)	(0.0111)	(0.0125)	(0.0108)	(0.0105)	(0.0122)
Procurement	-0.000279	-0.000144	-0.000150	0.0000624	-0.0000135	-0.00997**	0.0000307
	(0.000239)	(0.000120)	(0.0000756)	(0.0000534)	(0.0000196)	(0.00308)	(0.0000731)
dumq1	-0.588	2.299***	1.744***	1.964***	-0.183	-0.315	-0.669
	(0.346)	(0.388)	(0.308)	(0.362)	(0.283)	(0.312)	(0.358)
dumq2	0	2.213***	2.008***	1.782***	0	0	0
	(.)	(0.401)	(0.277)	(0.358)	(.)	(.)	(.)
dumq3	0.183	1.114**	1.047**	1.529***	-1.284***	-0.183	-0.676
	(0.357)	(0.407)	(0.314)	(0.373)	(0.277)	(0.306)	(0.350)
dumq4	-1.052**	0	0	0	-2.152***	-1.704***	-1.409**
	(0.323)	(.)	(.)	(.)	(0.334)	(0.300)	(0.409)
dum90	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-0.0432	0.245	0.265	-0.257	-0.942	-0.793	-0.577
	(0.695)	(0.760)	(0.597)	(0.693)	(0.629)	(0.645)	(0.764)
dum92	0.546	0.277	0.580	0.630	0.408	0.207	0.159
	(0.665)	(0.727)	(0.586)	(0.681)	(0.608)	(0.624)	(0.738)
dum93	-0.0343	0.738	0.330	0.350	0.340	-0.00277	-0.0844
	(0.655)	(0.738)	(0.595)	(0.677)	(0.600)	(0.605)	(0.715)
dum94	0.259	0.205	0.368	0.580	0.159	-0.0808	0.350
	(0.659)	(0.738)	(0.598)	(0.681)	(0.594)	(0.588)	(0.688)
dum95	0.826	0.737	0.808	1.376*	0.874	0.791	0.455
	(0.649)	(0.716)	(0.582)	(0.660)	(0.575)	(0.574)	(0.671)
dum96	-0.566	-0.393	-0.376	-0.111	-0.368	-0.752	0.00973
	(0.626)	(0.681)	(0.556)	(0.626)	(0.551)	(0.563)	(0.658)

Continued on next page.

Table A.5b: YSM Regressions: Quarterly Farm, with Level of Procurement - *Continued*

	(9) fqreg8ch	(10) fqreg9ch	(11) fqreg10ch	(12) fqreg11ch	(13) fqreg12ch	(14) fqreg13ch	(15) fqarmmch
dum97	-0.00920	0.446	0.180	0.507	0.115	-0.0189	0.634
	(0.613)	(0.674)	(0.547)	(0.624)	(0.542)	(0.554)	(0.648)
dum98	0.334	-0.520	-0.227	-0.0977	-0.460	-0.434	-0.837
	(0.603)	(0.649)	(0.535)	(0.609)	(0.525)	(0.549)	(0.642)
dum99	-0.407	0.603	0.329	0.181	0.104	-0.261	0.118
	(0.582)	(0.647)	(0.507)	(0.585)	(0.507)	(0.547)	(0.669)
dum00	0.109	0.254	0.817	0.0223	-0.0148	-0.0505	0.0137
	(0.583)	(0.637)	(0.527)	(0.588)	(0.533)	(0.548)	(0.732)
dum01	-0.0625	-0.0289	0.389	-0.231	-0.0917	-0.302	-0.245
	(0.585)	(0.642)	(0.526)	(0.593)	(0.511)	(0.552)	(0.653)
dum02	0.224	0.170	0.321	0.193	0.276	-0.0467	-0.0860
	(0.590)	(0.651)	(0.521)	(0.598)	(0.520)	(0.559)	(0.654)
dum03	0.0194	0.396	0.544	0.156	-0.0137	-0.206	0.135
	(0.599)	(0.662)	(0.527)	(0.610)	(0.528)	(0.570)	(0.665)
dum04	0.0671	-0.429	-0.0757	0.0589	0.157	1.003	0.169
	(0.612)	(0.678)	(0.540)	(0.624)	(0.541)	(0.688)	(0.681)
dum05	0.119	-0.0395	0.114	-0.157	0.00137	0.246	-0.450
	(0.629)	(0.695)	(0.553)	(0.640)	(0.554)	(0.625)	(0.699)
dum06	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	0.292	-1.633	-1.325	-2.069**	0.874	0.492	0.424
	(0.713)	(0.824)	(0.661)	(0.761)	(0.560)	(0.532)	(0.626)
N	67	67	67	67	67	67	67
adj. R^2	0.146	0.469	0.496	0.291	0.557	0.416	0.039
Durbin-Watson d-statistic	2.65257	2.52659	2.692067	2.805163	2.58955	2.629436	2.56271

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.5c: YSM Regressions: Monthly Retail , with Level of Distribution

	(1) rmmch	(2) rreg1ch^	(3) rreg2ch	(4) rreg3ch^	(5) rreg4ach^	(6) rreg4bch^	(7) rreg5ch^	(8) rreg6ch
time	-0.000203	0.000578	0.00111	0.00111	0.0000124	0.000761	0.00136	0.000517
	(0.00156)	(0.000943)	(0.000887)	(0.00106)	(0.000904)	(0.000972)	(0.00123)	(0.00309)
Distribution	0.00000158	-0.0000292	-0.0000391	-0.0000208	-0.00000584	-0.0000196*	-0.0000296	0.0000250
	(0.00000460)	(0.0000155)	(0.0000390)	(0.0000139)	(0.00000830)	(0.00000865)	(0.0000263)	(0.0000292)
dumjan	0	-0.677	0	-1.053*	-0.784*	-1.125**	-0.977	0
	(.)	(0.425)	(.)	(0.469)	(0.383)	(0.390)	(0.564)	(.)
dumfeb	-0.0412	-0.648	0.108	-0.767	-0.603	-0.712	-0.892	0.0803
	(0.171)	(0.418)	(0.131)	(0.470)	(0.374)	(0.386)	(0.578)	(0.133)
dummar	0.0382	-0.539	0.166	-0.738	-0.517	-0.885*	-0.984	0.0483
	(0.173)	(0.409)	(0.136)	(0.460)	(0.366)	(0.376)	(0.555)	(0.112)
dumapr	0.0362	-0.354	0.303*	-0.799	-0.588	-0.851*	-1.114	0.306**
	(0.175)	(0.405)	(0.128)	(0.467)	(0.365)	(0.376)	(0.591)	(0.110)
dummay	0.0633	-0.528	0.144	-0.880	-0.546	-0.658	-0.787	0.489**
	(0.181)	(0.380)	(0.141)	(0.452)	(0.351)	(0.363)	(0.562)	(0.158)
dumjun	-0.133	-0.548	0.158	-0.651	-0.489	-0.539	-0.869	0.0566
	(0.176)	(0.354)	(0.126)	(0.400)	(0.326)	(0.335)	(0.533)	(0.159)
dumjul	0.219	-0.384	0.613***	-0.521	-0.343	-0.403	-0.528	0.185
	(0.225)	(0.323)	(0.182)	(0.353)	(0.304)	(0.310)	(0.473)	(0.222)
dumaug	0.531	0	0.771	0	0	0	0	0.699
	(0.396)	(.)	(0.447)	(.)	(.)	(.)	(.)	(0.436)
dumsep	0.195	-0.276	0.424*	-0.351	-0.126	-0.519*	-0.514	-0.946**
	(0.205)	(0.271)	(0.198)	(0.303)	(0.232)	(0.261)	(0.364)	(0.331)
dumoct	0.179	-0.994*	-0.281	-0.965*	-0.566	-0.689*	-1.249*	-0.917***
	(0.231)	(0.390)	(0.159)	(0.426)	(0.323)	(0.334)	(0.542)	(0.200)
dumnov	-0.442	-1.301**	-0.304	-1.313**	-0.896*	-1.211**	-1.147*	-0.271*
	(0.462)	(0.435)	(0.196)	(0.489)	(0.403)	(0.392)	(0.548)	(0.131)
dumdec	-0.0185	-1.029*	0.0144	-0.928*	-0.825*	-0.957*	-0.912	0.0783
	(0.175)	(0.428)	(0.148)	(0.460)	(0.393)	(0.414)	(0.524)	(0.119)
dum90	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	0.0316	-0.194	-0.0294	-0.245	-0.270	-0.231	-0.243	-0.0577
	(0.195)	(0.135)	(0.174)	(0.160)	(0.186)	(0.187)	(0.197)	(0.541)
dum92	0.102	0.108	0.239	-0.0157	0.116	-0.0612	0.102	0.139
	(0.203)	(0.125)	(0.185)	(0.184)	(0.184)	(0.171)	(0.193)	(0.526)
dum93	0.217	0.344*	0.307	0.256	0.142	0.216	0.235	0.273
	(0.171)	(0.149)	(0.201)	(0.220)	(0.187)	(0.165)	(0.206)	(0.535)
dum94	0.0664	-0.186	0.0151	-0.216	-0.128	-0.114	-0.0741	0.261
	(0.210)	(0.130)	(0.160)	(0.151)	(0.227)	(0.190)	(0.179)	(0.444)
dum95	0.322	0.506	0.530	0.302	0.332	0.281	0.454	0.569
	(0.881)	(0.516)	(0.472)	(0.485)	(0.570)	(0.538)	(0.778)	(0.719)
dum96	0.0960	0.0552	0.0418	-0.0177	0.00693	0.0178	-0.277	0.0488
	(0.189)	(0.204)	(0.227)	(0.215)	(0.225)	(0.242)	(0.215)	(0.386)

Continued on next page.

Table A.5c: YSM Regressions: Monthly Retail, with Level of Distribution - *Continued*

	(1) rmmch	(2) rreg1ch^	(3) rreg2ch	(4) rreg3ch^	(5) rreg4ach^	(6) rreg4bch^	(7) rreg5ch^	(8) rreg6ch
dum97	-0.0396	-0.0129	-0.0473	-0.190	-0.0638	-0.128	-0.0383	0.0976
	(0.159)	(0.158)	(0.125)	(0.133)	(0.186)	(0.130)	(0.166)	(0.346)
dum98	-0.119	0.0803	0.0748	0.146	-0.197	-0.0686	0.102	0.0334
	(0.115)	(0.117)	(0.123)	(0.173)	(0.232)	(0.116)	(0.242)	(0.323)
dum99	-0.00251	0.0692	0.0101	0.0110	-0.0575	0.00318	0.201	0.0228
	(0.136)	(0.105)	(0.104)	(0.122)	(0.119)	(0.111)	(0.279)	(0.298)
dum00	-0.0344	0.0513	0.134	-0.141	-0.0270	0.0368	0.102	0.0781
	(0.138)	(0.102)	(0.104)	(0.0963)	(0.145)	(0.120)	(0.139)	(0.245)
dum01	0.0197	-0.0876	0.0396	-0.144	0.00428	0.0688	-0.0883	0.0481
	(0.189)	(0.130)	(0.128)	(0.139)	(0.171)	(0.117)	(0.121)	(0.222)
dum02	0.206	0.229*	0.171	-0.0440	0.0478	-0.00989	0.0410	0.000137
	(0.200)	(0.113)	(0.112)	(0.172)	(0.117)	(0.105)	(0.127)	(0.222)
dum03	0.00811	0.122	-0.0215	-0.124	-0.0975	-0.0494	-0.121	0.0306
	(0.163)	(0.0929)	(0.103)	(0.141)	(0.110)	(0.140)	(0.138)	(0.163)
dum04	-0.0319	0.142	-0.00736	-0.0673	-0.0992	0.00121	-0.0410	-0.0349
	(0.216)	(0.107)	(0.0905)	(0.123)	(0.113)	(0.157)	(0.136)	(0.186)
dum05	0	0.187	0.0763	0.0487	0.0296	0.107	0.105	0.191
	(.)	(0.102)	(0.0853)	(0.107)	(0.126)	(0.172)	(0.137)	(0.168)
dum06	-0.0207	0	0	0	0	0	0	0
	(0.133)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	-0.133	0.591	-0.308	0.806	0.559	0.787	0.836	-0.223
	(0.233)	(0.422)	(0.165)	(0.456)	(0.382)	(0.399)	(0.567)	(0.580)
N	203	203	203	203	203	203	203	203
adj. R^2	-0.034	0.145	0.155	0.127	0.047	0.109	0.078	0.232
	2.438547	1.909910	1.850123	1.971661	1.896760	1.939942	1.806706	2.499565

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Prais-Winsten AR(1) regression

Continued on next page.

Table A.5c: YSM Regressions: Monthly Retail, with Level of Distribution - *Continued*

	(9) rreg7ch	(10) rreg8ch	(11) rreg9ch^	(12) rreg10ch^	(13) rreg11ch	(14) rreg12ch^	(15) rreg13ch^	(16) rarmmch
time	0.000194	0.00222	0.000987	0.000619	0.000386	0.000516	0.00132	0.0000767
	(0.00121)	(0.00116)	(0.000829)	(0.000988)	(0.00109)	(0.000849)	(0.00155)	(0.000861)
distreg7	-0.0000307	-0.0000925	-0.00000363	-0.0000384	-0.00000689	0.0000146	-0.0000616	-0.0000353
	(0.0000185)	(0.0000477)	(0.0000145)	(0.0000235)	(0.0000201)	(0.0000224)	(0.0000697)	(0.0000242)
dumjan	0	0.623**	-0.243	-0.681*	0	0	0	-0.256
	(.)	(0.227)	(0.168)	(0.269)	(.)	(.)	(.)	(0.175)
dumfeb	0.252	0.577***	-0.285*	-0.633*	0.00959	0.303**	0.136	-0.258
	(0.153)	(0.141)	(0.144)	(0.271)	(0.123)	(0.112)	(0.139)	(0.173)
dummar	0.180	0.410**	-0.389**	-0.668*	-0.00441	0.291*	-0.0200	-0.289*
	(0.189)	(0.137)	(0.142)	(0.257)	(0.146)	(0.125)	(0.182)	(0.145)
dumapr	0.273	0	-0.221	-0.639*	0.0263	0.223	-0.133	-0.253
	(0.197)	(.)	(0.140)	(0.251)	(0.148)	(0.140)	(0.157)	(0.180)
dummay	0.512**	0.356***	-0.159	-0.467	0.0823	0.457***	0.0195	0.0765
	(0.158)	(0.0907)	(0.134)	(0.246)	(0.142)	(0.136)	(0.148)	(0.206)
dumjun	0.359	0.556***	-0.271*	-0.554*	0.0510	0.197	-0.0547	-0.257
	(0.187)	(0.115)	(0.116)	(0.245)	(0.147)	(0.133)	(0.148)	(0.139)
dumjul	0.690**	0.983***	0	-0.203	0.608**	0.500*	0.303	0
	(0.251)	(0.180)	(.)	(0.227)	(0.224)	(0.202)	(0.188)	(.)
dumaug	0.783*	1.503**	0.0402	0	0.581	0.426*	0.578*	0.122
	(0.391)	(0.551)	(0.164)	(.)	(0.328)	(0.181)	(0.287)	(0.189)
dumsep	0.616**	0.783**	-0.593***	-0.639**	-0.331	-0.411*	0.168	-0.191
	(0.206)	(0.270)	(0.152)	(0.236)	(0.176)	(0.159)	(0.235)	(0.152)
dumoct	-0.187	0.325	-0.915***	-1.433***	-1.097***	-0.585***	-0.595**	-0.422*
	(0.209)	(0.236)	(0.161)	(0.300)	(0.176)	(0.149)	(0.193)	(0.198)
dumnov	0.0922	-0.00458	-0.597***	-1.030***	-0.494***	-0.265	-0.436*	-0.585***
	(0.171)	(0.184)	(0.161)	(0.274)	(0.121)	(0.143)	(0.172)	(0.166)
dumdec	0.271	0.358*	-0.512**	-0.691**	-0.0530	0.127	-0.0381	-0.575**
	(0.139)	(0.170)	(0.155)	(0.261)	(0.155)	(0.115)	(0.136)	(0.174)
dum90	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-0.670*	-0.199	-0.0480	-0.360	-0.231	-0.195	0	-0.352
	(0.320)	(0.229)	(0.197)	(0.238)	(0.178)	(0.188)	(.)	(0.187)
dum92	-0.169	0.00172	0.160	0.134	0.110	0.159	0	0.101
	(0.255)	(0.269)	(0.214)	(0.182)	(0.201)	(0.182)	(.)	(0.175)
dum93	-0.0877	0.189	0.164	-0.0510	0.0810	0.149	0	-0.0278
	(0.233)	(0.198)	(0.174)	(0.180)	(0.241)	(0.172)	(.)	(0.126)
dum94	-0.114	-0.157	0.201	0.0194	0.159	0.160	0	0.0287
	(0.271)	(0.251)	(0.233)	(0.188)	(0.168)	(0.170)	(.)	(0.180)
dum95	0.262	0.138	0.283	0.183	0.315	0.299	0.192	0.319
	(0.423)	(0.461)	(0.277)	(0.352)	(0.265)	(0.197)	(0.246)	(0.309)
dum96	-0.407	-0.00545	0.0814	-0.0370	-0.115	-0.101	-0.0822	-0.132
	(0.297)	(0.302)	(0.237)	(0.215)	(0.140)	(0.159)	(0.210)	(0.189)

Continued on next page.

Table A.5c: YSM Regressions: Monthly Retail, with Level of Distribution - *Continued*

	(9) rreg7ch	(10) rreg8ch	(11) rreg9ch^	(12) rreg10ch^	(13) rreg11ch	(14) rreg12ch^	(15) rreg13ch^	(16) rarmmch
dum97	-0.270	-0.0108	-0.0146	-0.0775	-0.0409	0.0451	-0.0700	0.0225
	(0.159)	(0.180)	(0.115)	(0.131)	(0.148)	(0.189)	(0.215)	(0.137)
dum98	-0.0371	0.169	-0.0291	0.00218	-0.0616	-0.146	-0.136	-0.0712
	(0.134)	(0.175)	(0.121)	(0.145)	(0.132)	(0.171)	(0.164)	(0.131)
dum99	-0.137	-0.113	0.00469	0.0464	-0.00333	0.00360	0	-0.0764
	(0.130)	(0.173)	(0.148)	(0.156)	(0.141)	(0.125)	(.)	(0.122)
dum00	-0.0893	0.127	-0.0417	-0.0496	-0.0379	-0.0682	0	0.0450
	(0.164)	(0.113)	(0.132)	(0.135)	(0.123)	(0.127)	(.)	(0.122)
dum01	-0.0601	-0.188	-0.0341	-0.0467	-0.0660	-0.0282	-0.178	-0.145
	(0.115)	(0.163)	(0.106)	(0.132)	(0.146)	(0.117)	(0.207)	(0.117)
dum02	-0.0902	-0.0216	0.0407	0.0609	0.00923	0.0358	-0.0796	0.0125
	(0.138)	(0.173)	(0.0988)	(0.118)	(0.305)	(0.170)	(0.225)	(0.105)
dum03	-0.0541	-0.0325	-0.0533	-0.000488	-0.0181	-0.0394	-0.0345	-0.00368
	(0.104)	(0.0989)	(0.107)	(0.162)	(0.168)	(0.134)	(0.144)	(0.119)
dum04	-0.0870	-0.0123	0.0293	-0.103	0.0939	0.0260	0.154	-0.0371
	(0.0988)	(0.122)	(0.107)	(0.132)	(0.181)	(0.188)	(0.137)	(0.199)
dum05	0.219	0.0773	0.0151	0.0212	0.0419	-0.0499	0.0289	0.0339
	(0.163)	(0.125)	(0.111)	(0.147)	(0.160)	(0.179)	(0.121)	(0.122)
dum06	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	-0.120	-0.396*	0.194	0.698*	0.0117	-0.226	-0.0844	0.280
	(0.237)	(0.185)	(0.227)	(0.297)	(0.161)	(0.150)	(0.206)	(0.170)
N	203	203	203	203	203	203	131	203
adj. R^2	0.093	0.160	0.227	0.252	0.362	0.353	0.219	0.128
	2.12804	1.994307	1.949283	1.951732	1.90845	1.980009	1.914901	2.102311

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Prais-Winsten AR(1) regression

Table A.5d: YSM Regressions: Quarterly Retail, with Level of Distribution

	(1) rqmmch	(2) rqreg1ch	(3) rqreg2ch	(4) rqreg3ch	(5) rqreg4ach	(6) rqreg4bch	(7) rqreg5ch	(8) rqreg6ch
time	0.00688	0.00747	0.00427	0.0154	0.00120	0.00272	0.00431	0.00512
	(0.0169)	(0.00522)	(0.00852)	(0.0135)	(0.00959)	(0.00822)	(0.00793)	(0.0177)
Distribution	-0.00000194	-0.0000293	0.000000947	-0.0000274	-0.0000191	-0.0000168	-0.00000411	0.0000379
	(0.00000608)	(0.0000182)	(0.0000444)	(0.0000202)	(0.0000160)	(0.0000159)	(0.0000191)	(0.0000234)
dumq1	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dumq2	0.534	0.917**	0.541*	0.559*	0.549	0.867**	0.181	0.600
	(0.396)	(0.272)	(0.253)	(0.264)	(0.296)	(0.268)	(0.232)	(0.298)
dumq3	1.319*	1.247	0.743	1.834	1.599	1.747	0.855	-0.789
	(0.649)	(0.703)	(0.737)	(1.022)	(0.961)	(0.926)	(0.592)	(0.471)
dumq4	-0.274	-0.478	-0.441	-0.0411	0.269	0.0353	-0.148	-1.110**
	(0.499)	(0.383)	(0.366)	(0.368)	(0.345)	(0.383)	(0.312)	(0.404)
dum90	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-0.383	-0.757	-0.167	-0.884	-1.268	-0.936	-0.734	0.0493
	(0.476)	(0.606)	(0.563)	(0.636)	(0.744)	(0.513)	(0.456)	(1.211)
dum92	-0.615	0.0310	0.303	-0.118	-0.203	-0.273	0.326	-0.00249
	(0.801)	(0.455)	(0.630)	(0.621)	(0.632)	(0.591)	(0.550)	(1.142)
dum93	0.779*	1.156***	0.758	0.688	0.323	0.527	0.990	0.937
	(0.322)	(0.297)	(0.384)	(0.591)	(0.550)	(0.422)	(0.499)	(1.194)
dum94	-0.393	-0.483	0.480	-0.863	-0.597	-0.306	0.000983	0.854
	(0.912)	(0.350)	(0.363)	(0.612)	(0.605)	(0.497)	(0.463)	(0.890)
dum95	0.835	1.194	1.603	0.616	0.979	1.121	1.502	1.783
	(2.050)	(1.724)	(1.535)	(1.835)	(1.856)	(2.034)	(1.415)	(1.255)
dum96	-0.473	0.334	0.307	-0.121	-0.484	-0.276	-0.443	0.283
	(1.159)	(0.870)	(0.940)	(0.773)	(0.678)	(0.518)	(0.739)	(1.005)

Continued on next page.

