Welfare-Improving Collusion in the Japanese Pork Import Market

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Working Paper 00-WP 248
August 2000

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This paper was presented at the 1999 American Agricultural Economics (AAEA) annual meeting, Nashville, Tennessee, August 1999.

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Abstract

Imports are increasingly becoming a significant source of Japan's pork supply. Japan's share of imports to total consumption increased from 9 percent in 1980 to 24 percent in 1990, reaching a maximum of 44 percent in 1996.

Under the World Trade Organization (WTO) safeguard provisions for pork, Japan can raise its gate price by 24 percent when imports in a given quarter are 119 percent higher than the average imports of the last three years of the same quarter. Japan has already invoked the safeguard provision twice since the Uruguay Round Agreement on Agriculture (URAA) was signed in 1995. In both cases, the level and volatility of retail prices increased; the CIF values of imports increased, making the impact on the government of Japan (GOJ) tax revenue uncertain; the level of imports and stocks increased; and the timing of imports changed.

New underlying parameter estimates suggest that the reduction in pork exporters' profit is three times higher when the Japanese General Agreement on Tariffs and Trade (GATT) safeguard is invoked, providing foreign pork suppliers an incentive to collude to avoid exceeding the trigger. Workable and efficient allocation rules are constructed with a multi-plant monopolist structure that allows trade of quota. This collusion is welfare-improving since the safeguard induces more inefficiencies, including larger deadweight loss and a shift from low cost to high cost pork supply.

Key Words: Collusion, international agricultural trade, policy analysis, welfare.

Introduction

Pork claims the largest and most stable share in Japan's per capita total meat consumption at 40 percent, but Japan's swine-pork sector has contracted since 1990 at 2.5 percent each year. As a result, the share of imports to total consumption increased significantly from a mere 9 percent in 1980 to 24 percent in 1990, reaching a maximum of 44 percent in 1996. Also, Japan's pork imports are the largest in the world, representing 38.31 percent of total world pork imports.

Japan's core policy objectives include ensuring food security, stabilizing prices, and maintaining a rural living standard that is comparable to that of urban areas. The specific instrument to implement government policies in the beef and pork sector uses a price stabilization band. The mid-point price of the band is set to meet the objective of maintaining a standard of living in rural areas, while the floor and ceiling prices are set to constrain excess upward price movements.

A farm-to-wholesale-price transmission function with a transmission elasticity and distribution of the error structure (i.e., $k \rightarrow N(\mu_k, \sigma_k)$) is key in determining the price band. The midpoint of the price band is determined using an average of the farm price adjusted by an index of the annual cost of finishing slaughter-ready swine, and translated into the wholesale price using the price transmission elasticity. The floor price is derived from the midpoint price by subtracting one standard deviation of the regression error estimate. Adding one standard deviation of the regression error estimate to the midpoint price derives the ceiling price. The Livestock Industry Promotion Corporation (LIPC) intervenes in the market through its purchase (or storage subsidies granted to producers) and selling activities to ensure that market price always moves within the limits of the band. Moreover, the price band is supported at the border by requiring that all imports enter at a minimum import price, called the gate price, which is linked directly to the midpoint of the price stabilization band. Before the General Agreement on Tariffs and

Trade (GATT), a variable levy was used to implement the gate price policy. Imports with CIF values above the gate price were charged an ad valorem tax of 5 percent.

The GATT rules have radically altered Japan's import policies. Although the gate price was maintained, it is effectively decoupled from the stabilization price band and is subject to reduction commitments until 2000. The variable levy has been converted into a specific tax, and together with the ad valorem duty, is also subject to reduction commitments (see Table 1). The implementation of the specific tax (ST) stipulates that specific taxes that make the import price (CIF and duties included) more than the standard import price (SP, i.e., gate price with ad valorem duties applied) are exempt. Figure 1 (line abcd [kink bold line]) represents the relationship of the CIF and import price in this new policy regime. Pork imports with CIF prices in the *a* to *b* range are applied the full specific tax, while an increasing portion of the specific tax is exempt for pork imports with CIF prices in the range *b* to *c*. Only an ad valorem tax is imposed for pork imports with CIF prices beyond point *c*.

The more compelling impact of GATT is on the safeguard provisions intended to protect importers from excess surges in imports. For Japan, when the cumulative sum of pork imports at the end of each quarter exceeds their average of the last three years by 119 percent, the safeguard (SG) can be invoked where the gate price is raised by 24 percent. The SG is in effect for the rest of Japan's fiscal year (ending March 31). The dotted bold line in Figure 1 shows that the SG is equivalent to increasing the specific tax by raising the minimum CIF price when specific tax is exempt, reducing the exemption level, and increasing the maximum CIF price that is subject to the specific tax. Also, a special safeguard provision (SSG) granted in Section 4 of Article VI of the Agreement on Agriculture, provides that when the annual sum of pork imports at the end of the year exceeds 105 percent of their average level in the last three years, Japan can impose an additional duty, not to exceed one-third of the ordinary customs duty. Also, when the SG is in effect in the year when SSG is invoked, the SG is extended to the first quarter of the next fiscal year. Since implementation of the WTO agreement, Japan has invoked the SG provision only twice and the SSG once.