Table A.5d: YSM Regressions: Quarterly Retail, with Level of Distribution – *Continued*

	(1) rqmmch	(2) rqreg1ch	(3) rqreg2ch	(4) rqreg3ch	(5) rqreg4ach	(6) rqreg4bch	(7) rqreg5ch	(8) rqreg6ch
dum97	0.0570	-0.249	0.0165	-0.502	-0.519	-0.105	0.0613	0.422
	(0.577)	(0.369)	(0.230)	(0.448)	(0.396)	(0.332)	(0.206)	(0.725)
dum98	-0.342	0.0726	0.268	0.663	-0.104	-0.0358	0.107	0.0851
	(0.455)	(0.226)	(0.372)	(0.736)	(0.602)	(0.457)	(0.482)	(0.721)
dum99	-0.235	0.183	-0.0198	0.0346	-0.0922	0.0642	-0.0294	0.0596
	(0.532)	(0.355)	(0.330)	(0.456)	(0.325)	(0.347)	(0.634)	(0.636)
dum00	-0.303	0.104	0.348	-0.394	0.0491	0.266	0.299	0.499
	(0.474)	(0.245)	(0.369)	(0.316)	(0.306)	(0.418)	(0.323)	(0.608)
dum01	-0.438	-0.241	0.236	-0.588	0.0654	0.105	-0.0736	0.186
	(0.687)	(0.521)	(0.310)	(0.496)	(0.342)	(0.346)	(0.233)	(0.560)
dum02	-0.00541	0.476	0.509	-0.146	0.0509	0.208	0.236	0.0523
	(0.467)	(0.361)	(0.374)	(0.300)	(0.249)	(0.268)	(0.228)	(0.559)
dum03	-0.380	0.283	0.0458	-0.495	-0.0231	-0.0256	-0.0421	0.205
	(0.630)	(0.204)	(0.288)	(0.466)	(0.343)	(0.465)	(0.289)	(0.498)
dum04	-0.539	0.469	0.113	-0.520	-0.0815	0.0747	0.0289	-0.0626
	(0.873)	(0.255)	(0.355)	(0.316)	(0.270)	(0.495)	(0.317)	(0.642)
dum05	0	0.449*	0.502	0.0333	0.299	0.490	0.423	0.329
	(.)	(0.177)	(0.416)	(0.341)	(0.425)	(0.522)	(0.455)	(0.732)
dum06	-0.222	0	0	0	0	0	0	0
	(0.454)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	-0.435	-0.478	-0.773	-0.371	-0.150	-0.441	-0.538	-0.595
	(0.451)	(0.357)	(0.397)	(0.570)	(0.588)	(0.450)	(0.323)	(1.071)
N	67	67	67	67	67	67	67	67
adj. R^2	-0.031	0.127	0.049	0.035	-0.015	0.036	0.094	0.193
Durbin-Watson d-statistic	2.819562	2.963387	3.063074	2.931814	2.946246	2.958975	2.737092	2.527938

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Continued on next page.

Table A.5d: YSM Regressions: Quarterly Retail, with Level of Distribution – *Continued*

	(9) rqreg7ch	(10) rqreg8ch	(11) rqreg9ch	(12) rqreg10ch	(13) rqreg11ch	(14) rqreg12ch	(15) rqreg13ch	(16) rqarmmch
time	0.00628	0.0114	0.00271	-0.00444	0.000613	0.00753	0.0163	-0.000923
	(0.0127)	(0.0110)	(0.0190)	(0.00660)	(0.0100)	(0.00849)	(0.0135)	(0.0100)
Distribution	-0.0000386	-0.0000224	0.0000491	0.00000860	0.00000208	0.0000490	-0.0000693	-0.0000351
	(0.0000199)	(0.0000354)	(0.0000536)	(0.0000284)	(0.0000248)	(0.0000356)	(0.0000757)	(0.0000368)
dumq1	0	-0.0659	0	0	1.273***	0.811*	0.623*	0.327
	(.)	(0.280)	(.)	(.)	(0.348)	(0.346)	(0.279)	(0.363)
dumq2	0.914*	0	-0.0683	0.440	1.584***	1.446***	0.592*	0.881*
	(0.446)	(.)	(0.475)	(0.287)	(0.389)	(0.340)	(0.225)	(0.362)
dumq3	1.386	1.171	0.785	0.366	1.307*	0.189	1.235***	1.095**
	(0.711)	(0.652)	(1.095)	(0.463)	(0.618)	(0.467)	(0.330)	(0.398)
dumq4	0.170	-0.432	-1.922	-0.693	0	0	0	0
	(0.466)	(0.377)	(1.386)	(0.346)	(.)	(.)	(.)	(.)
dum90	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-1.823*	-0.337	0.203	-0.853	-0.679	0.0664	-0.527	-1.171
	(0.809)	(0.699)	(1.412)	(0.724)	(0.872)	(0.721)	(0.626)	(0.619)
dum92	-0.897	0.295	0.445	-0.273	-0.0658	0.440	0.416	-0.186
	(1.300)	(1.046)	(8.384)	(0.839)	(0.807)	(1.009)	(0.624)	(0.839)
dum93	-0.220	0.614	0.844	0.222	0.301	0.647	0.0979	-0.135
	(0.682)	(0.572)	(1.043)	(0.443)	(0.405)	(0.440)	(0.460)	(0.479)
dum94	-0.247	0.242	1.076	0.111	0.321	0.954	0.307	-0.0484
	(0.725)	(0.609)	(1.088)	(0.678)	(0.447)	(0.667)	(0.528)	(0.645)
dum95	0.489	1.187	1.674	0.968	1.052	1.434	0.505	0.839
	(1.673)	(1.609)	(1.140)	(0.955)	(0.913)	(0.875)	(0.587)	(1.044)
dum96	-0.545	0.218	0.641	-0.0269	-0.184	0.190	-0.110	-0.158
	(0.971)	(0.850)	(1.369)	(0.840)	(0.580)	(0.633)	(0.703)	(0.906)

Continued on next page.

Table A.5d: YSM Regressions: Quarterly Retail, with Level of Distribution – *Continued*

	(9) rqreg7ch	(10) rqreg8ch	(11) rqreg9ch	(12) rqreg10ch	(13) rqreg11ch	(14) rqreg12ch	(15) rqreg13ch	(16) rqarmmch
dum97	-0.614	0.0358	0.290	-0.0784	0.0146	0.363	-0.335	0.0134
	(0.450)	(0.460)	(0.854)	(0.235)	(0.385)	(0.454)	(0.506)	(0.361)
dum98	-0.0675	0.253	-0.341	-0.320	-0.309	-0.489	-0.400	-0.245
	(0.411)	(0.468)	(0.883)	(0.364)	(0.340)	(0.430)	(0.445)	(0.443)
dum99	-0.142	-0.102	-0.0488	-0.272	-0.156	0.0380	-0.446	-0.233
	(0.685)	(0.484)	(0.900)	(0.547)	(0.395)	(0.339)	(0.494)	(0.370)
dum00	-0.0254	0.182	0.0379	-0.0989	0.0961	0.0284	-0.317	-0.0840
	(0.654)	(0.457)	(0.796)	(0.392)	(0.517)	(0.402)	(0.555)	(0.567)
dum01	-0.279	-0.141	0.0853	-0.160	-0.200	0.0908	-0.643	-0.367
	(0.379)	(0.548)	(0.907)	(0.376)	(0.488)	(0.562)	(0.621)	(0.369)
dum02	0.00971	0.111	0.125	0.317	0.206	0.248	-0.502	-0.00681
	(0.293)	(0.376)	(0.776)	(0.379)	(0.521)	(0.486)	(0.690)	(0.321)
dum03	-0.243	-0.0125	0.284	0.00907	0.00245	0.290	-0.0393	-0.0750
	(0.361)	(0.366)	(0.958)	(0.293)	(0.676)	(0.630)	(0.265)	(0.371)
dum04	-0.0866	0.0224	0.0276	0.0127	0.278	0.244	0.132	0.0412
	(0.275)	(0.466)	(0.794)	(0.268)	(0.625)	(0.740)	(0.472)	(0.367)
dum05	0.865	0.0582	-0.00300	0.218	-0.0357	0.109	0.130	-0.0421
	(0.478)	(0.445)	(0.954)	(0.393)	(0.524)	(0.805)	(0.346)	(0.342)
dum06	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	-0.166	-0.506	-0.663	-0.0284	-1.198***	-1.521***	-0.978**	-0.369
	(0.752)	(0.566)	(1.374)	(0.354)	(0.232)	(0.368)	(0.358)	(0.562)
N	67	67	67	67	67	67	67	67
adj. R^2	-0.057	0.022	-0.273	0.054	0.200	0.174	0.107	0.059
Durbin-Watson d-statistic	2.657281	2.96879	2.969141	2.815614	2.671165	2.66576	2.578591	2.65297

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A2: Regressions of Regional WP on Manila WP and Previous Regional WP

	(1) lncar	(2) lnreg1	(3) lnreg2	(4) lnreg3	(5) lnreg4a	(6) lnreg4b	(7) lnreg5	(8) lnreg6
Natural Log Wholesale NCR	0.263***	0.268***	0.315***	0.412***	0.293***	0.346***	0.361***	0.213***
	(0.0325)	(0.0283)	(0.0360)	(0.0255)	(0.0277)	(0.0319)	(0.0366)	(0.0462)
Natural Log, Wholesale Previous Pd.	0.735***	0.756***	0.672***	0.602***	0.760***	0.660***	0.643***	0.753***
	(0.0320)	(0.0265)	(0.0367)	(0.0252)	(0.0232)	(0.0314)	(0.0353)	(0.0448)
_cons	-0.00763	-0.0860	0.0149	-0.0461	-0.145***	-0.0256	-0.0360	0.0760
	(0.0534)	(0.0455)	(0.0473)	(0.0331)	(0.0368)	(0.0443)	(0.0443)	(0.0702)
N	227	227	227	227	227	227	227	227
adj. R^2	0.930	0.952	0.941	0.972	0.975	0.951	0.951	0.878

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

	(9) lnreg7	(10) lnreg8	(11) lnreg9	(12) lnreg10	(13) lnreg11	(14) lnreg12	(15) lnreg13	(16) lnarmm
Natural Log Wholesale NCR	0.336***	0.331***	0.547***	0.297***	0.198***	0.167***	0.208***	0.248***
	(0.0355)	(0.0306)	(0.0747)	(0.0350)	(0.0371)	(0.0450)	(0.0288)	(0.0300)
Natural Log, Wholesale Previous Pd.	0.663***	0.648***	0.231***	0.635***	0.730***	0.782***	0.711***	0.768***
	(0.0350)	(0.0327)	(0.0641)	(0.0408)	(0.0422)	(0.0439)	(0.0369)	(0.0281)
_cons	0.00582	0.0588	0.636***	0.203***	0.194*	0.127	0.219***	-0.0484
	(0.0492)	(0.0482)	(0.184)	(0.0583)	(0.0762)	(0.0778)	(0.0655)	(0.0439)
N	227	227	227	227	227	227	227	227
adj. R^2	0.940	0.939	0.398	0.909	0.843	0.852	0.880	0.955

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.3a: Ravallion Regressions: Monthly Farm Price (Dry Season)

	(1) fphil	(2) freg1	(3) freg2	(4) freg3	(5) freg4a	(6) freg4b	(7) freg5	(8) freg6
Farm price, previous pd.	0.673***	0.770***	0.655***	0.606***	0.411**	0.440**	0.714***	0.695***
	(0.103)	(0.0895)	(0.0870)	(0.144)	(0.140)	(0.139)	(0.158)	(0.107)
Wholesale price, previous pd.	0.205*	0.132	0.248**	0.235	0.427**	0.356**	0.172	0.165
	(0.0906)	(0.0896)	(0.0817)	(0.137)	(0.125)	(0.111)	(0.125)	(0.101)
Change in wholesale price	0.759***	0.657***	0.294	0.132	1.085**	0.905**	0.630*	0.646***
	(0.207)	(0.178)	(0.183)	(0.560)	(0.369)	(0.274)	(0.239)	(0.172)
Ratio of Procurement and Production	-19.58	-23.92	-27.67	-18.18	-13.51	-13.82	-8.670	-111.4
	(20.00)	(41.31)	(20.87)	(27.38)	(24.02)	(16.51)	(12.97)	(74.20)
dum9596	0.239	0.444*	0.542	0.720	-0.0312	0.469	0.252	0.612*
	(0.169)	(0.216)	(0.284)	(0.367)	(0.467)	(0.335)	(0.352)	(0.240)
dum9799	-0.0463	0.0486	-0.0523	-0.0893	-0.455	0.181	0.00114	0.234
	(0.139)	(0.161)	(0.209)	(0.304)	(0.415)	(0.279)	(0.251)	(0.182)
_cons	0.895	1.134*	0.865	1.480	0.0816	1.121	0.546	1.466
	(0.524)	(0.506)	(0.744)	(1.019)	(1.089)	(1.004)	(0.929)	(0.752)
N	52	52	52	52	52	52	52	52
adj. R^2	0.973	0.977	0.948	0.906	0.871	0.891	0.905	0.957
Durbin's alternative test for autocorrelation								
chi2	0.275	1.997	0.415	0.810	0.947	3.580	0.142	0.342
Prob > chi2	0.6001	0.1576	0.5195	0.3682	0.3304	0.0585	0.7065	0.5588

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Continued on next page.

Table A.3a: Ravallion Regressions: Monthly Farm Price (Dry Season) - *Continued*

	(9) freg7^	(10) freg8^	(11) freg9	(12) freg10	(13) freg11	(14) freg12	(15) freg13	(16) farmm^
Farm price, previous pd.	0.870***	0.510***	0.573***	0.720***	0.361*	0.491**	0.383**	0.594***
	(0.154)	(0.0982)	(0.139)	(0.106)	(0.160)	(0.157)	(0.129)	(0.123)
Wholesale price, previous pd.	-0.000836	0.244*	0.266	0.129	0.393*	0.455*	0.424**	0.188
	(0.0820)	(0.121)	(0.151)	(0.0943)	(0.163)	(0.176)	(0.128)	(0.101)
Change in wholesale price	0.304	0.382	0.218	0.473*	0.891**	0.861***	0.688**	-0.0653
	(0.153)	(0.320)	(0.284)	(0.221)	(0.310)	(0.177)	(0.246)	(0.172)
Ratio of Procurement and Production	498.7	-113.1	-84.89	-29.36	36.55	-51.75	-2280.1***	12.71
	(633.1)	(87.61)	(99.24)	(30.15)	(58.45)	(56.76)	(579.0)	(27.95)
dum9596	0.0124	0.335	-0.0173	-0.0436	0.519	-0.163	0.216	-0.111
	(0.394)	(0.413)	(0.438)	(0.299)	(0.395)	(0.343)	(0.355)	(0.515)
dum9799	-0.367	0.0441	-0.264	-0.215	0.370	0.0467	-0.144	-0.145
	(0.302)	(0.344)	(0.401)	(0.268)	(0.316)	(0.215)	(0.272)	(0.369)
_cons	2.082	1.579	1.051	1.558	1.140	-0.379	0.526	1.908
	(1.359)	(1.806)	(1.592)	(1.019)	(1.516)	(1.051)	(1.304)	(0.988)
N	52	52	52	52	52	52	52	52
adj. R^2			0.789	0.865	0.774	0.947	0.838	
Durbin's alternative test for autocorrelation								
chi2			2.124	0.208	0.671	0.027	1.189	
Prob > chi2			0.1450	0.6480	0.4128	0.8698	0.2755	

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table A.3b: Ravallion Regressions: Monthly Farm Price (Harvest Season)

	(1) fphil	(2) freg1	(3) freg2	(4) freg3	(5) freg4a	(6) freg4b	(7) freg5	(8) freg6
fphilp	0.700***	0.123	0.275*	0.657***	0.514**	0.270	0.319*	0.391***
	(0.149)	(0.182)	(0.126)	(0.132)	(0.163)	(0.137)	(0.128)	(0.106)
wphilp	0.184	0.379	0.406**	0.0182	0.182	0.443***	0.438***	0.559***
	(0.114)	(0.200)	(0.135)	(0.128)	(0.113)	(0.111)	(0.105)	(0.0931)
wphilch	0.620***	0.844*	0.609**	0.257	-0.226	0.494**	1.242***	1.025***
	(0.152)	(0.324)	(0.221)	(0.316)	(0.240)	(0.150)	(0.265)	(0.160)
procphil	-34.51	-60.05	-149.1**	-27.61	-12.96	-9.438	-59.83**	-73.65*
	(23.49)	(33.08)	(44.08)	(30.46)	(11.55)	(7.855)	(21.88)	(31.10)
dum9596	0.200	1.620*	0.711	1.435*	0.0296	0.400	0.342	-0.381
	(0.294)	(0.703)	(0.461)	(0.621)	(0.592)	(0.345)	(0.353)	(0.283)
dum9799	-0.0994	0.662	0.311	0.546	0.120	-0.126	-0.0370	-0.404*
	(0.209)	(0.474)	(0.296)	(0.431)	(0.384)	(0.244)	(0.230)	(0.174)
_cons	0.739	4.972*	2.362	3.951*	2.633*	1.099	0.345	-1.156
	(0.843)	(1.922)	(1.222)	(1.566)	(1.177)	(0.842)	(0.884)	(0.781)
N	52	52	52	52	52	52	52	52
adj. R^2	0.932	0.703	0.867	0.772	0.811	0.931	0.914	0.944
Durbin's alternative test for autocorrelation								
chi2	0.912	0.000	0.250	1.728	0.545	0.144	0.763	0.050
Prob > chi2	0.3395	0.9877	0.6169	0.1887	0.4602	0.7039	0.3823	0.8224

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Continued on next page.

Table A.3b: Ravallion Regressions: Monthly Farm Price (Harvest Season) - *Continued*

	(9) freg7	(10) freg8	(11) freg9	(12) freg10	(13) freg11	(14) freg12^	(15) freg13	(16) farmm
freg7p	0.247*	0.194	0.491***	0.516***	0.458***	0.650***	0.584***	0.358*
	(0.110)	(0.130)	(0.120)	(0.117)	(0.127)	(0.116)	(0.108)	(0.137)
wreg7p	0.0894	0.492***	0.389**	0.386***	0.441***	0.241*	0.212	0.465**
	(0.0737)	(0.115)	(0.129)	(0.0909)	(0.112)	(0.0994)	(0.116)	(0.148)
wreg7ch	0.447*	0.214	0.973***	0.813***	0.811***	0.743***	0.618***	0.712
	(0.179)	(0.175)	(0.217)	(0.124)	(0.104)	(0.143)	(0.151)	(0.395)
procreg7	-1128.8**	-1095.3	-89.10	-25.32	20.21	-18.94	-454.7	-8.068
	(353.9)	(749.8)	(57.25)	(40.69)	(15.31)	(10.04)	(769.8)	(25.31)
dum9596	1.114*	0.0345	-0.307	-0.292	-0.170	0.526*	0.632	-1.204
	(0.513)	(0.457)	(0.524)	(0.349)	(0.292)	(0.228)	(0.347)	(0.812)
dum9799	0.522	0.209	-0.246	-0.683**	-0.0548	0.306*	0.0221	-0.667
	(0.294)	(0.294)	(0.394)	(0.246)	(0.181)	(0.144)	(0.237)	(0.619)
_cons	7.823***	0.874	-0.404	-0.865	-0.916	0.749	1.104	-0.223
	(1.629)	(1.343)	(1.910)	(1.330)	(0.902)	(0.578)	(1.238)	(2.206)
N	52	52	52	52	52	52	52	52
adj. R^2	0.606	0.837	0.750	0.850	0.922		0.878	0.511
Durbin's alternative test for autocorrelation								
chi2	0.626	0.001	0.005	0.177	0.346		0.032	3.413
Prob > chi2	0.4290	0.9757	0.9437	0.6742	0.5562		0.8572	0.0647

Standard errors in parentheses

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

^Newey-West HAC Standard Errors

Table A. 3c: Ravallion Farm Price (Off Season)

	(1) fphil	(2) freg1	(3) freg2	(4) freg3	(5) freg4a	(6) freg4b	(7) freg5	(8) freg6
Farm price, previous pd.	1.217***	0.531*	0.741***	0.625***	0.661**	0.651**	0.457**	0.739***
	(0.164)	(0.210)	(0.185)	(0.169)	(0.188)	(0.194)	(0.147)	(0.133)
Wholesale price, previous pd.	-0.264	0.155	0.0919	0.0180	0.0910	-0.0541	0.109	0.00214
	(0.133)	(0.187)	(0.187)	(0.150)	(0.125)	(0.233)	(0.146)	(0.122)
Change in wholesale price	0.683***	1.112***	0.700**	0.995***	0.338	1.045***	0.990***	0.756***
	(0.142)	(0.217)	(0.211)	(0.210)	(0.197)	(0.196)	(0.161)	(0.111)
Ratio of Procurement and Prod'n	119.1	105.3	54.88	67.38	-21.32	21.65	-48.36	-94.63
	(95.96)	(167.4)	(165.0)	(106.0)	(60.07)	(76.07)	(45.34)	(138.1)
dum9596	0.162	1.141	0.361	0.507	0.866	1.560	0.847	0.464
	(0.442)	(0.718)	(0.723)	(0.822)	(0.596)	(0.784)	(0.634)	(0.490)
dum9799	0.316	0.215	0.164	0.403	0.251	0.919	0.474	0.362
	(0.270)	(0.430)	(0.448)	(0.484)	(0.388)	(0.516)	(0.372)	(0.308)
_cons	1.235	3.873*	1.724	4.698*	2.696	5.040*	4.314**	2.939*
	(1.298)	(1.682)	(2.000)	(2.149)	(1.380)	(2.311)	(1.578)	(1.402)
N	52	52	52	52	52	52	52	52
adj. R^2	0.893	0.871	0.776	0.731	0.842	0.842	0.816	0.881
Durbin's alternative test for autocorrelation								
chi2	0.021	1.454	1.750	1.878	1.440	0.042	0.444	1.832
Prob > chi2	0.2280	0.1858	0.1706	0.2301	0.9578	0.8371	0.5051	0.1758

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Continued on next page.

Table A. 3c: Ravallion Farm Price (Off Season) - *Continued*

	(9) freg7	(10) freg8^	(11) freg9	(12) freg10^	(13) freg11^	(14) freg12	(15) freg13	(16) farmm
Farm price, previous pd.	0.730***	0.433	0.475**	0.594**	0.503*	0.810***	0.276	0.583***
	(0.134)	(0.227)	(0.169)	(0.208)	(0.192)	(0.157)	(0.162)	(0.145)
Wholesale price, previous pd.	-0.0595	0.311	0.112	0.0933	0.309	-0.0302	0.336	0.242
	(0.132)	(0.167)	(0.199)	(0.171)	(0.206)	(0.174)	(0.191)	(0.141)
Change in wholesale price	0.341	0.865***	0.984***	0.718**	0.657***	0.774***	1.073***	-0.0890
	(0.207)	(0.185)	(0.255)	(0.207)	(0.140)	(0.107)	(0.234)	(0.328)
Ratio of Procurement and Prod'n	-379.5	-2396.3	-170.2	-177.2	-69.90	-37.72	-5174.8	-17.21
	(925.7)	(1812.0)	(102.3)	(153.4)	(53.41)	(46.07)	(5489.5)	(75.01)
dum9596	0.978	-0.285	0.375	0.429	0.242	0.510	0.629	-0.930
	(0.948)	(0.630)	(0.778)	(0.587)	(0.513)	(0.438)	(0.548)	(0.939)
dum9799	0.247	0.437	0.223	0.299	0.0353	0.261	-0.325	-0.581
	(0.541)	(0.632)	(0.544)	(0.412)	(0.271)	(0.270)	(0.399)	(0.638)
_cons	4.332	1.407	4.701	3.338	0.707	2.834	3.314	1.151
	(2.664)	(1.914)	(2.766)	(2.291)	(1.774)	(1.510)	(2.240)	(2.319)
N	52	52	52	52	52	52	52	52
adj. R^2	0.508		0.617			0.912	0.682	0.446
Durbin's alternative test for autocorrelation								
chi2	0.348		1.221			1.769	1.463	0.021
Prob > chi2	0.5554		0.2692			0.1835	0.2265	0.8844

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table A.4a: Ravallion Regressions: Monthly Retail Price (Dry Season)

	(1) rphil	(2) rmm	(3) rcar	(4) rreg1	(5) rreg2	(6) rreg3^	(7) rreg4a	(8) rreg4b	(9) rreg5
Retail price, previous pd.	0.693***	0.804***	0.853***	0.869***	0.636***	0.591***	0.872***	0.665***	0.821***
	(0.0729)	(0.0526)	(0.0845)	(0.0738)	(0.0864)	(0.146)	(0.0573)	(0.0821)	(0.0462)
Wholesale price, previous pd.	0.318***	0.182***	0.196*	0.128	0.375***	0.425**	0.131*	0.366***	0.182***
	(0.0729)	(0.0471)	(0.0791)	(0.0725)	(0.0929)	(0.144)	(0.0608)	(0.0830)	(0.0501)
Change in wholesale price	0.914***	0.437***	0.701***	0.963***	0.813***	1.071***	0.738***	0.882***	0.749***
	(0.0304)	(0.0552)	(0.0803)	(0.0548)	(0.0702)	(0.0378)	(0.0558)	(0.0479)	(0.0466)
dum9596	-0.0252	0.0526	-0.210	-0.00793	0.0895	0.214	-0.0332	-0.00155	0.0340
	(0.0493)	(0.166)	(0.160)	(0.101)	(0.152)	(0.206)	(0.114)	(0.103)	(0.0944)
dum9799	0.0541	0.128	-0.225	0.0249	0.0200	0.126	0.0432	0.112	0.0722
	(0.0428)	(0.141)	(0.114)	(0.0881)	(0.120)	(0.0954)	(0.0958)	(0.0997)	(0.0716)
_cons	0.282	0.661	-0.531	0.225	0.342	0.333	0.146	-0.0280	0.274
	(0.182)	(0.512)	(0.450)	(0.296)	(0.386)	(0.446)	(0.262)	(0.316)	(0.227)
N	76	76	76	76	76	76	76	76	76
adj. R^2	0.998	0.978	0.977	0.989	0.980		0.993	0.991	0.994
Durbin's alternative test for autocorrelation									
chi2	0.111	0.853	0.403	2.418	0.023		0.187	2.292	0.167
Prob > chi2	0.7385	0.3556	0.5253	0.1199	0.8799		0.6655	0.1300	0.6827

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

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Table A.4a: Ravallion Regressions: Monthly Retail Price (Dry Season) - *Continued*

	(10) rreg6	(11) rreg7	(12) rreg8	(13) rreg9^	(14) rreg10	(15) rreg11	(16) rreg12	(17) rreg13	(18) rarmm
Retail price, previous pd.	0.891***	0.803***	0.704***	0.632***	0.651***	0.470***	0.414***	0.759***	0.562***
	(0.0543)	(0.0446)	(0.0776)	(0.0772)	(0.0893)	(0.0810)	(0.0837)	(0.0674)	(0.0983)
Wholesale price, previous pd.	0.0925	0.277***	0.234**	0.371***	0.368***	0.516***	0.574***	0.269***	0.419***
	(0.0504)	(0.0596)	(0.0715)	(0.0767)	(0.0833)	(0.0784)	(0.0777)	(0.0665)	(0.0942)
Change in wholesale price	0.795***	0.671***	0.580***	0.876***	0.767***	0.763***	0.662***	0.799***	0.865***
	(0.0524)	(0.0790)	(0.0709)	(0.0678)	(0.0606)	(0.0490)	(0.0483)	(0.0497)	(0.0582)
dum9596	0.154	-0.281	0.195	0.143	-0.0441	0.137	-0.326**	-0.0671	0.165
	(0.109)	(0.196)	(0.154)	(0.0915)	(0.136)	(0.0996)	(0.109)	(0.0858)	(0.146)
dum9799	0.0348	-0.384*	0.201	-0.0100	0.0360	0.221*	0.0168	-0.0252	-0.131
	(0.0956)	(0.160)	(0.118)	(0.0681)	(0.117)	(0.0861)	(0.0823)	(0.0695)	(0.120)
_cons	0.489	-0.919	1.488**	0.381	0.226	0.921*	1.226**	-0.112	0.946*
	(0.368)	(0.493)	(0.478)	(0.312)	(0.521)	(0.350)	(0.398)	(0.326)	(0.441)
N	76	76	76	76	76	76	76	76	76
adj. R^2	0.985	0.977	0.978		0.979	0.987	0.984	0.987	0.983
Durbin's alternative test for autocorrelation									
chi2	0.006	0.974	0.010		0.016	0.284	0.557	0.071	0.044
Prob > chi2	0.9406	0.3238	0.9221		0.8984	0.5940	.4554	0.7895	0.8339

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table A.4b: Ravallion Regressions: Monthly Retail Price (Harvest Season)

	(1) rphil^	(2) rmm	(3) rcar	(4) rreg1	(5) rreg2	(6) rreg3	(7) rreg4a	(9) rreg5	(8) rreg4b^
Retail price, previous pd.	0.636***	0.564***	0.681***	0.638***	0.749***	0.683***	0.767***	0.716***	0.653***
	(0.102)	(0.0900)	(0.0794)	(0.0726)	(0.0883)	(0.0812)	(0.0550)	(0.0482)	(0.0686)
Wholesale price, previous pd.	0.354**	0.452***	0.265***	0.281***	0.244*	0.292***	0.234***	0.284***	0.337***
	(0.106)	(0.0967)	(0.0762)	(0.0788)	(0.101)	(0.0827)	(0.0601)	(0.0588)	(0.0711)
Change in wholesale price	0.614***	0.580***	0.563***	0.724***	0.707***	0.779***	0.754***	0.642***	0.628***
	(0.0517)	(0.148)	(0.0633)	(0.0681)	(0.0746)	(0.0645)	(0.0611)	(0.0842)	(0.129)
dum9596	0.133	0.628	0.0326	0.410**	-0.0227	0.282*	-0.0402	0.106	0.101
	(0.113)	(0.418)	(0.161)	(0.153)	(0.155)	(0.123)	(0.149)	(0.144)	(0.213)
dum9799	0.0348	-0.120	0.0816	0.395***	-0.0192	0.129	0.0578	0.0759	0.0597
	(0.0476)	(0.290)	(0.101)	(0.108)	(0.101)	(0.0880)	(0.1000)	(0.0836)	(0.128)
_cons	0.721**	0.685	1.279**	1.737***	0.442	0.874**	0.335		0.721
	(0.244)	(1.107)	(0.431)	(0.380)	(0.410)	(0.313)	(0.286)	0.482	(0.573)
N	75	75	75	75	75	75	75	(0.304)	75
adj. R^2		0.913	0.981	0.984	0.983	0.993	0.994	75	
Durbin's alternative test for autocorrelation									
chi2		0.112	0.088	2.962	0.047	0.004	0.342	1.909	
Prob > chi2		0.7382	0.7663	0.0852	0.8289	0.9523	0.5585	0.1670	

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Continued on next page.

Table A.4b: Ravallion Regressions: Monthly Retail Price (Harvest Season) - *Continued*

	(9) rreg5	(10) rreg6	(11) rreg7	(12) rreg8	(13) rreg9^	(14) rreg10	(15) rreg11	(16) rreg12^	(17) rreg13	(18) rarmm
Retail price, previous pd.	0.716***	0.910***	0.954***	0.682***	0.669***	0.767***	0.503***	0.498***	0.776***	0.921***
	(0.0482)	(0.0463)	(0.0512)	(0.0918)	(0.0794)	(0.0635)	(0.0790)	(0.108)	(0.0429)	(0.0492)
Wholesale price, previous pd.	0.284***	0.0547	0.0321	0.317***	0.344***	0.195*	0.476***	0.444***	0.191***	0.0935*
	(0.0588)	(0.0529)	(0.0754)	(0.0916)	(0.0844)	(0.0750)	(0.0854)	(0.0903)	(0.0492)	(0.0432)
Change in wholesale price	0.642***	0.737***	0.322**	0.796***	0.641***	0.577***	0.719***	0.578***	0.566***	0.586***
	(0.0842)	(0.0555)	(0.0985)	(0.0673)	(0.0774)	(0.0519)	(0.0539)	(0.0806)	(0.0560)	(0.0763)
dum9596	0.106	-0.142	-0.0281	0.0874	-0.00716	0.0642	0.335*	0.0375	0.0524	-0.171
	(0.144)	(0.139)	(0.258)	(0.171)	(0.103)	(0.146)	(0.154)	(0.133)	(0.115)	(0.215)
dum9799	0.0759	0.0585	0.0197	-0.0280	-0.0337	0.0221	0.191	-0.0405	0.0427	-0.0957
	(0.0836)	(0.0977)	(0.161)	(0.114)	(0.0801)	(0.107)	(0.0996)	(0.0980)	(0.0779)	(0.0823)
_cons	0.482	0.707	0.174	0.463	0.194	0.994*	1.079*	1.802**	0.835*	-0.00719
	(0.304)	(0.384)	(0.633)	(0.502)	(0.347)	(0.486)	(0.471)	(0.621)	(0.402)	(0.425)
N	75	75	75	75	75	75	75	75	75	75
adj. R^2	0.993	0.984	0.976	0.980		0.980	0.979		0.981	
Durbin's alternative test for autocorrelation										
chi2	1.909	0.003	0.773	1.365		1.824	0.887		1.227	
Prob > chi2	0.1670	0.9563	0.3792	0.2427		0.1769	0.3462		0.2680	

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table A.4c: Ravallion Regressions: Monthly Retail Price (Off Season)

	(1) rphil	(2) rmm	(3) rcar	(4) rreg1	(5) rreg2^	(6) rreg3	(7) rreg4a	(8) rreg4b	(9) rreg5
Retail price, previous pd.	0.635***	0.544***	0.547***	0.922***	0.546***	0.733***	0.896***	0.674***	0.900***
	(0.120)	(0.0946)	(0.0801)	(0.0734)	(0.121)	(0.0890)	(0.0693)	(0.0758)	(0.125)
Wholesale price, previous pd.	0.422**	0.451***	0.434***	0.0934	0.500***	0.266**	0.131	0.333***	0.203
	(0.126)	(0.0905)	(0.0838)	(0.0685)	(0.131)	(0.0933)	(0.0729)	(0.0790)	(0.135)
Change in wholesale price	1.000***	0.768***	0.878***	1.086***	0.999***	1.007***	0.939***	0.786***	1.054***
	(0.0327)	(0.0710)	(0.0459)	(0.0501)	(0.0786)	(0.0342)	(0.0610)	(0.0304)	(0.0666)
dum9596	0.00278	0.152	0.616***	0.0638	0.00712	0.0513	0.0531	0.330**	0.108
	(0.0924)	(0.273)	(0.172)	(0.141)	(0.161)	(0.115)	(0.186)	(0.112)	(0.265)
dum9799	-0.0609	0.125	0.0130	-0.0293	-0.0684	0.103	0.00480	0.128	-0.287
	(0.0638)	(0.200)	(0.114)	(0.0996)	(0.0704)	(0.0807)	(0.136)	(0.0851)	(0.169)
									-1.514*
_cons	-0.394	0.863	0.893*	-0.139	-0.0789	0.418	-0.292	0.337	(0.606)
	(0.257)	(0.704)	(0.381)	(0.361)	(0.382)	(0.275)	(0.399)	(0.278)	76
N	76	76	76	76	76	76	76	76	0.972
adj. R^2	0.995	0.960	0.983	0.989		0.994	0.987	0.994	0.458
Durbin's alternative test for autocorrelation									
chi2	0.997	2.308	0.730	1.403		3.551	0.063	0.019	0.4985
Prob > chi2	0.3180	.1287	0.3929	0.2363		0.0595	0.8025	0.8894	

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Continued on next page.

Table A.4c: Ravallion Regressions: Monthly Retail Price (Off Season) - *Continued*

	(10) rreg6	(11) rreg7^	(12) rreg8	(13) rreg9	(14) rreg10	(15) rreg11	(16) rreg12	(17) rreg13	(18) rarmm
Retail price, previous pd.	0.925***	0.791***	0.428***	0.686***	0.561***	0.661***	0.462***	0.651***	0.725***
	(0.105)	(0.0698)	(0.0943)	(0.112)	(0.105)	(0.0961)	(0.103)	(0.126)	(0.0894)
Wholesale price, previous pd.	0.137	0.261**	0.525***	0.319**	0.486***	0.447***	0.597***	0.448**	0.281**
	(0.103)	(0.0763)	(0.0943)	(0.113)	(0.111)	(0.103)	(0.110)	(0.139)	(0.0933)
Change in wholesale price	1.064***	0.826***	1.151***	0.866***	0.893***	0.998***	0.788***	0.953***	0.920***
	(0.0608)	(0.101)	(0.0488)	(0.0552)	(0.0587)	(0.0367)	(0.0418)	(0.0389)	(0.0614)
dum9596	0.121	-0.190	0.412*	0.301*	0.0552	-0.310*	-0.306	-0.268	-0.0902
	(0.248)	(0.277)	(0.169)	(0.147)	(0.185)	(0.151)	(0.193)	(0.135)	(0.157)
dum9799	-0.0152	-0.147	0.128	-0.00608	-0.155	-0.298**	-0.243	-0.241*	-0.162
	(0.176)	(0.102)	(0.110)	(0.104)	(0.133)	(0.112)	(0.133)	(0.102)	(0.129)
_cons	-0.776	-0.397	1.546***	0.307	-0.181	-1.311**	-0.115	-1.145**	0.320
	(0.696)	(0.493)	(0.424)	(0.406)	(0.538)	(0.433)	(0.555)	(0.395)	(0.378)
N	76	76	76	76	76	76	76	76	76
adj. R^2	0.957		0.983	0.981	0.971	0.977	0.961	0.977	0.987
Durbin's alternative test for autocorrelation									
chi2	2.282		0.005	0.121	2.680	0.300	0.099	0.189	1.445
Prob > chi2	0.1309		0.9458	0.7277	0.1016	0.5839	0.7531	0.6638	0.2293

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Newey-West HAC Standard Errors

Table A.5a: YSM Regressions: Monthly Farm, with Level of Procurement

	(1) freg1ch	(2) freg2ch	(3) freg3ch	(4) freg4ach	(5) freg4bch	(6) freg5ch	(7) freg6ch	(8) freg7ch
time	-0.000708	0.000982	-0.000559	0.000270	0.000338	-0.000214	0.000688	-0.00214
	(0.00156)	(0.00171)	(0.00185)	(0.00169)	(0.00196)	(0.00177)	(0.00171)	(0.00230)
Procurement	0.00000342	0.0000133	-0.0000141	0.0000191	0.00000931	-0.0000344	0.00000902	-0.00403**
	(0.0000273)	(0.0000232)	(0.0000156)	(0.0000160)	(0.0000186)	(0.0000388)	(0.0000252)	(0.00132)
dumjan	0.702**	0.615*	0	0.842**	0.233	0	0.462	0.491
	(0.264)	(0.267)	(.)	(0.323)	(0.374)	(.)	(0.272)	(0.358)
dumfeb	0.290	0.774**	-0.0582	0.946**	0.820*	0.516	0.753**	-0.227
	(0.278)	(0.269)	(0.288)	(0.338)	(0.392)	(0.277)	(0.271)	(0.361)
dummar	0.203	0.501	-0.371	0.352	0.136	-0.150	0.786**	-0.198
	(0.278)	(0.266)	(0.288)	(0.335)	(0.388)	(0.280)	(0.266)	(0.360)
dumapr	0.206	0.534*	-0.264	0.0859	0.571	0.227	0.841**	0.289
	(0.277)	(0.257)	(0.288)	(0.316)	(0.366)	(0.297)	(0.271)	(0.359)
dummay	0.154	0.381	-0.112	0.873**	0.596	0.357	0.671*	0.145
	(0.276)	(0.256)	(0.289)	(0.313)	(0.363)	(0.283)	(0.272)	(0.361)
dumjun	0.105	0.482	0.0785	0.685*	0.543	0.190	0.285	-0.383
	(0.280)	(0.264)	(0.287)	(0.335)	(0.388)	(0.277)	(0.274)	(0.357)
dumjul	0.163	0.384	-0.340	0.733*	0.688	0.478	0.389	-0.746*
	(0.284)	(0.270)	(0.287)	(0.346)	(0.401)	(0.277)	(0.275)	(0.365)
dumaug	0.454	0.0920	-0.155	0.487	0.318	0.0906	-0.307	-0.0700
	(0.284)	(0.270)	(0.288)	(0.350)	(0.406)	(0.277)	(0.274)	(0.366)
dumsep	-1.107***	-0.701**	-1.492***	-0.0120	-0.899*	-0.981***	-1.316***	-1.101**
	(0.284)	(0.269)	(0.288)	(0.350)	(0.405)	(0.277)	(0.265)	(0.366)
dumoct	-1.813***	-0.912***	-1.449***	-0.406	-0.489	-0.816**	0	-0.978**
	(0.261)	(0.257)	(0.288)	(0.305)	(0.353)	(0.282)	(.)	(0.359)
dumnov	0	0	0.0321	0	0	0.282	0.722**	-0.189
	(.)	(.)	(0.299)	(.)	(.)	(0.285)	(0.256)	(0.349)
dumdec	0.144	0.459	-0.00594	0.567*	0.431	0.826**	0.698**	0
	(0.240)	(0.256)	(0.297)	(0.272)	(0.316)	(0.279)	(0.261)	(.)
dum90	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-0.601*	-0.0458	-0.238	-0.335	-0.193	-0.140	-0.151	0.132
	(0.284)	(0.303)	(0.334)	(0.315)	(0.365)	(0.321)	(0.303)	(0.425)
dum92	0.0924	0.160	0.138	0.0851	0.0360	0.0437	0.158	-0.0377
	(0.275)	(0.294)	(0.324)	(0.305)	(0.353)	(0.313)	(0.295)	(0.401)
dum93	0.0513	0.389	0.173	0.152	0.214	0.0610	0.192	-0.169
	(0.270)	(0.291)	(0.322)	(0.297)	(0.344)	(0.307)	(0.297)	(0.398)
dum94	-0.232	0.0466	-0.130	-0.0478	0.0325	0.0515	0.171	-0.217
	(0.264)	(0.286)	(0.315)	(0.291)	(0.338)	(0.302)	(0.293)	(0.389)
dum95	0.333	0.639*	0.451	0.463	0.395	0.266	0.397	0.0546
	(0.261)	(0.283)	(0.308)	(0.289)	(0.334)	(0.296)	(0.286)	(0.382)
dum96	-0.322	-0.189	-0.331	-0.290	-0.0276	-0.0488	-0.117	-0.171
	(0.253)	(0.272)	(0.301)	(0.281)	(0.326)	(0.289)	(0.280)	(0.372)
dum97	-0.0467	0.163	0.0992	0.0873	0.0400	-0.0285	0.108	-0.132
	(0.251)	(0.271)	(0.299)	(0.277)	(0.322)	(0.287)	(0.276)	(0.369)

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	(1) freg1ch	(2) freg2ch	(3) freg3ch	(4) freg4ach	(5) freg4bch	(6) freg5ch	(7) freg6ch	(8) freg7ch
dum98	-0.0509	0.0945	-0.0267	-0.0628	-0.110	-0.0470	-0.00537	-0.156
	(0.252)	(0.271)	(0.297)	(0.277)	(0.321)	(0.285)	(0.273)	(0.367)
dum99	-0.128	-0.0483	-0.0000479	-0.0950	-0.0986	0.124	0.0183	0.168
	(0.251)	(0.273)	(0.299)	(0.280)	(0.324)	(0.309)	(0.266)	(0.363)
dum00	-0.0348	0.0368	0.177	-0.0374	0.0776	0.164	0.0471	-0.00358
	(0.261)	(0.274)	(0.307)	(0.282)	(0.327)	(0.301)	(0.267)	(0.364)
dum01	-0.128	0.0438	0.0624	-0.0946	0.00806	0.103	0.0000435	0.153
	(0.257)	(0.275)	(0.300)	(0.288)	(0.333)	(0.300)	(0.271)	(0.369)
dum02	0.0467	0.112	0.121	-0.0767	-0.0909	0.127	0.0922	0.127
	(0.258)	(0.275)	(0.304)	(0.293)	(0.340)	(0.298)	(0.275)	(0.375)
dum03	-0.0561	0.00518	0.0261	-0.0712	0.00114	0.0472	-0.0183	0.0622
	(0.272)	(0.281)	(0.310)	(0.296)	(0.343)	(0.300)	(0.282)	(0.383)
dum04	0.0207	0.0852	0.188	-0.104	-0.0220	0.161	0.0615	0.105
	(0.270)	(0.288)	(0.318)	(0.304)	(0.352)	(0.308)	(0.287)	(0.392)
dum05	0.111	0.0854	0.0962	-0.0134	0.0706	0.110	0.0201	0.145
	(0.277)	(0.296)	(0.326)	(0.307)	(0.356)	(0.314)	(0.295)	(0.402)
dum06	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	0.144	-0.458	0.358	-0.535	-0.361	-0.113	-0.502	0.557
	(0.331)	(0.331)	(0.337)	(0.377)	(0.437)	(0.319)	(0.349)	(0.450)
N	203	203	203	203	203	203	203	203
adj. R^2	0.465	0.267	0.234	0.144	0.147	0.222	0.349	0.093
Durbin-Watson d-statistic	2.040138	2.290893	2.377124	2.32144	2.439047	2.555805	2.71869	2.456515

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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Table A.5a: YSM Regressions: Monthly Farm, with Level of Procurement - *Continued*

	(9) freg8ch	(10) freg9ch	(11) freg10ch	(12) freg11ch	(13) freg12ch	(14) freg13ch	(15) farmmch
time	0.000148	0.00152	0.000351	0.00116	0.000763	0.00116	0.00106
	(0.00245)	(0.00196)	(0.00159)	(0.00184)	(0.00151)	(0.00171)	(0.00217)
Procurement	-0.000230	0.0000544	-0.000129	0.0000313	0.00000645	-0.00886**	0.0000214
	(0.000367)	(0.000145)	(0.0000873)	(0.0000675)	(0.0000226)	(0.00333)	(0.000103)
dumjan	0	0.438	0.0621	0	0.649**	0	0.286
	(.)	(0.306)	(0.244)	(.)	(0.238)	(.)	(0.360)
dumfeb	0.0523	0.256	0.271	0.0432	0.543*	0.0867	0.0242
	(0.372)	(0.306)	(0.247)	(0.274)	(0.239)	(0.274)	(0.361)
dummar	0.225	0.0371	-0.0184	0.228	0.690**	-0.358	0.603
	(0.372)	(0.301)	(0.243)	(0.274)	(0.237)	(0.274)	(0.355)
dumapr	0.0669	0.285	0.328	-0.288	0.906***	0.0148	0.367
	(0.392)	(0.300)	(0.234)	(0.275)	(0.238)	(0.278)	(0.362)
dummay	0.361	0.0828	0.0345	-0.214	0.609*	0.00883	0.265
	(0.382)	(0.307)	(0.233)	(0.274)	(0.239)	(0.274)	(0.363)
dumjun	0.534	0.275	-0.134	-0.285	0.470	-0.167	0.212
	(0.372)	(0.311)	(0.234)	(0.274)	(0.238)	(0.274)	(0.365)
dumjul	0.0771	0.0406	0.0718	0.125	0.673**	0.312	0.431
	(0.371)	(0.312)	(0.244)	(0.274)	(0.240)	(0.274)	(0.365)
dumaug	0.587	-0.594	-0.0280	-0.277	0.100	-0.360	-0.157
	(0.372)	(0.308)	(0.246)	(0.274)	(0.238)	(0.274)	(0.361)
dumsep	-0.203	-1.128***	-1.103***	-0.933***	-1.313***	-0.871**	-0.606
	(0.372)	(0.303)	(0.245)	(0.274)	(0.234)	(0.274)	(0.358)
dumoct	-0.398	-0.975**	-0.948***	-0.828**	0	-0.730**	0.102
	(0.372)	(0.291)	(0.234)	(0.284)	(.)	(0.274)	(0.342)
dumnov	-0.209	0	0	-0.670*	0.542*	-0.645*	0
	(0.376)	(.)	(.)	(0.287)	(0.223)	(0.277)	(.)
dumdec	0.169	-0.104	0.138	-0.103	0.776***	-0.276	-0.121
	(0.373)	(0.291)	(0.234)	(0.278)	(0.226)	(0.274)	(0.345)
dum90	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-0.101	-0.0492	0.152	-0.0555	-0.192	-0.186	-0.108
	(0.443)	(0.350)	(0.275)	(0.318)	(0.270)	(0.318)	(0.406)
dum92	0.237	0.159	0.220	0.0979	0.192	0.0737	0.176
	(0.420)	(0.332)	(0.267)	(0.311)	(0.262)	(0.309)	(0.394)
dum93	-0.0302	0.285	0.0931	0.145	0.189	0.0973	0.00229
	(0.412)	(0.331)	(0.267)	(0.308)	(0.258)	(0.301)	(0.383)
dum94	0.115	0.233	0.259	0.145	0.139	0.00605	0.146
	(0.410)	(0.330)	(0.266)	(0.309)	(0.255)	(0.294)	(0.372)
dum95	0.223	0.273	0.225	0.406	0.383	0.292	0.269
	(0.405)	(0.322)	(0.261)	(0.302)	(0.249)	(0.288)	(0.365)
dum96	-0.242	-0.0136	-0.0620	-0.0599	-0.122	-0.236	-0.0241
	(0.395)	(0.312)	(0.253)	(0.290)	(0.242)	(0.284)	(0.359)
dum97	0.00605	0.285	0.0712	0.152	0.104	0.00320	0.0491
	(0.390)	(0.310)	(0.250)	(0.290)	(0.240)	(0.281)	(0.356)

Continued on next page.

Table A.5a: YSM Regressions: Monthly Farm, with Level of Procurement - *Continued*

	(9) freg8ch	(10) freg9ch	(11) freg10ch	(12) freg11ch	(13) freg12ch	(14) freg13ch	(15) farmmch
dum98	0.0879	-0.131	-0.0295	-0.0951	-0.108	-0.0966	-0.196
	(0.387)	(0.303)	(0.247)	(0.286)	(0.235)	(0.280)	(0.354)
dum99	-0.0658	0.0747	0.0638	0.0766	0.0101	-0.110	0.165
	(0.382)	(0.307)	(0.242)	(0.281)	(0.232)	(0.280)	(0.366)
dum00	-0.108	0.0450	0.249	-0.0615	-0.130	-0.0398	0.00623
	(0.384)	(0.304)	(0.251)	(0.283)	(0.243)	(0.282)	(0.393)
dum01	-0.0372	-0.0489	0.151	-0.0442	-0.0282	-0.0996	-0.152
	(0.388)	(0.307)	(0.252)	(0.287)	(0.236)	(0.285)	(0.363)
dum02	0.0875	0.0866	0.110	0.0474	0.0699	-0.0530	0.0373
	(0.394)	(0.312)	(0.251)	(0.290)	(0.240)	(0.290)	(0.367)
dum03	-0.0246	0.0353	0.143	0.00506	-0.00585	-0.0911	-0.0181
	(0.401)	(0.318)	(0.255)	(0.296)	(0.245)	(0.296)	(0.374)
dum04	-0.00465	-0.0597	-0.00772	0.0218	0.0394	0.250	-0.0181
	(0.411)	(0.326)	(0.261)	(0.303)	(0.251)	(0.330)	(0.383)
dum05	-0.0119	-0.0739	0.0642	-0.0965	-0.0746	-0.0466	-0.0929
	(0.422)	(0.335)	(0.268)	(0.311)	(0.258)	(0.318)	(0.394)
dum06	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	-0.124	-0.144	0.0198	0.0673	-0.520	0.155	-0.271
	(0.444)	(0.391)	(0.316)	(0.335)	(0.307)	(0.314)	(0.401)
N	203	203	203	203	203	203	203
adj. R^2	-0.054	0.172	0.226	0.072	0.402	0.107	-0.031
Durbin-Watson d-statistic	2.801014	2.50492	2.530034	2.516219	2.316282	2.495205	2.544482

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.5b: YSM Regressions: Quarterly Farm, with Level of Procurement

	(1) fqreg1ch	(2) fqreg2ch	(3) fqreg3ch	(4) fqreg4ach	(5) fqreg4bch	(6) fqreg5ch	(7) fqreg6ch	(8) fqreg7ch
time	-0.00187	0.00585	-0.000224	-0.00241	0.00385	0.00439	-0.00913	-0.0139
	(0.0136)	(0.0131)	(0.0131)	(0.0135)	(0.00994)	(0.0117)	(0.0113)	(0.0147)
Procurement	0.0000272	-0.00000904	0.00000823	0.0000182	0.0000404*	-0.0000146	-0.0000501*	-0.00181
	(0.0000305)	(0.0000230)	(0.0000138)	(0.0000204)	(0.0000151)	(0.0000344)	(0.0000212)	(0.00109)
dumq1	0.785*	2.706***	2.454***	0.296	-0.217	0.374	-0.117	1.718***
	(0.390)	(0.384)	(0.405)	(0.408)	(0.301)	(0.348)	(0.297)	(0.403)
dumq2	0.339	2.730***	2.011***	-0.412	0.0541	0	0	1.847***
	(0.375)	(0.342)	(0.373)	(0.424)	(0.313)	(.)	(.)	(0.405)
dumq3	0	1.715***	1.761***	0	0	-0.0865	-1.995***	0.450
	(.)	(0.403)	(0.410)	(.)	(.)	(0.356)	(0.288)	(0.428)
dumq4	-2.863***	0	0	-2.099**	-3.038***	-1.538***	-1.933***	0
	(0.535)	(.)	(.)	(0.710)	(0.523)	(0.321)	(0.344)	(.)
dum90	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-1.453	0.0149	-1.028	-1.242	-0.854	-0.167	-0.999	-0.399
	(0.812)	(0.732)	(0.769)	(0.838)	(0.617)	(0.689)	(0.635)	(0.859)
dum92	0.00575	0.429	0.196	0.194	0.207	0.444	0.196	-0.226
	(0.779)	(0.711)	(0.748)	(0.805)	(0.593)	(0.670)	(0.618)	(0.821)
dum93	0.367	0.916	0.603	0.407	0.706	0.656	-0.0920	-0.370
	(0.770)	(0.715)	(0.747)	(0.783)	(0.577)	(0.662)	(0.637)	(0.823)
dum94	-0.547	0.253	-0.291	-0.162	0.348	0.309	-0.220	-0.400
	(0.746)	(0.703)	(0.728)	(0.767)	(0.566)	(0.650)	(0.629)	(0.803)
dum95	1.026	1.421*	1.216	1.051	1.851**	1.222	0.463	0.391
	(0.738)	(0.693)	(0.708)	(0.765)	(0.564)	(0.633)	(0.608)	(0.785)
dum96	-0.802	-0.469	-0.833	-0.611	-0.213	-0.283	-0.804	-0.437
	(0.704)	(0.650)	(0.685)	(0.731)	(0.539)	(0.611)	(0.588)	(0.752)

Continued on next page.

Table A.5b: YSM Regressions: Quarterly Farm, with Level of Procurement - *Continued*

	(1) fqreg1ch	(2) fqreg2ch	(3) fqreg3ch	(4) fqreg4ach	(5) fqreg4bch	(6) fqreg5ch	(7) fqreg6ch	(8) fqreg7ch
dum97	-0.0458	0.403	0.396	0.284	0.251	0.297	-0.317	-0.263
	(0.694)	(0.646)	(0.676)	(0.715)	(0.527)	(0.603)	(0.574)	(0.740)
dum98	-0.0754	0.180	-0.128	-0.125	-0.143	0.0466	-0.459	-0.159
	(0.698)	(0.645)	(0.668)	(0.712)	(0.525)	(0.595)	(0.560)	(0.733)
dum99	-0.387	-0.0789	-0.302	-0.320	-0.364	0.0861	0.0559	0.0839
	(0.686)	(0.638)	(0.664)	(0.724)	(0.533)	(0.664)	(0.529)	(0.706)
dum00	-0.319	0.402	0.0192	0.0445	-0.0118	0.699	0.167	-0.00326
	(0.723)	(0.641)	(0.684)	(0.728)	(0.537)	(0.633)	(0.529)	(0.707)
dum01	-0.517	0.200	-0.0607	-0.201	-0.376	0.0833	0.0115	0.369
	(0.700)	(0.639)	(0.659)	(0.749)	(0.552)	(0.626)	(0.532)	(0.713)
dum02	0.0901	0.442	0.250	0.0156	-0.405	0.488	0.208	0.377
	(0.699)	(0.634)	(0.668)	(0.763)	(0.562)	(0.614)	(0.539)	(0.724)
dum03	-0.388	-0.0322	-0.000712	-0.172	-0.346	0.0734	0.242	0.229
	(0.745)	(0.645)	(0.679)	(0.761)	(0.561)	(0.610)	(0.551)	(0.737)
dum04	0.0102	0.114	0.264	-0.121	-0.310	0.402	0.242	0.303
	(0.728)	(0.660)	(0.695)	(0.783)	(0.577)	(0.627)	(0.561)	(0.753)
dum05	0.204	0.306	0.193	0.232	0.360	0.236	0.106	0.378
	(0.745)	(0.678)	(0.713)	(0.772)	(0.569)	(0.638)	(0.577)	(0.772)
dum06	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	0.477	-2.266**	-1.705*	0.367	0.0680	-0.152	1.492*	-0.449
	(0.685)	(0.772)	(0.759)	(0.696)	(0.513)	(0.646)	(0.593)	(0.850)
N	67	67	67	67	67	67	67	67
adj. R^2	0.582	0.547	0.400	0.225	0.556	0.337	0.611	0.273
Durbin-Watson d-statistic	2.633364	2.423854	2.636594	2.826111	2.440906	2.828205	2.708325	2.728024

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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Table A.5b: YSM Regressions: Quarterly Farm, with Level of Procurement - *Continued*

	(9) fqreg8ch	(10) fqreg9ch	(11) fqreg10ch	(12) fqreg11ch	(13) fqreg12ch	(14) fqreg13ch	(15) fqarmmch
time	0.000311	0.00439	0.000815	0.0116	-0.000596	0.00471	0.00498
	(0.0122)	(0.0135)	(0.0111)	(0.0125)	(0.0108)	(0.0105)	(0.0122)
Procurement	-0.000279	-0.000144	-0.000150	0.0000624	-0.0000135	-0.00997**	0.0000307
	(0.000239)	(0.000120)	(0.0000756)	(0.0000534)	(0.0000196)	(0.00308)	(0.0000731)
dumq1	-0.588	2.299***	1.744***	1.964***	-0.183	-0.315	-0.669
	(0.346)	(0.388)	(0.308)	(0.362)	(0.283)	(0.312)	(0.358)
dumq2	0	2.213***	2.008***	1.782***	0	0	0
	(.)	(0.401)	(0.277)	(0.358)	(.)	(.)	(.)
dumq3	0.183	1.114**	1.047**	1.529***	-1.284***	-0.183	-0.676
	(0.357)	(0.407)	(0.314)	(0.373)	(0.277)	(0.306)	(0.350)
dumq4	-1.052**	0	0	0	-2.152***	-1.704***	-1.409**
	(0.323)	(.)	(.)	(.)	(0.334)	(0.300)	(0.409)
dum90	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-0.0432	0.245	0.265	-0.257	-0.942	-0.793	-0.577
	(0.695)	(0.760)	(0.597)	(0.693)	(0.629)	(0.645)	(0.764)
dum92	0.546	0.277	0.580	0.630	0.408	0.207	0.159
	(0.665)	(0.727)	(0.586)	(0.681)	(0.608)	(0.624)	(0.738)
dum93	-0.0343	0.738	0.330	0.350	0.340	-0.00277	-0.0844
	(0.655)	(0.738)	(0.595)	(0.677)	(0.600)	(0.605)	(0.715)
dum94	0.259	0.205	0.368	0.580	0.159	-0.0808	0.350
	(0.659)	(0.738)	(0.598)	(0.681)	(0.594)	(0.588)	(0.688)
dum95	0.826	0.737	0.808	1.376*	0.874	0.791	0.455
	(0.649)	(0.716)	(0.582)	(0.660)	(0.575)	(0.574)	(0.671)
dum96	-0.566	-0.393	-0.376	-0.111	-0.368	-0.752	0.00973
	(0.626)	(0.681)	(0.556)	(0.626)	(0.551)	(0.563)	(0.658)

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Table A.5b: YSM Regressions: Quarterly Farm, with Level of Procurement - *Continued*

	(9) fqreg8ch	(10) fqreg9ch	(11) fqreg10ch	(12) fqreg11ch	(13) fqreg12ch	(14) fqreg13ch	(15) fqarmmch
dum97	-0.00920	0.446	0.180	0.507	0.115	-0.0189	0.634
	(0.613)	(0.674)	(0.547)	(0.624)	(0.542)	(0.554)	(0.648)
dum98	0.334	-0.520	-0.227	-0.0977	-0.460	-0.434	-0.837
	(0.603)	(0.649)	(0.535)	(0.609)	(0.525)	(0.549)	(0.642)
dum99	-0.407	0.603	0.329	0.181	0.104	-0.261	0.118
	(0.582)	(0.647)	(0.507)	(0.585)	(0.507)	(0.547)	(0.669)
dum00	0.109	0.254	0.817	0.0223	-0.0148	-0.0505	0.0137
	(0.583)	(0.637)	(0.527)	(0.588)	(0.533)	(0.548)	(0.732)
dum01	-0.0625	-0.0289	0.389	-0.231	-0.0917	-0.302	-0.245
	(0.585)	(0.642)	(0.526)	(0.593)	(0.511)	(0.552)	(0.653)
dum02	0.224	0.170	0.321	0.193	0.276	-0.0467	-0.0860
	(0.590)	(0.651)	(0.521)	(0.598)	(0.520)	(0.559)	(0.654)
dum03	0.0194	0.396	0.544	0.156	-0.0137	-0.206	0.135
	(0.599)	(0.662)	(0.527)	(0.610)	(0.528)	(0.570)	(0.665)
dum04	0.0671	-0.429	-0.0757	0.0589	0.157	1.003	0.169
	(0.612)	(0.678)	(0.540)	(0.624)	(0.541)	(0.688)	(0.681)
dum05	0.119	-0.0395	0.114	-0.157	0.00137	0.246	-0.450
	(0.629)	(0.695)	(0.553)	(0.640)	(0.554)	(0.625)	(0.699)
dum06	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	0.292	-1.633	-1.325	-2.069**	0.874	0.492	0.424
	(0.713)	(0.824)	(0.661)	(0.761)	(0.560)	(0.532)	(0.626)
N	67	67	67	67	67	67	67
adj. R^2	0.146	0.469	0.496	0.291	0.557	0.416	0.039
Durbin-Watson d-statistic	2.65257	2.52659	2.692067	2.805163	2.58955	2.629436	2.56271

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table A.5c: YSM Regressions: Monthly Retail , with Level of Distribution

	(1) rmmch	(2) rreg1ch^	(3) rreg2ch	(4) rreg3ch^	(5) rreg4ach^	(6) rreg4bch^	(7) rreg5ch^	(8) rreg6ch
time	-0.000203	0.000578	0.00111	0.00111	0.0000124	0.000761	0.00136	0.000517
	(0.00156)	(0.000943)	(0.000887)	(0.00106)	(0.000904)	(0.000972)	(0.00123)	(0.00309)
Distribution	0.00000158	-0.0000292	-0.0000391	-0.0000208	-0.00000584	-0.0000196*	-0.0000296	0.0000250
	(0.00000460)	(0.0000155)	(0.0000390)	(0.0000139)	(0.00000830)	(0.00000865)	(0.0000263)	(0.0000292)
dumjan	0	-0.677	0	-1.053*	-0.784*	-1.125**	-0.977	0
	(.)	(0.425)	(.)	(0.469)	(0.383)	(0.390)	(0.564)	(.)
dumfeb	-0.0412	-0.648	0.108	-0.767	-0.603	-0.712	-0.892	0.0803
	(0.171)	(0.418)	(0.131)	(0.470)	(0.374)	(0.386)	(0.578)	(0.133)
dummar	0.0382	-0.539	0.166	-0.738	-0.517	-0.885*	-0.984	0.0483
	(0.173)	(0.409)	(0.136)	(0.460)	(0.366)	(0.376)	(0.555)	(0.112)
dumapr	0.0362	-0.354	0.303*	-0.799	-0.588	-0.851*	-1.114	0.306**
	(0.175)	(0.405)	(0.128)	(0.467)	(0.365)	(0.376)	(0.591)	(0.110)
dummay	0.0633	-0.528	0.144	-0.880	-0.546	-0.658	-0.787	0.489**
	(0.181)	(0.380)	(0.141)	(0.452)	(0.351)	(0.363)	(0.562)	(0.158)
dumjun	-0.133	-0.548	0.158	-0.651	-0.489	-0.539	-0.869	0.0566
	(0.176)	(0.354)	(0.126)	(0.400)	(0.326)	(0.335)	(0.533)	(0.159)
dumjul	0.219	-0.384	0.613***	-0.521	-0.343	-0.403	-0.528	0.185
	(0.225)	(0.323)	(0.182)	(0.353)	(0.304)	(0.310)	(0.473)	(0.222)
dumaug	0.531	0	0.771	0	0	0	0	0.699
	(0.396)	(.)	(0.447)	(.)	(.)	(.)	(.)	(0.436)
dumsep	0.195	-0.276	0.424*	-0.351	-0.126	-0.519*	-0.514	-0.946**
	(0.205)	(0.271)	(0.198)	(0.303)	(0.232)	(0.261)	(0.364)	(0.331)
dumoct	0.179	-0.994*	-0.281	-0.965*	-0.566	-0.689*	-1.249*	-0.917***
	(0.231)	(0.390)	(0.159)	(0.426)	(0.323)	(0.334)	(0.542)	(0.200)
dumnov	-0.442	-1.301**	-0.304	-1.313**	-0.896*	-1.211**	-1.147*	-0.271*
	(0.462)	(0.435)	(0.196)	(0.489)	(0.403)	(0.392)	(0.548)	(0.131)
dumdec	-0.0185	-1.029*	0.0144	-0.928*	-0.825*	-0.957*	-0.912	0.0783
	(0.175)	(0.428)	(0.148)	(0.460)	(0.393)	(0.414)	(0.524)	(0.119)
dum90	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	0.0316	-0.194	-0.0294	-0.245	-0.270	-0.231	-0.243	-0.0577
	(0.195)	(0.135)	(0.174)	(0.160)	(0.186)	(0.187)	(0.197)	(0.541)
dum92	0.102	0.108	0.239	-0.0157	0.116	-0.0612	0.102	0.139
	(0.203)	(0.125)	(0.185)	(0.184)	(0.184)	(0.171)	(0.193)	(0.526)
dum93	0.217	0.344*	0.307	0.256	0.142	0.216	0.235	0.273
	(0.171)	(0.149)	(0.201)	(0.220)	(0.187)	(0.165)	(0.206)	(0.535)
dum94	0.0664	-0.186	0.0151	-0.216	-0.128	-0.114	-0.0741	0.261
	(0.210)	(0.130)	(0.160)	(0.151)	(0.227)	(0.190)	(0.179)	(0.444)
dum95	0.322	0.506	0.530	0.302	0.332	0.281	0.454	0.569
	(0.881)	(0.516)	(0.472)	(0.485)	(0.570)	(0.538)	(0.778)	(0.719)
dum96	0.0960	0.0552	0.0418	-0.0177	0.00693	0.0178	-0.277	0.0488
	(0.189)	(0.204)	(0.227)	(0.215)	(0.225)	(0.242)	(0.215)	(0.386)

Continued on next page.

Table A.5c: YSM Regressions: Monthly Retail, with Level of Distribution - *Continued*

	(1) rmmch	(2) rreg1ch^	(3) rreg2ch	(4) rreg3ch^	(5) rreg4ach^	(6) rreg4bch^	(7) rreg5ch^	(8) rreg6ch
dum97	-0.0396	-0.0129	-0.0473	-0.190	-0.0638	-0.128	-0.0383	0.0976
	(0.159)	(0.158)	(0.125)	(0.133)	(0.186)	(0.130)	(0.166)	(0.346)
dum98	-0.119	0.0803	0.0748	0.146	-0.197	-0.0686	0.102	0.0334
	(0.115)	(0.117)	(0.123)	(0.173)	(0.232)	(0.116)	(0.242)	(0.323)
dum99	-0.00251	0.0692	0.0101	0.0110	-0.0575	0.00318	0.201	0.0228
	(0.136)	(0.105)	(0.104)	(0.122)	(0.119)	(0.111)	(0.279)	(0.298)
dum00	-0.0344	0.0513	0.134	-0.141	-0.0270	0.0368	0.102	0.0781
	(0.138)	(0.102)	(0.104)	(0.0963)	(0.145)	(0.120)	(0.139)	(0.245)
dum01	0.0197	-0.0876	0.0396	-0.144	0.00428	0.0688	-0.0883	0.0481
	(0.189)	(0.130)	(0.128)	(0.139)	(0.171)	(0.117)	(0.121)	(0.222)
dum02	0.206	0.229*	0.171	-0.0440	0.0478	-0.00989	0.0410	0.000137
	(0.200)	(0.113)	(0.112)	(0.172)	(0.117)	(0.105)	(0.127)	(0.222)
dum03	0.00811	0.122	-0.0215	-0.124	-0.0975	-0.0494	-0.121	0.0306
	(0.163)	(0.0929)	(0.103)	(0.141)	(0.110)	(0.140)	(0.138)	(0.163)
dum04	-0.0319	0.142	-0.00736	-0.0673	-0.0992	0.00121	-0.0410	-0.0349
	(0.216)	(0.107)	(0.0905)	(0.123)	(0.113)	(0.157)	(0.136)	(0.186)
dum05	0	0.187	0.0763	0.0487	0.0296	0.107	0.105	0.191
	(.)	(0.102)	(0.0853)	(0.107)	(0.126)	(0.172)	(0.137)	(0.168)
dum06	-0.0207	0	0	0	0	0	0	0
	(0.133)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	-0.133	0.591	-0.308	0.806	0.559	0.787	0.836	-0.223
	(0.233)	(0.422)	(0.165)	(0.456)	(0.382)	(0.399)	(0.567)	(0.580)
N	203	203	203	203	203	203	203	203
adj. R^2	-0.034	0.145	0.155	0.127	0.047	0.109	0.078	0.232
	2.438547	1.909910	1.850123	1.971661	1.896760	1.939942	1.806706	2.499565

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Prais-Winsten AR(1) regression

Continued on next page.

Table A.5c: YSM Regressions: Monthly Retail, with Level of Distribution - *Continued*

	(9) rreg7ch	(10) rreg8ch	(11) rreg9ch^	(12) rreg10ch^	(13) rreg11ch	(14) rreg12ch^	(15) rreg13ch^	(16) rarmmch
time	0.000194	0.00222	0.000987	0.000619	0.000386	0.000516	0.00132	0.0000767
	(0.00121)	(0.00116)	(0.000829)	(0.000988)	(0.00109)	(0.000849)	(0.00155)	(0.000861)
distreg7	-0.0000307	-0.0000925	-0.00000363	-0.0000384	-0.00000689	0.0000146	-0.0000616	-0.0000353
	(0.0000185)	(0.0000477)	(0.0000145)	(0.0000235)	(0.0000201)	(0.0000224)	(0.0000697)	(0.0000242)
dumjan	0	0.623**	-0.243	-0.681*	0	0	0	-0.256
	(.)	(0.227)	(0.168)	(0.269)	(.)	(.)	(.)	(0.175)
dumfeb	0.252	0.577***	-0.285*	-0.633*	0.00959	0.303**	0.136	-0.258
	(0.153)	(0.141)	(0.144)	(0.271)	(0.123)	(0.112)	(0.139)	(0.173)
dummar	0.180	0.410**	-0.389**	-0.668*	-0.00441	0.291*	-0.0200	-0.289*
	(0.189)	(0.137)	(0.142)	(0.257)	(0.146)	(0.125)	(0.182)	(0.145)
dumapr	0.273	0	-0.221	-0.639*	0.0263	0.223	-0.133	-0.253
	(0.197)	(.)	(0.140)	(0.251)	(0.148)	(0.140)	(0.157)	(0.180)
dummay	0.512**	0.356***	-0.159	-0.467	0.0823	0.457***	0.0195	0.0765
	(0.158)	(0.0907)	(0.134)	(0.246)	(0.142)	(0.136)	(0.148)	(0.206)
dumjun	0.359	0.556***	-0.271*	-0.554*	0.0510	0.197	-0.0547	-0.257
	(0.187)	(0.115)	(0.116)	(0.245)	(0.147)	(0.133)	(0.148)	(0.139)
dumjul	0.690**	0.983***	0	-0.203	0.608**	0.500*	0.303	0
	(0.251)	(0.180)	(.)	(0.227)	(0.224)	(0.202)	(0.188)	(.)
dumaug	0.783*	1.503**	0.0402	0	0.581	0.426*	0.578*	0.122
	(0.391)	(0.551)	(0.164)	(.)	(0.328)	(0.181)	(0.287)	(0.189)
dumsep	0.616**	0.783**	-0.593***	-0.639**	-0.331	-0.411*	0.168	-0.191
	(0.206)	(0.270)	(0.152)	(0.236)	(0.176)	(0.159)	(0.235)	(0.152)
dumoct	-0.187	0.325	-0.915***	-1.433***	-1.097***	-0.585***	-0.595**	-0.422*
	(0.209)	(0.236)	(0.161)	(0.300)	(0.176)	(0.149)	(0.193)	(0.198)
dumnov	0.0922	-0.00458	-0.597***	-1.030***	-0.494***	-0.265	-0.436*	-0.585***
	(0.171)	(0.184)	(0.161)	(0.274)	(0.121)	(0.143)	(0.172)	(0.166)
dumdec	0.271	0.358*	-0.512**	-0.691**	-0.0530	0.127	-0.0381	-0.575**
	(0.139)	(0.170)	(0.155)	(0.261)	(0.155)	(0.115)	(0.136)	(0.174)
dum90	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-0.670*	-0.199	-0.0480	-0.360	-0.231	-0.195	0	-0.352
	(0.320)	(0.229)	(0.197)	(0.238)	(0.178)	(0.188)	(.)	(0.187)
dum92	-0.169	0.00172	0.160	0.134	0.110	0.159	0	0.101
	(0.255)	(0.269)	(0.214)	(0.182)	(0.201)	(0.182)	(.)	(0.175)
dum93	-0.0877	0.189	0.164	-0.0510	0.0810	0.149	0	-0.0278
	(0.233)	(0.198)	(0.174)	(0.180)	(0.241)	(0.172)	(.)	(0.126)
dum94	-0.114	-0.157	0.201	0.0194	0.159	0.160	0	0.0287
	(0.271)	(0.251)	(0.233)	(0.188)	(0.168)	(0.170)	(.)	(0.180)
dum95	0.262	0.138	0.283	0.183	0.315	0.299	0.192	0.319
	(0.423)	(0.461)	(0.277)	(0.352)	(0.265)	(0.197)	(0.246)	(0.309)
dum96	-0.407	-0.00545	0.0814	-0.0370	-0.115	-0.101	-0.0822	-0.132
	(0.297)	(0.302)	(0.237)	(0.215)	(0.140)	(0.159)	(0.210)	(0.189)

Continued on next page.

Table A.5c: YSM Regressions: Monthly Retail, with Level of Distribution - *Continued*

	(9) rreg7ch	(10) rreg8ch	(11) rreg9ch^	(12) rreg10ch^	(13) rreg11ch	(14) rreg12ch^	(15) rreg13ch^	(16) rarmmch
dum97	-0.270	-0.0108	-0.0146	-0.0775	-0.0409	0.0451	-0.0700	0.0225
	(0.159)	(0.180)	(0.115)	(0.131)	(0.148)	(0.189)	(0.215)	(0.137)
dum98	-0.0371	0.169	-0.0291	0.00218	-0.0616	-0.146	-0.136	-0.0712
	(0.134)	(0.175)	(0.121)	(0.145)	(0.132)	(0.171)	(0.164)	(0.131)
dum99	-0.137	-0.113	0.00469	0.0464	-0.00333	0.00360	0	-0.0764
	(0.130)	(0.173)	(0.148)	(0.156)	(0.141)	(0.125)	(.)	(0.122)
dum00	-0.0893	0.127	-0.0417	-0.0496	-0.0379	-0.0682	0	0.0450
	(0.164)	(0.113)	(0.132)	(0.135)	(0.123)	(0.127)	(.)	(0.122)
dum01	-0.0601	-0.188	-0.0341	-0.0467	-0.0660	-0.0282	-0.178	-0.145
	(0.115)	(0.163)	(0.106)	(0.132)	(0.146)	(0.117)	(0.207)	(0.117)
dum02	-0.0902	-0.0216	0.0407	0.0609	0.00923	0.0358	-0.0796	0.0125
	(0.138)	(0.173)	(0.0988)	(0.118)	(0.305)	(0.170)	(0.225)	(0.105)
dum03	-0.0541	-0.0325	-0.0533	-0.000488	-0.0181	-0.0394	-0.0345	-0.00368
	(0.104)	(0.0989)	(0.107)	(0.162)	(0.168)	(0.134)	(0.144)	(0.119)
dum04	-0.0870	-0.0123	0.0293	-0.103	0.0939	0.0260	0.154	-0.0371
	(0.0988)	(0.122)	(0.107)	(0.132)	(0.181)	(0.188)	(0.137)	(0.199)
dum05	0.219	0.0773	0.0151	0.0212	0.0419	-0.0499	0.0289	0.0339
	(0.163)	(0.125)	(0.111)	(0.147)	(0.160)	(0.179)	(0.121)	(0.122)
dum06	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	-0.120	-0.396*	0.194	0.698*	0.0117	-0.226	-0.0844	0.280
	(0.237)	(0.185)	(0.227)	(0.297)	(0.161)	(0.150)	(0.206)	(0.170)
N	203	203	203	203	203	203	131	203
adj. R^2	0.093	0.160	0.227	0.252	0.362	0.353	0.219	0.128
	2.12804	1.994307	1.949283	1.951732	1.90845	1.980009	1.914901	2.102311

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
^Prais-Winsten AR(1) regression

Table A.5d: YSM Regressions: Quarterly Retail, with Level of Distribution

	(1) rqmmch	(2) rqreg1ch	(3) rqreg2ch	(4) rqreg3ch	(5) rqreg4ach	(6) rqreg4bch	(7) rqreg5ch	(8) rqreg6ch
time	0.00688	0.00747	0.00427	0.0154	0.00120	0.00272	0.00431	0.00512
	(0.0169)	(0.00522)	(0.00852)	(0.0135)	(0.00959)	(0.00822)	(0.00793)	(0.0177)
Distribution	-0.00000194	-0.0000293	0.000000947	-0.0000274	-0.0000191	-0.0000168	-0.00000411	0.0000379
	(0.00000608)	(0.0000182)	(0.0000444)	(0.0000202)	(0.0000160)	(0.0000159)	(0.0000191)	(0.0000234)
dumq1	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dumq2	0.534	0.917**	0.541*	0.559*	0.549	0.867**	0.181	0.600
	(0.396)	(0.272)	(0.253)	(0.264)	(0.296)	(0.268)	(0.232)	(0.298)
dumq3	1.319*	1.247	0.743	1.834	1.599	1.747	0.855	-0.789
	(0.649)	(0.703)	(0.737)	(1.022)	(0.961)	(0.926)	(0.592)	(0.471)
dumq4	-0.274	-0.478	-0.441	-0.0411	0.269	0.0353	-0.148	-1.110**
	(0.499)	(0.383)	(0.366)	(0.368)	(0.345)	(0.383)	(0.312)	(0.404)
dum90	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-0.383	-0.757	-0.167	-0.884	-1.268	-0.936	-0.734	0.0493
	(0.476)	(0.606)	(0.563)	(0.636)	(0.744)	(0.513)	(0.456)	(1.211)
dum92	-0.615	0.0310	0.303	-0.118	-0.203	-0.273	0.326	-0.00249
	(0.801)	(0.455)	(0.630)	(0.621)	(0.632)	(0.591)	(0.550)	(1.142)
dum93	0.779*	1.156***	0.758	0.688	0.323	0.527	0.990	0.937
	(0.322)	(0.297)	(0.384)	(0.591)	(0.550)	(0.422)	(0.499)	(1.194)
dum94	-0.393	-0.483	0.480	-0.863	-0.597	-0.306	0.000983	0.854
	(0.912)	(0.350)	(0.363)	(0.612)	(0.605)	(0.497)	(0.463)	(0.890)
dum95	0.835	1.194	1.603	0.616	0.979	1.121	1.502	1.783
	(2.050)	(1.724)	(1.535)	(1.835)	(1.856)	(2.034)	(1.415)	(1.255)
dum96	-0.473	0.334	0.307	-0.121	-0.484	-0.276	-0.443	0.283
	(1.159)	(0.870)	(0.940)	(0.773)	(0.678)	(0.518)	(0.739)	(1.005)

Continued on next page.

Table A.5d: YSM Regressions: Quarterly Retail, with Level of Distribution – *Continued*

	(1) rqmmch	(2) rqreg1ch	(3) rqreg2ch	(4) rqreg3ch	(5) rqreg4ach	(6) rqreg4bch	(7) rqreg5ch	(8) rqreg6ch
dum97	0.0570	-0.249	0.0165	-0.502	-0.519	-0.105	0.0613	0.422
	(0.577)	(0.369)	(0.230)	(0.448)	(0.396)	(0.332)	(0.206)	(0.725)
dum98	-0.342	0.0726	0.268	0.663	-0.104	-0.0358	0.107	0.0851
	(0.455)	(0.226)	(0.372)	(0.736)	(0.602)	(0.457)	(0.482)	(0.721)
dum99	-0.235	0.183	-0.0198	0.0346	-0.0922	0.0642	-0.0294	0.0596
	(0.532)	(0.355)	(0.330)	(0.456)	(0.325)	(0.347)	(0.634)	(0.636)
dum00	-0.303	0.104	0.348	-0.394	0.0491	0.266	0.299	0.499
	(0.474)	(0.245)	(0.369)	(0.316)	(0.306)	(0.418)	(0.323)	(0.608)
dum01	-0.438	-0.241	0.236	-0.588	0.0654	0.105	-0.0736	0.186
	(0.687)	(0.521)	(0.310)	(0.496)	(0.342)	(0.346)	(0.233)	(0.560)
dum02	-0.00541	0.476	0.509	-0.146	0.0509	0.208	0.236	0.0523
	(0.467)	(0.361)	(0.374)	(0.300)	(0.249)	(0.268)	(0.228)	(0.559)
dum03	-0.380	0.283	0.0458	-0.495	-0.0231	-0.0256	-0.0421	0.205
	(0.630)	(0.204)	(0.288)	(0.466)	(0.343)	(0.465)	(0.289)	(0.498)
dum04	-0.539	0.469	0.113	-0.520	-0.0815	0.0747	0.0289	-0.0626
	(0.873)	(0.255)	(0.355)	(0.316)	(0.270)	(0.495)	(0.317)	(0.642)
dum05	0	0.449*	0.502	0.0333	0.299	0.490	0.423	0.329
	(.)	(0.177)	(0.416)	(0.341)	(0.425)	(0.522)	(0.455)	(0.732)
dum06	-0.222	0	0	0	0	0	0	0
	(0.454)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	-0.435	-0.478	-0.773	-0.371	-0.150	-0.441	-0.538	-0.595
	(0.451)	(0.357)	(0.397)	(0.570)	(0.588)	(0.450)	(0.323)	(1.071)
N	67	67	67	67	67	67	67	67
adj. R^2	-0.031	0.127	0.049	0.035	-0.015	0.036	0.094	0.193
Durbin-Watson d-statistic	2.819562	2.963387	3.063074	2.931814	2.946246	2.958975	2.737092	2.527938

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

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Table A.5d: YSM Regressions: Quarterly Retail, with Level of Distribution – *Continued*

	(9) rqreg7ch	(10) rqreg8ch	(11) rqreg9ch	(12) rqreg10ch	(13) rqreg11ch	(14) rqreg12ch	(15) rqreg13ch	(16) rqarmmch
time	0.00628	0.0114	0.00271	-0.00444	0.000613	0.00753	0.0163	-0.000923
	(0.0127)	(0.0110)	(0.0190)	(0.00660)	(0.0100)	(0.00849)	(0.0135)	(0.0100)
Distribution	-0.0000386	-0.0000224	0.0000491	0.00000860	0.00000208	0.0000490	-0.0000693	-0.0000351
	(0.0000199)	(0.0000354)	(0.0000536)	(0.0000284)	(0.0000248)	(0.0000356)	(0.0000757)	(0.0000368)
dumq1	0	-0.0659	0	0	1.273***	0.811*	0.623*	0.327
	(.)	(0.280)	(.)	(.)	(0.348)	(0.346)	(0.279)	(0.363)
dumq2	0.914*	0	-0.0683	0.440	1.584***	1.446***	0.592*	0.881*
	(0.446)	(.)	(0.475)	(0.287)	(0.389)	(0.340)	(0.225)	(0.362)
dumq3	1.386	1.171	0.785	0.366	1.307*	0.189	1.235***	1.095**
	(0.711)	(0.652)	(1.095)	(0.463)	(0.618)	(0.467)	(0.330)	(0.398)
dumq4	0.170	-0.432	-1.922	-0.693	0	0	0	0
	(0.466)	(0.377)	(1.386)	(0.346)	(.)	(.)	(.)	(.)
dum90	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
dum91	-1.823*	-0.337	0.203	-0.853	-0.679	0.0664	-0.527	-1.171
	(0.809)	(0.699)	(1.412)	(0.724)	(0.872)	(0.721)	(0.626)	(0.619)
dum92	-0.897	0.295	0.445	-0.273	-0.0658	0.440	0.416	-0.186
	(1.300)	(1.046)	(8.384)	(0.839)	(0.807)	(1.009)	(0.624)	(0.839)
dum93	-0.220	0.614	0.844	0.222	0.301	0.647	0.0979	-0.135
	(0.682)	(0.572)	(1.043)	(0.443)	(0.405)	(0.440)	(0.460)	(0.479)
dum94	-0.247	0.242	1.076	0.111	0.321	0.954	0.307	-0.0484
	(0.725)	(0.609)	(1.088)	(0.678)	(0.447)	(0.667)	(0.528)	(0.645)
dum95	0.489	1.187	1.674	0.968	1.052	1.434	0.505	0.839
	(1.673)	(1.609)	(1.140)	(0.955)	(0.913)	(0.875)	(0.587)	(1.044)
dum96	-0.545	0.218	0.641	-0.0269	-0.184	0.190	-0.110	-0.158
	(0.971)	(0.850)	(1.369)	(0.840)	(0.580)	(0.633)	(0.703)	(0.906)

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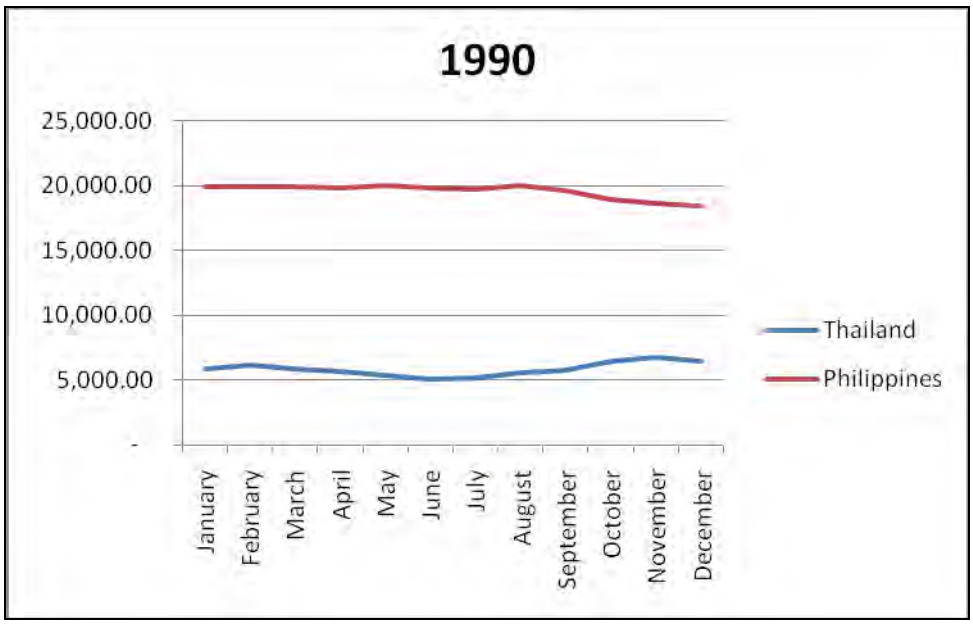
Table A.5d: YSM Regressions: Quarterly Retail, with Level of Distribution – *Continued*

	(9) rqreg7ch	(10) rqreg8ch	(11) rqreg9ch	(12) rqreg10ch	(13) rqreg11ch	(14) rqreg12ch	(15) rqreg13ch	(16) rqarmmch
dum97	-0.614	0.0358	0.290	-0.0784	0.0146	0.363	-0.335	0.0134
	(0.450)	(0.460)	(0.854)	(0.235)	(0.385)	(0.454)	(0.506)	(0.361)
dum98	-0.0675	0.253	-0.341	-0.320	-0.309	-0.489	-0.400	-0.245
	(0.411)	(0.468)	(0.883)	(0.364)	(0.340)	(0.430)	(0.445)	(0.443)
dum99	-0.142	-0.102	-0.0488	-0.272	-0.156	0.0380	-0.446	-0.233
	(0.685)	(0.484)	(0.900)	(0.547)	(0.395)	(0.339)	(0.494)	(0.370)
dum00	-0.0254	0.182	0.0379	-0.0989	0.0961	0.0284	-0.317	-0.0840
	(0.654)	(0.457)	(0.796)	(0.392)	(0.517)	(0.402)	(0.555)	(0.567)
dum01	-0.279	-0.141	0.0853	-0.160	-0.200	0.0908	-0.643	-0.367
	(0.379)	(0.548)	(0.907)	(0.376)	(0.488)	(0.562)	(0.621)	(0.369)
dum02	0.00971	0.111	0.125	0.317	0.206	0.248	-0.502	-0.00681
	(0.293)	(0.376)	(0.776)	(0.379)	(0.521)	(0.486)	(0.690)	(0.321)
dum03	-0.243	-0.0125	0.284	0.00907	0.00245	0.290	-0.0393	-0.0750
	(0.361)	(0.366)	(0.958)	(0.293)	(0.676)	(0.630)	(0.265)	(0.371)
dum04	-0.0866	0.0224	0.0276	0.0127	0.278	0.244	0.132	0.0412
	(0.275)	(0.466)	(0.794)	(0.268)	(0.625)	(0.740)	(0.472)	(0.367)
dum05	0.865	0.0582	-0.00300	0.218	-0.0357	0.109	0.130	-0.0421
	(0.478)	(0.445)	(0.954)	(0.393)	(0.524)	(0.805)	(0.346)	(0.342)
dum06	0	0	0	0	0	0	0	0
	(.)	(.)	(.)	(.)	(.)	(.)	(.)	(.)
_cons	-0.166	-0.506	-0.663	-0.0284	-1.198***	-1.521***	-0.978**	-0.369
	(0.752)	(0.566)	(1.374)	(0.354)	(0.232)	(0.368)	(0.358)	(0.562)
N	67	67	67	67	67	67	67	67
adj. R^2	-0.057	0.022	-0.273	0.054	0.200	0.174	0.107	0.059
Durbin-Watson d-statistic	2.657281	2.96879	2.969141	2.815614	2.671165	2.66576	2.578591	2.65297

Standard errors in parentheses
* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Figure A..1: Thailand Export Prices and Philippine Wholesale Prices



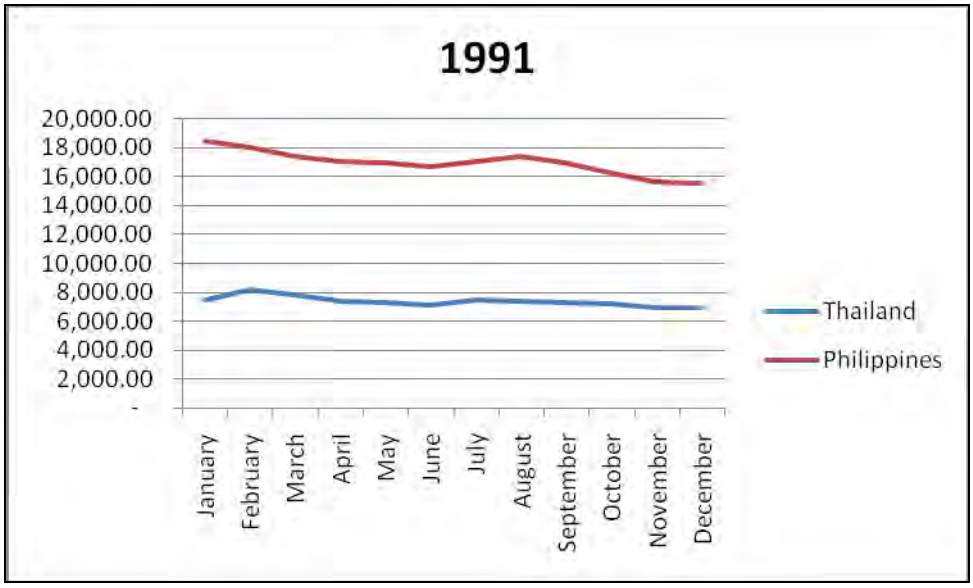


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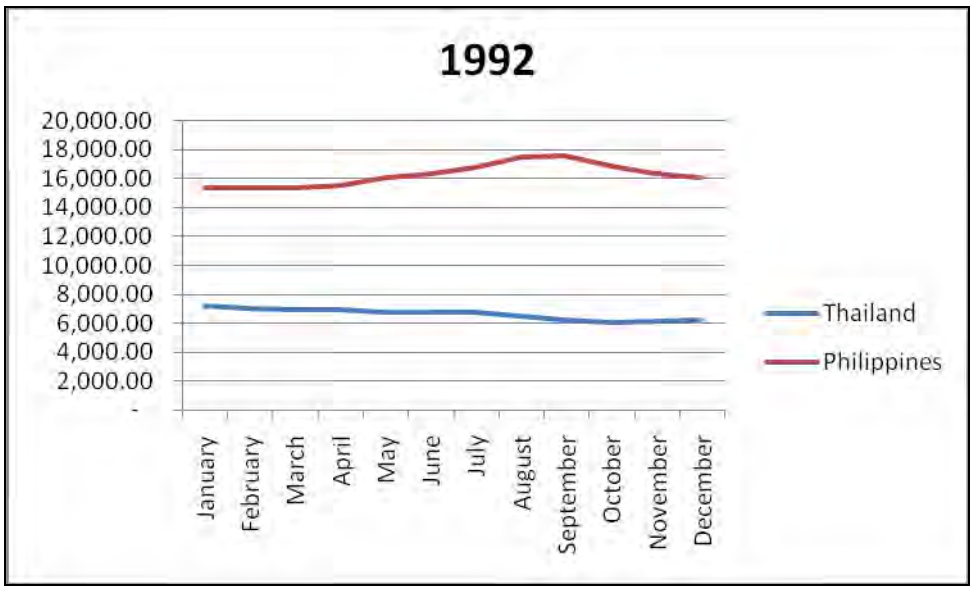
Figure A.1 : Thailand Export Prices and Philippine Wholesale Prices – *Continued*



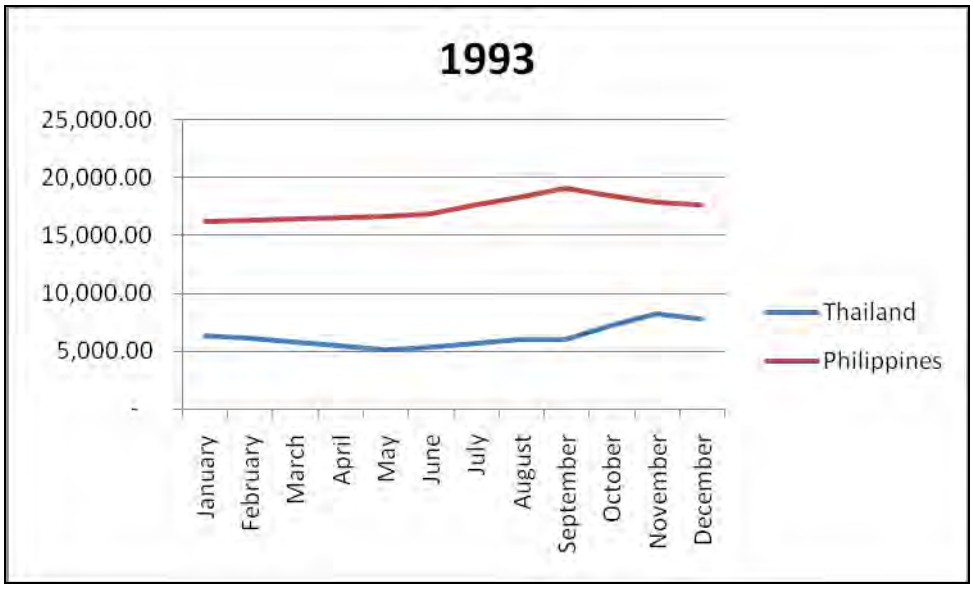


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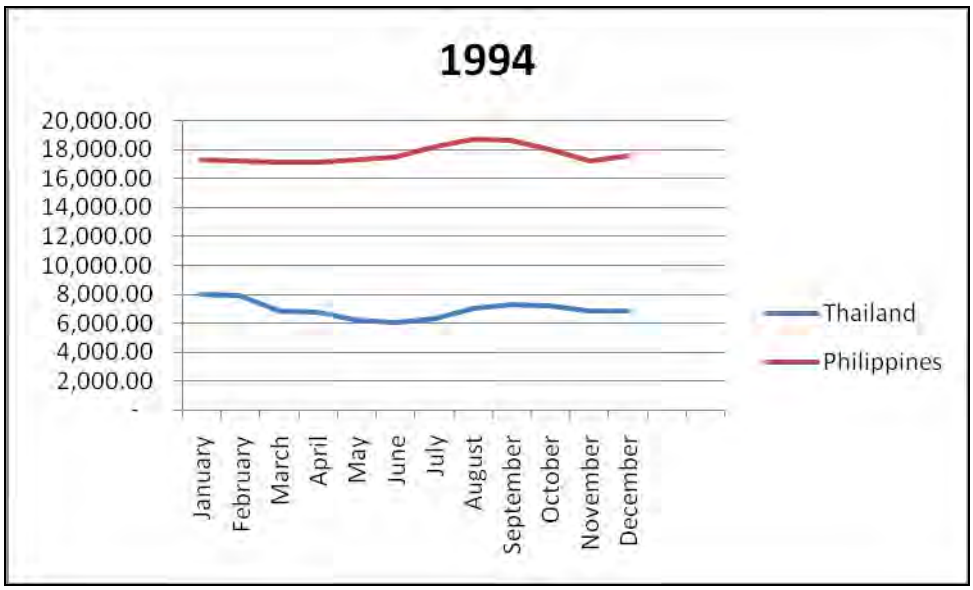
Figure A.1: Thailand Export Prices and Philippine Wholesale Prices – *Continued*



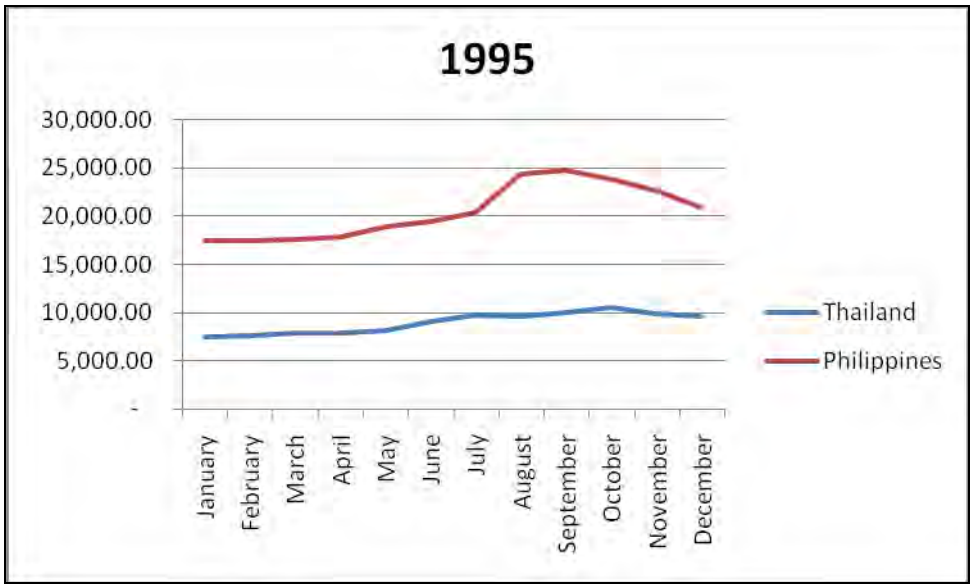


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Figure A.1: Thailand Export Prices and Philippine Wholesale Prices – *Continued*

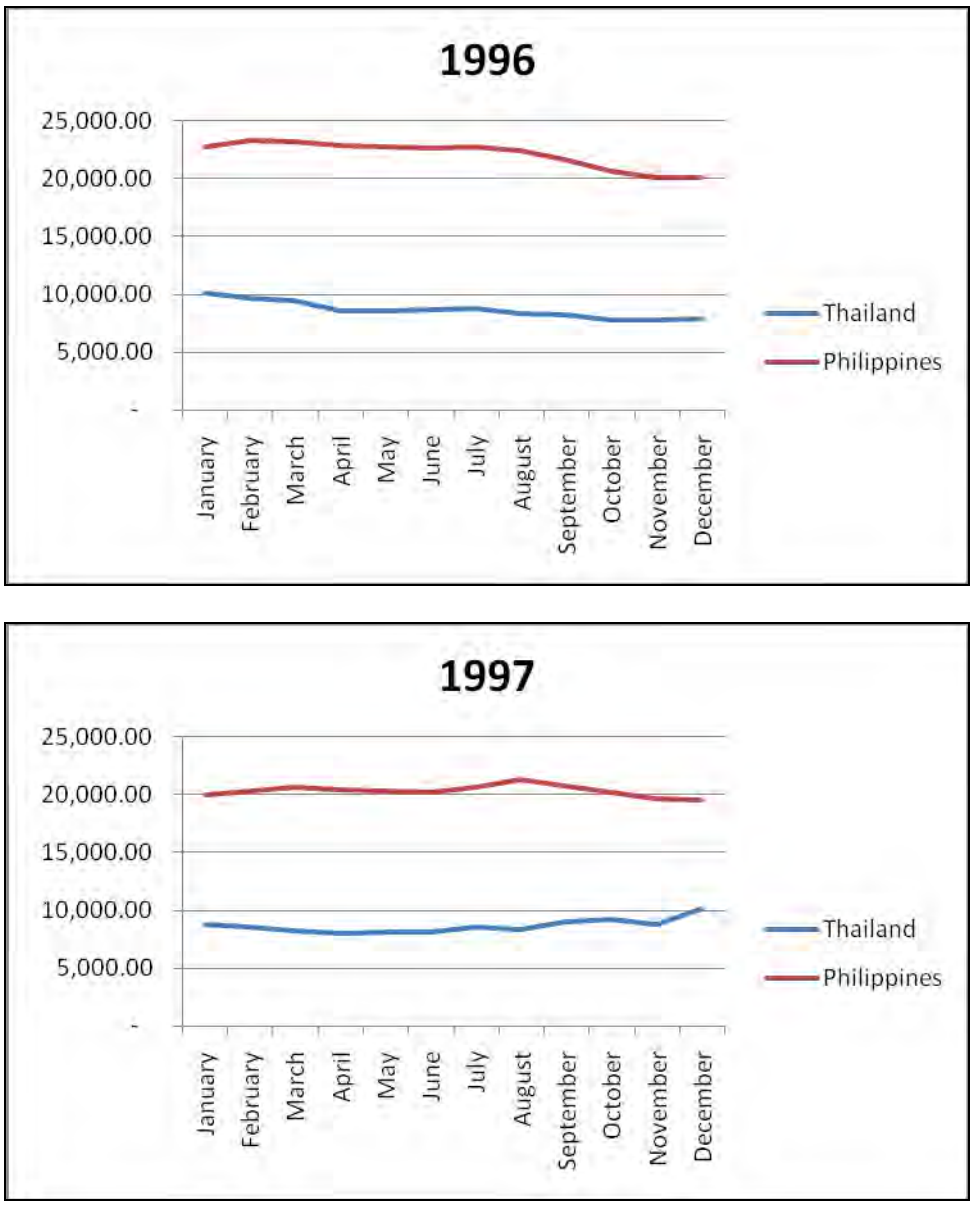

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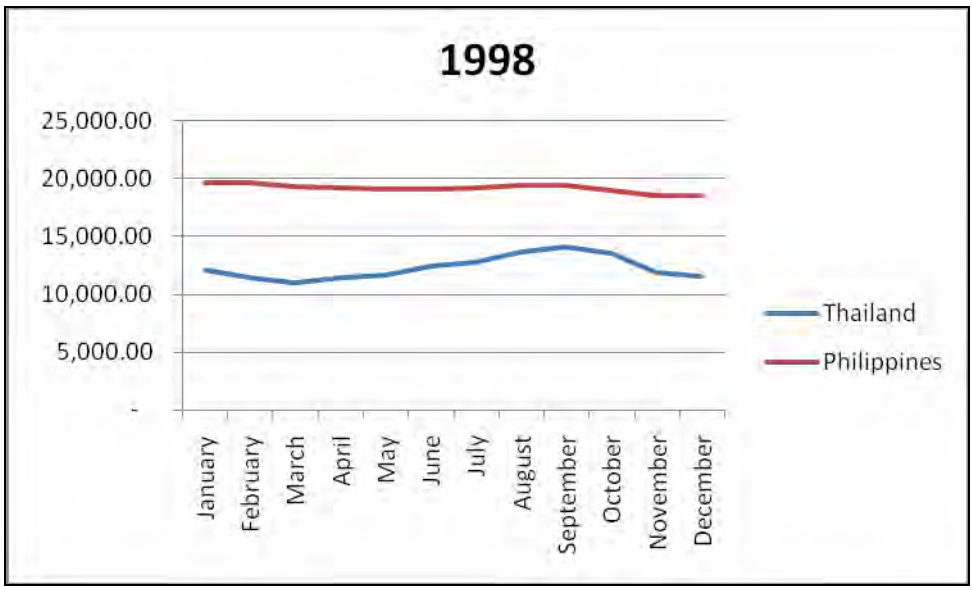
Figure A.1: Thailand Export Prices and Philippine Wholesale Prices – *Continued*



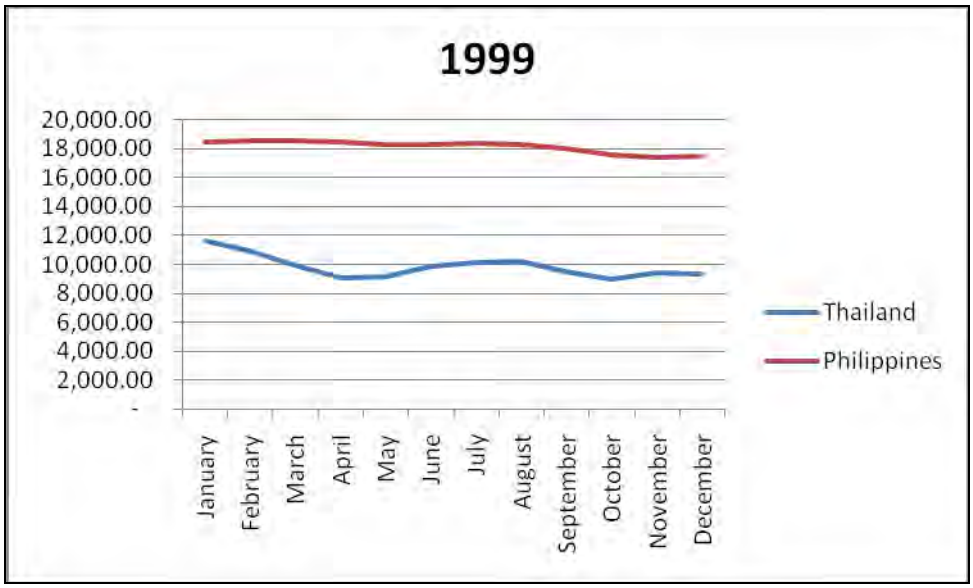


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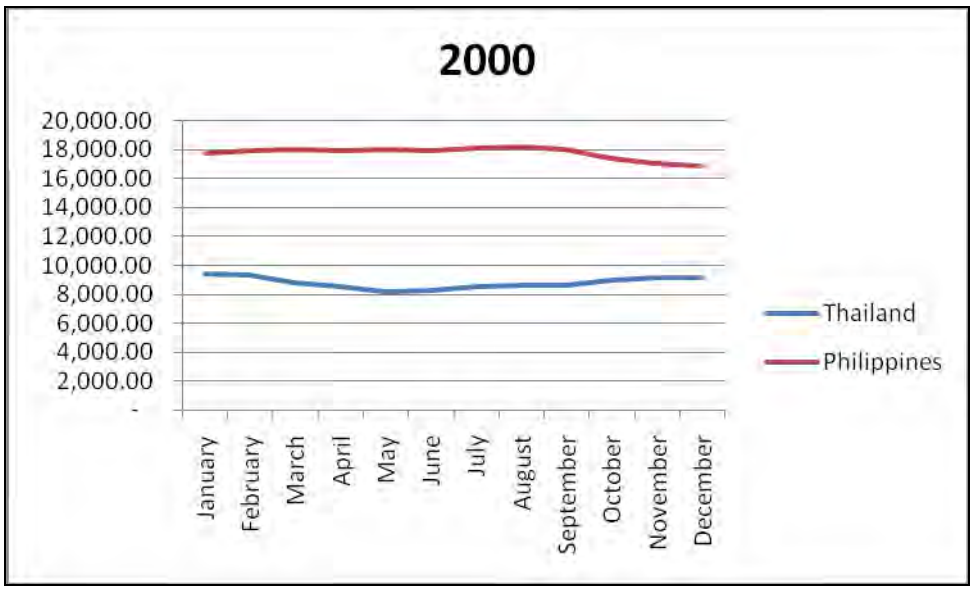
Figure A.1: Thailand Export Prices and Philippine Wholesale Prices – *Continued*



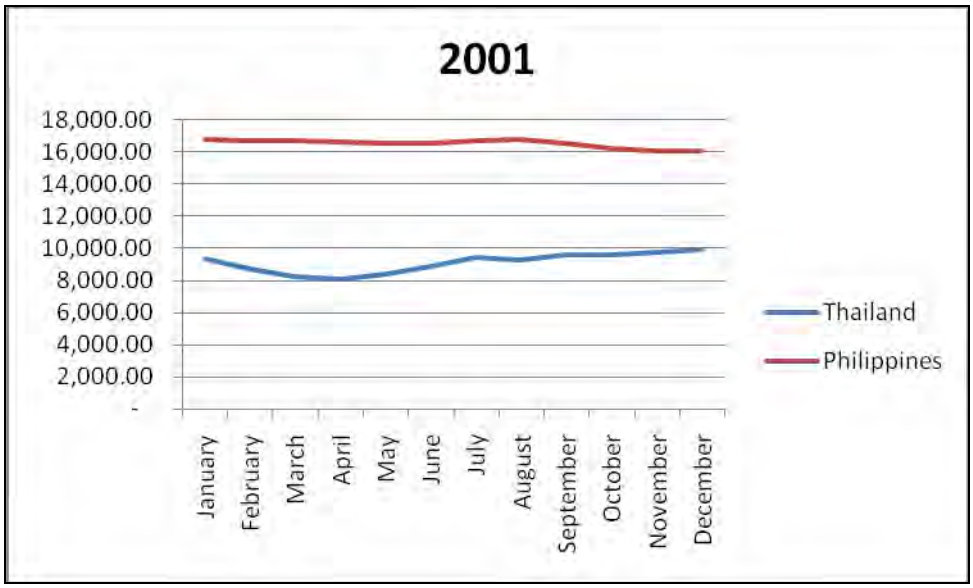


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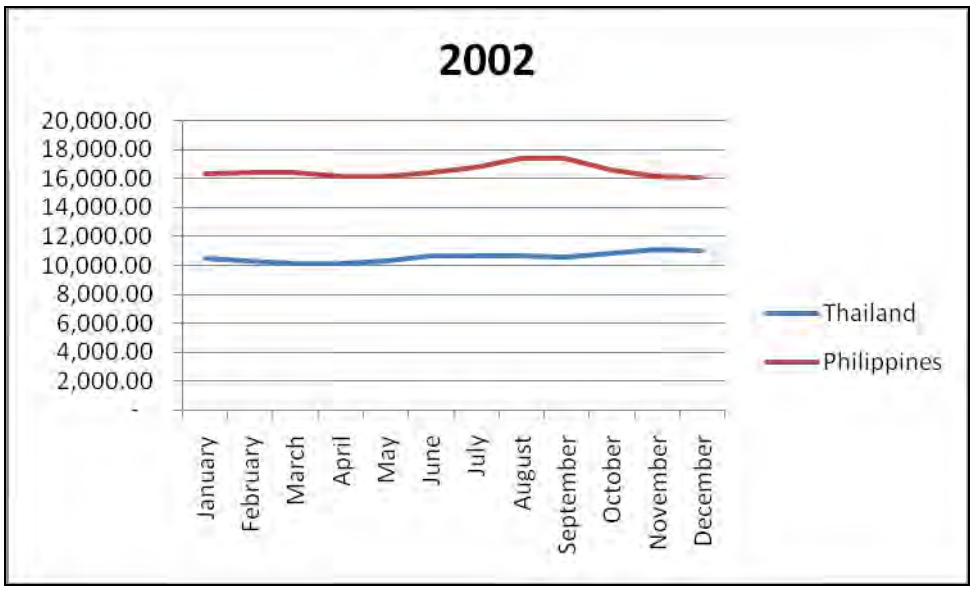
Figure A.1: Thailand Export Prices and Philippine Wholesale Prices – *Continued*



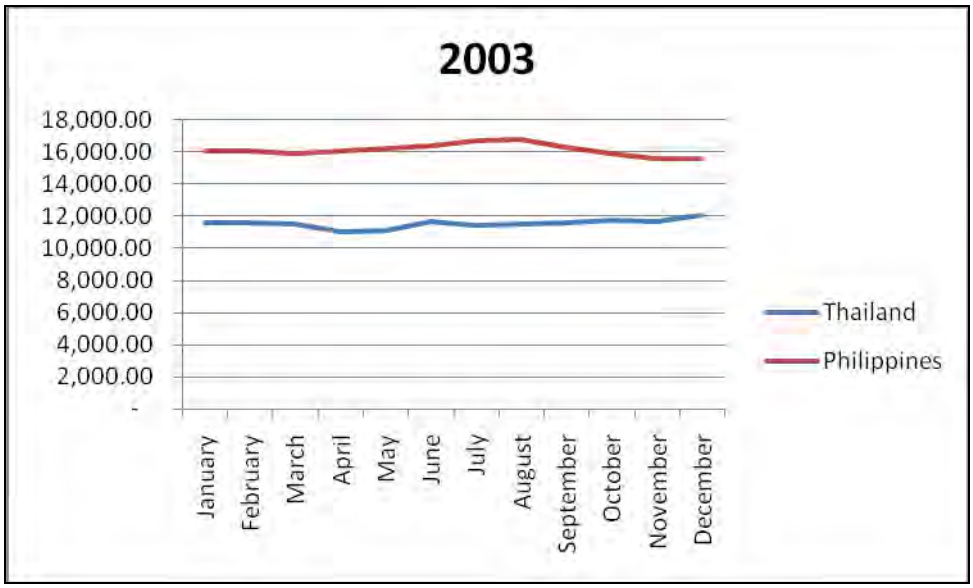


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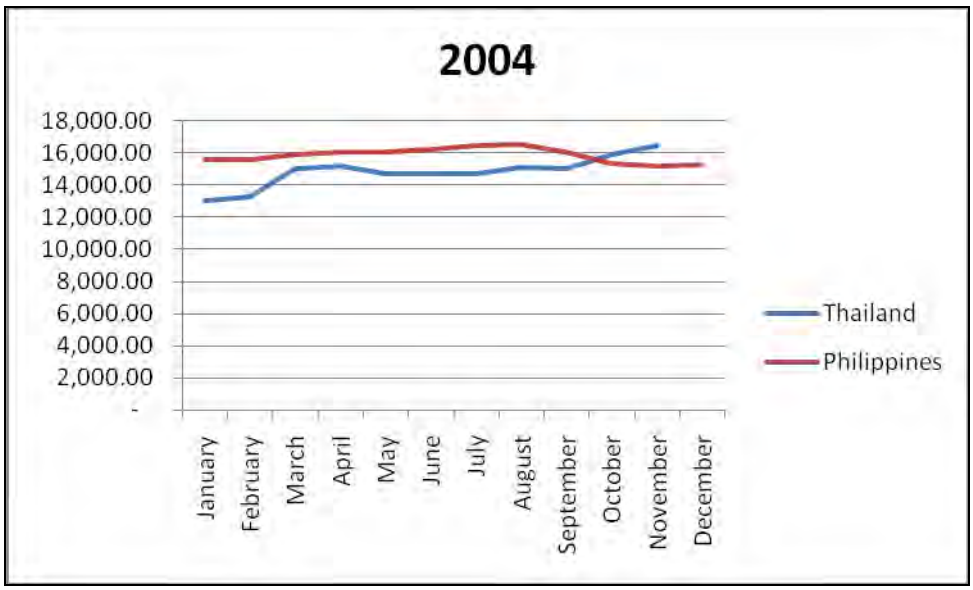
Figure A.1: Thailand Export Prices and Philippine Wholesale Prices – *Continued*



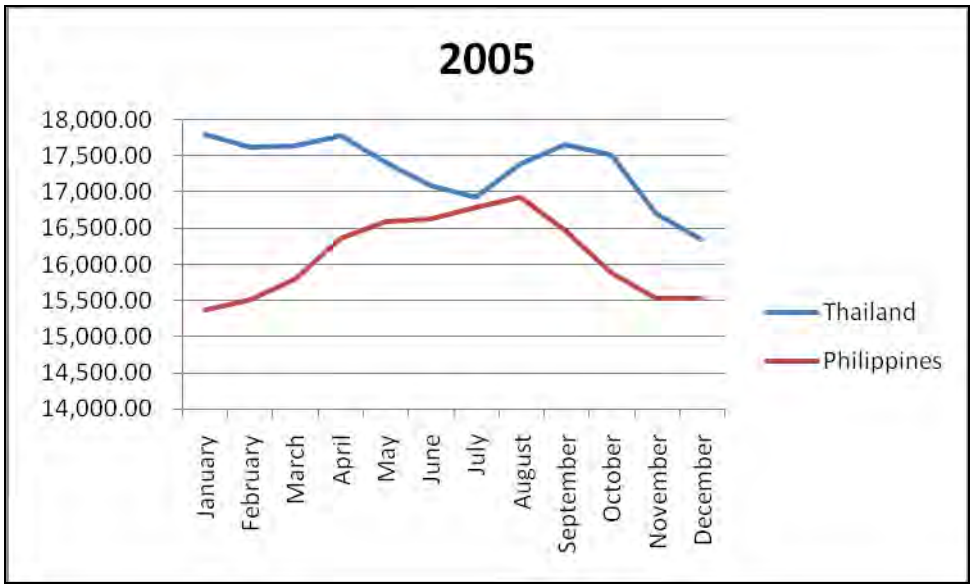


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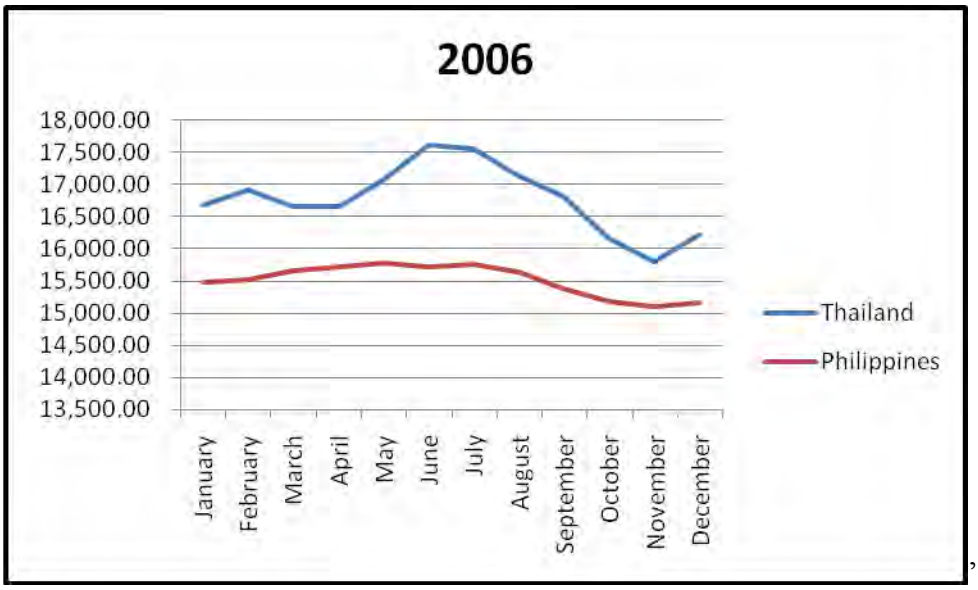
Figure A.1: Thailand Export Prices and Philippine Wholesale Prices – *Continued*



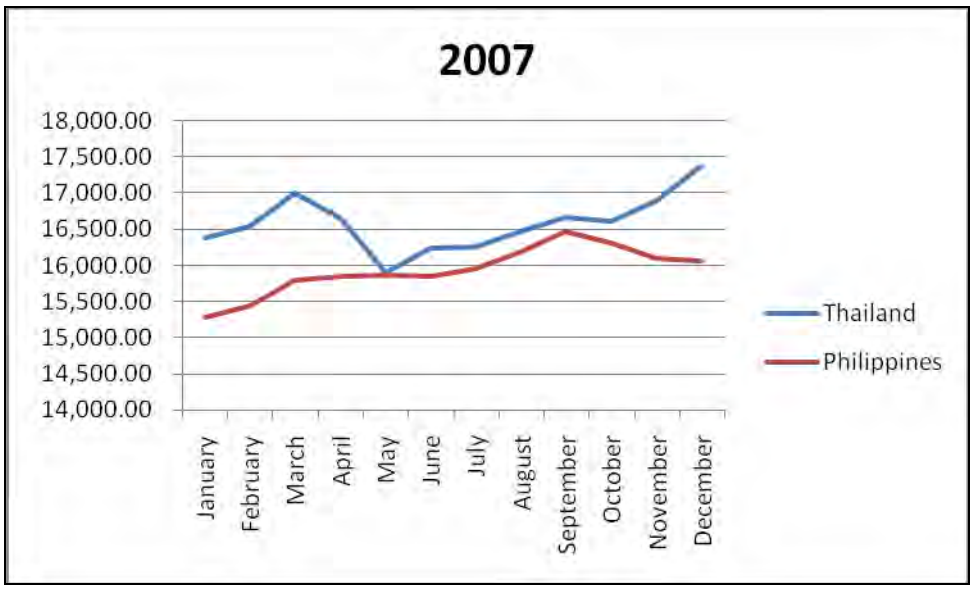


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Figure A.1: Thailand Export Prices and Philippine Wholesale Prices – *Continued*

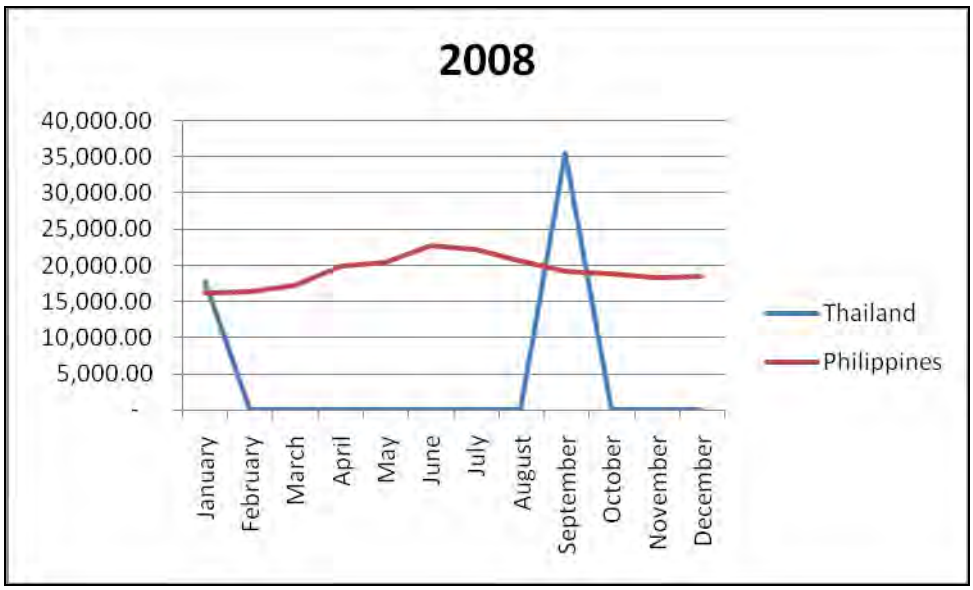

Figure A.2: Vietnam Export Prices and Philippine Wholesale Prices

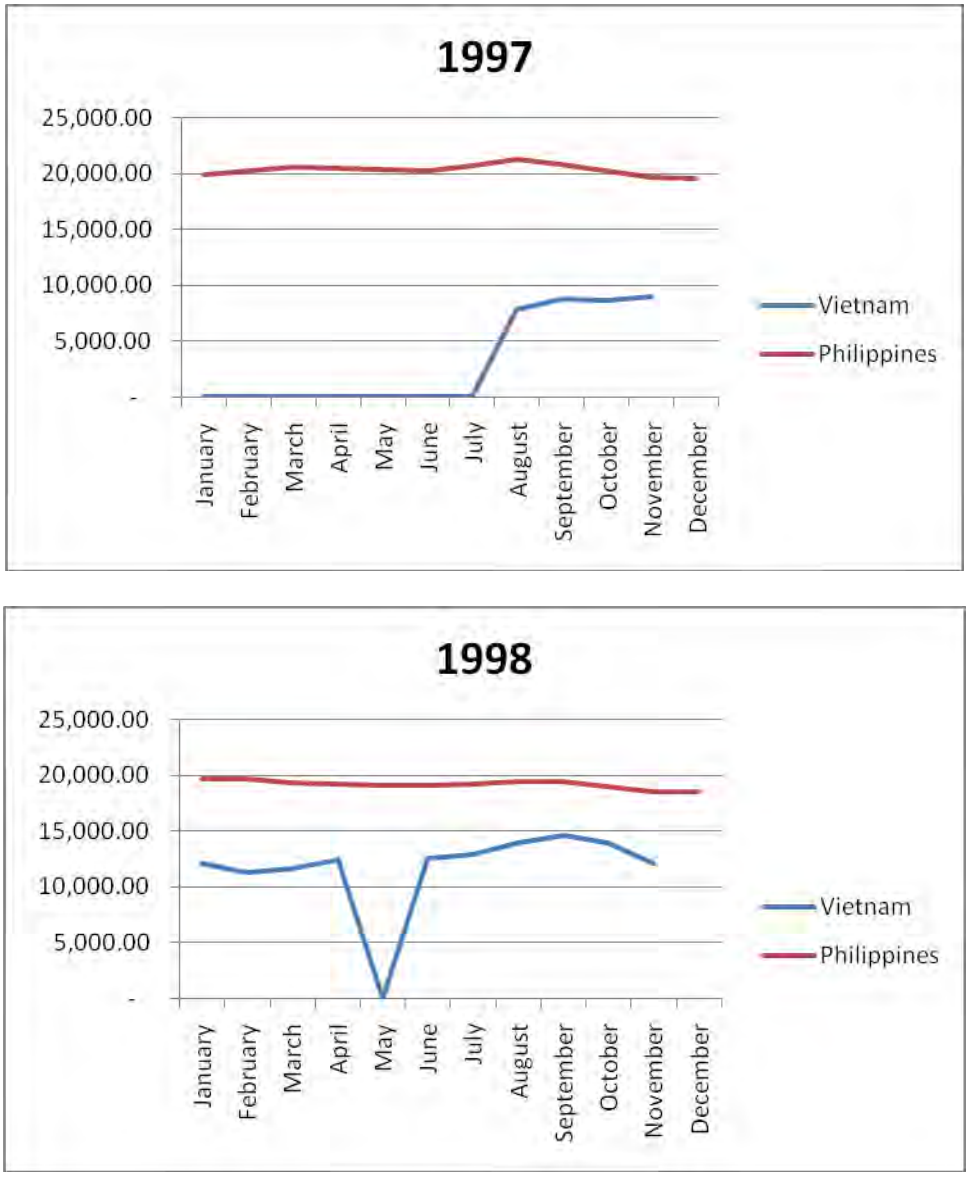

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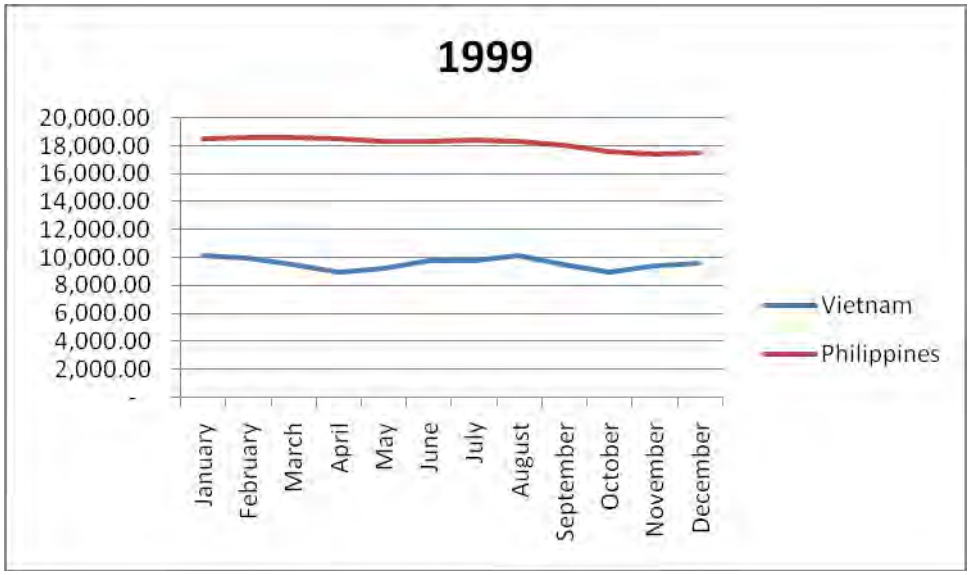
Figure A.2: Vietnam Export Prices and Philippine Wholesale Prices – *Continued*



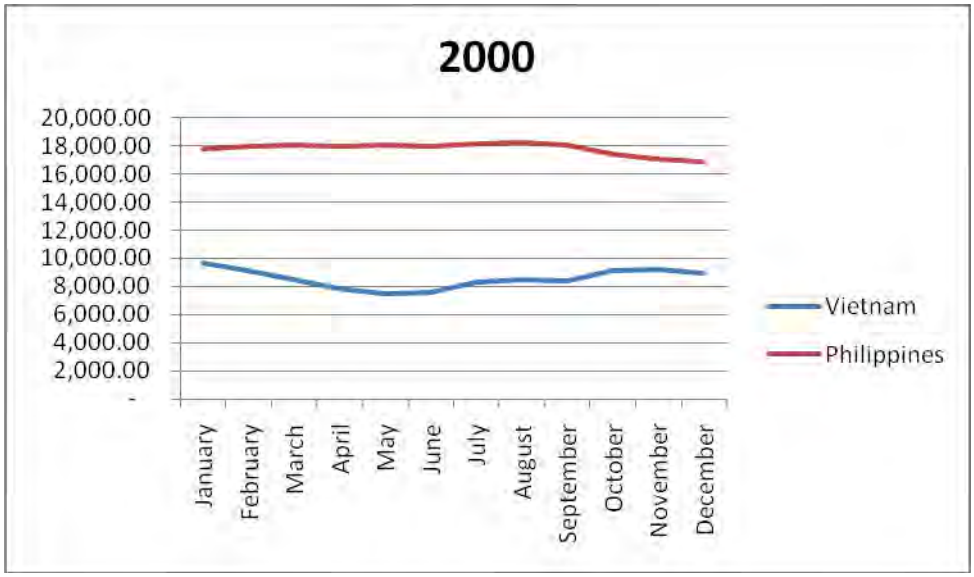


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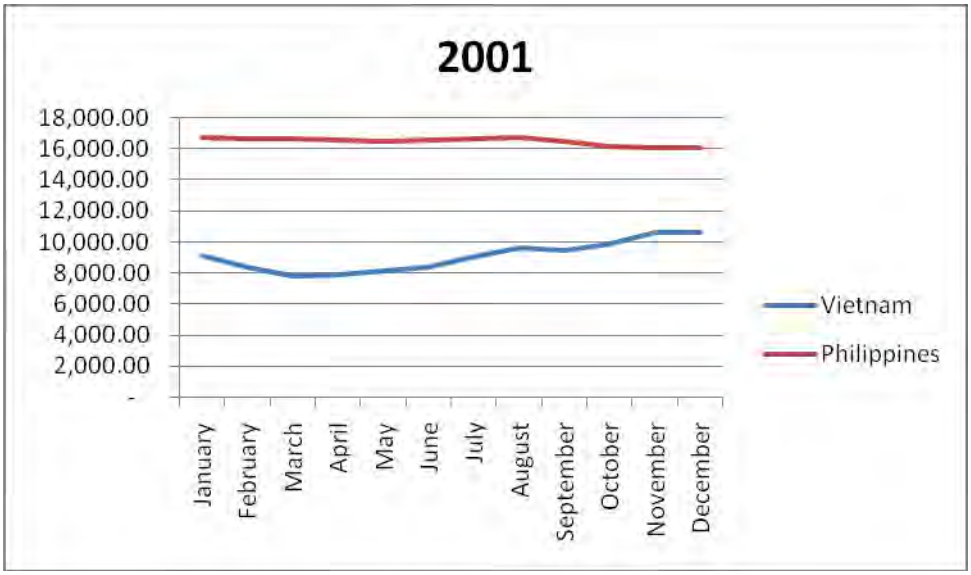
Figure A.2: Vietnam Export Prices and Philippine Wholesale Prices – *Continued*



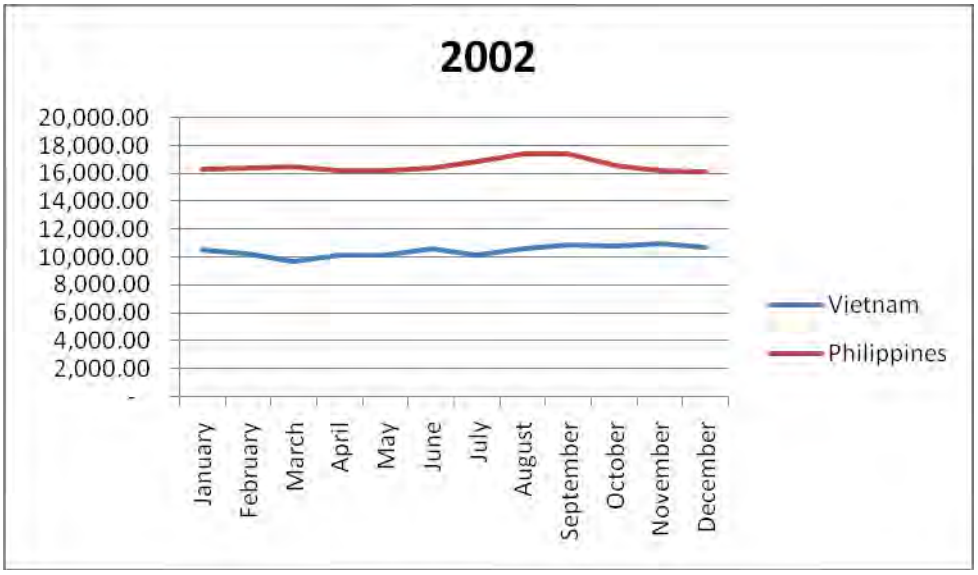


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Figure A.2: Vietnam Export Prices and Philippine Wholesale Prices – *Continued*

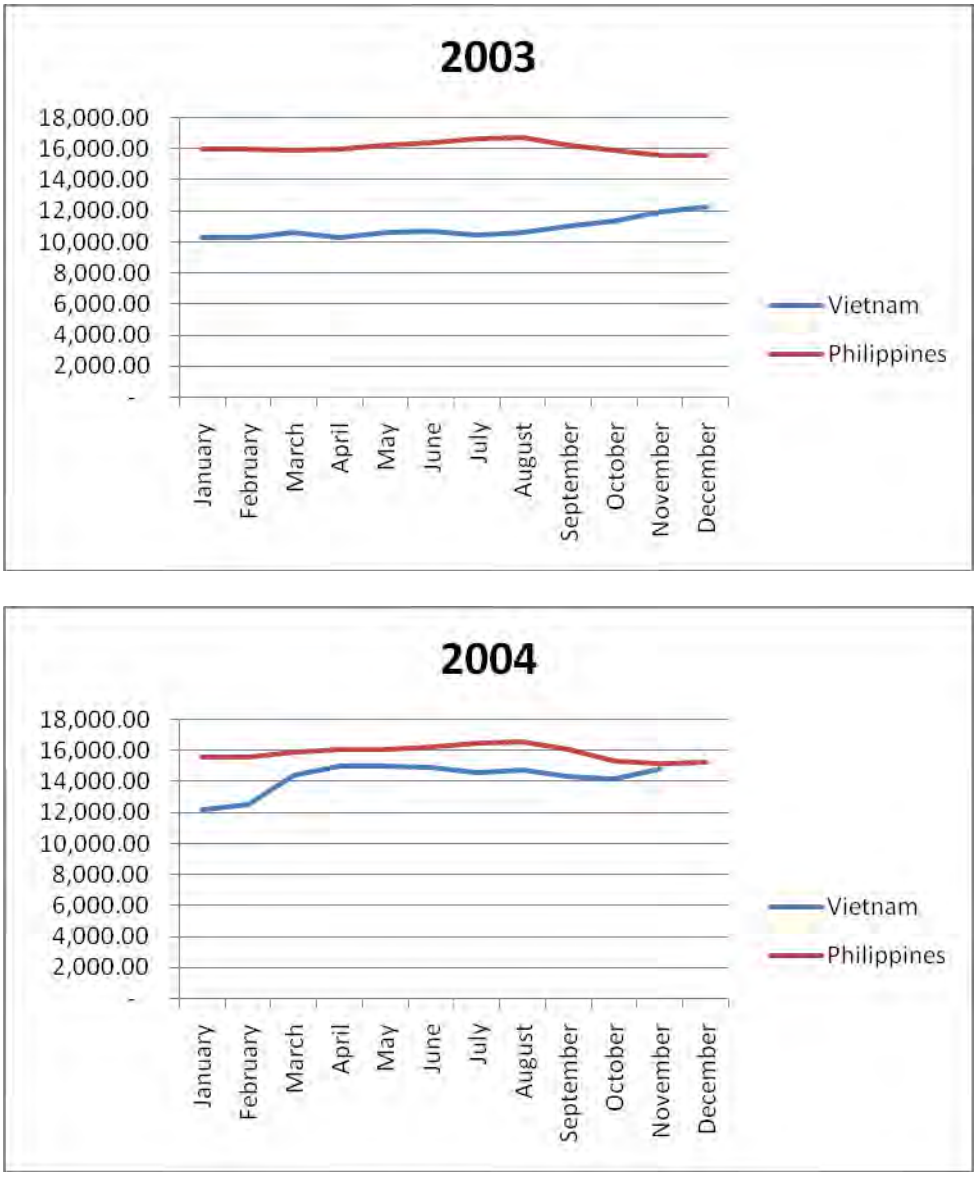

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Figure A.2: Vietnam Export Prices and Philippine Wholesale Prices – *Continued*

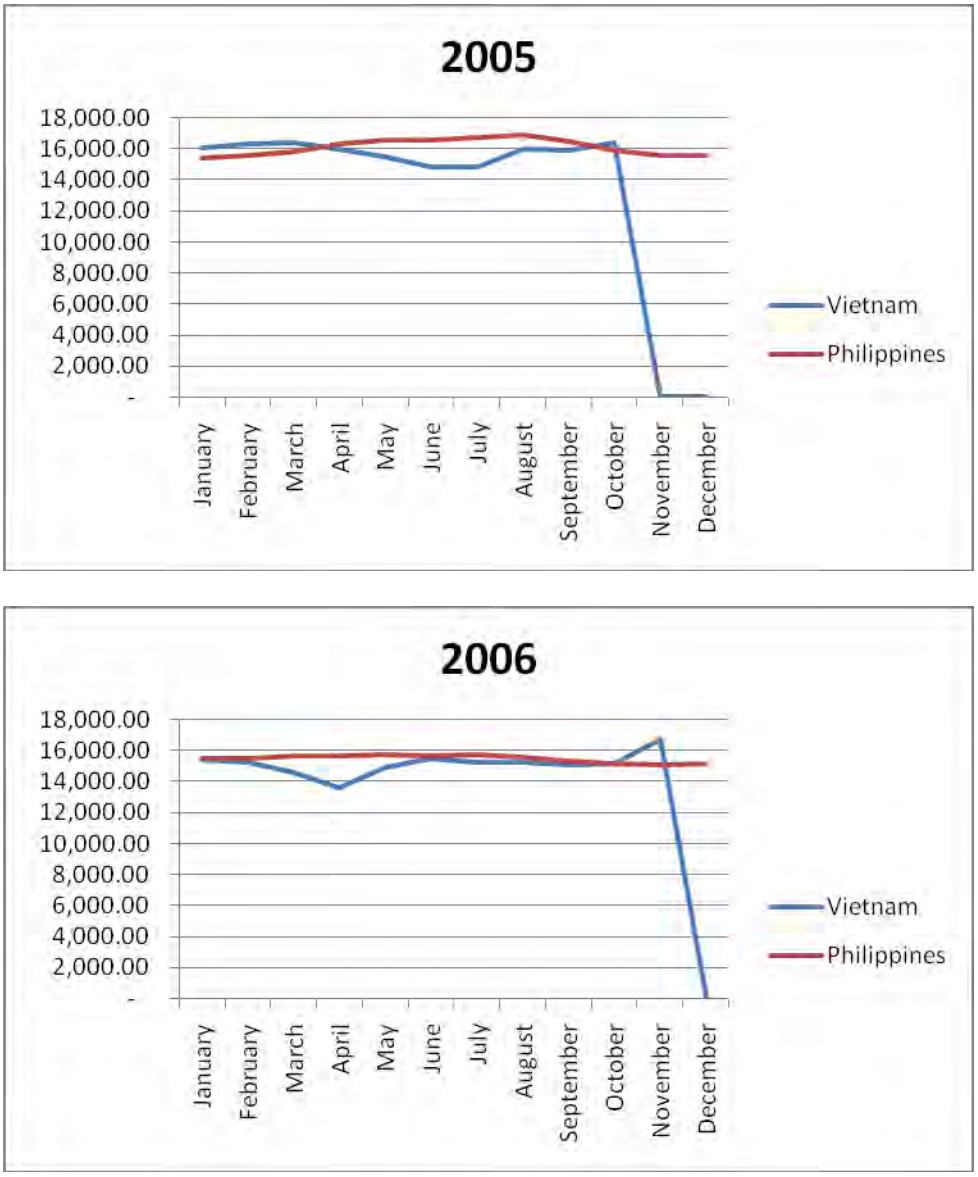

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Figure A.2: Vietnam Export Prices and Philippine Wholesale Prices – *Continued*