Taiwan, Denmark, the United States, and Canada have dominated Japan's pork import market. Taiwan's share in the fresh-chilled and frozen market of 47 percent and 37 percent dropped to zero and to 2.15 percent, respectively, after foot-and-mouth disease (FMD) was confirmed by the Office International des Epizooties (OIE) in the early 1997. The United States captured Taiwan's share in the fresh-chilled market, with its share increasing from 46 percent in 1996 to 75 percent in 1997. Canada follows the United States with its share increasing from 4.66 to 14 percent. The share of all other countries (e.g., South Korea, Mexico, and others) also increased from 2.75 to 10.62 percent. On the other hand, Denmark captured Taiwan's share in the frozen market category with its share increasing from 24.13 to 32.38 percent. The share of Other Countries also increased from 17.30 to 32.38 percent.

This paper first determines whether foreign suppliers have an incentive to collude to restrict their level of exports in order to avoid triggering the safeguard, and whether such collusion is welfare-improving. Second, we construct rules of sharing out the market, under the collusion scenario that are both workable and efficient. To address these general objectives, the paper examines four specific goals:

(1) to provide a detailed description of the trade policies affecting pork imports in Japan;

(2) to analyze the impacts of the GATT safeguards;

(3) to provide new supply and demand elasticity estimates from highly disaggregated and more recent monthly data; and

(4) to quantify the incentive to collude.

Model

Consider a partial equilibrium model that includes a demand function [1a], domestic supply function [1b], supply function of foreign suppliers [1c], and policy function [1d], i.e.,

$$D(p, \overline{Z}_d, \psi_d \mid \Phi_d), \tag{1a}$$

$$S(p, \overline{Z}_s, \psi_s \mid \Phi_s), \tag{1b}$$

$$S^w(p, p^w, \bar{Z}_s^w, \psi_s^w \mid \Phi_s^w, \Theta), \text{ and} \tag{1c}$$

$$\Theta(S^w \mid D, S). \tag{1d}$$

The arguments in the functions are domestic and world price p, vector of other arguments Z, random errors ψ, vector of parameters Φ, and policy parameter Θ. The subscripts are demand (d), and supply (s), and superscript is world (w). What is distinct in this model is that it allows foreign suppliers to influence domestic policy parameters, which then affects their decision rule.

This model represents three distinct outcomes that are possible in the Japanese pork import market. Case 1 is when the SG trigger is not binding; that is, $Q^T \geq Q^M$. In this case SG is never triggered (i.e., $\Theta = 0$) and the market determines the equilibrium import level (Q^M) given the standard import price specified in Japan's GATT commitment. Case 2 is the more interesting case when the SG trigger is binding (i.e., $Q^T \leq Q^M$), and the gate price is raised when Q^T is exceeded (i.e., $\Theta = \lambda$). The outcome is a reduction in the level of pork import to a certain level Q^S. Since the SG trigger Q^T is set by GATT rules independent of the underlying domestic supply and demand structure that generates realizations of the import level under SG (i.e., Q^S), there is no a priori relationship between the two. However, case 2 becomes interesting to foreign suppliers only when $Q^S \leq Q^T$. Otherwise, when $Q^T \leq Q^S \leq Q^M$ the SG is always triggered, which is case 3. The condition for case 2 to hold can be expressed by the relationship of some underlying parameters, i.e.,

$$\frac{\tau}{\varepsilon_{ed}} \leq \lambda, \tag{2}$$

where τ is the distance in percent between Q^M *to* Q^T, which largely depends on how fast current consumption grows and production declines relative to the average of the last three years, λ is the allowable increase in the gate price, and ε_{ed} is the excess demand elasticity. Excess demand is defined as $ED = D(\bullet) - S(\bullet)$, with elasticity of the form,

$$\varepsilon_{ed} =_s \varepsilon_d w_d - \varepsilon_s w_s, \tag{3}$$

where ε_d is demand elasticity of [1a], ε_s is supply elasticity of [1b], and w is the ratio of supply and demand to excess demand, respectively.

Substituting specific values in [2], that is, λ = 24 percent, ε_{ed} = -1.773 (in Table 3), and $Q^T = 1.19\ Q^M_{t\text{-}i}$, then case 2 requires that the growth rate of pork imports is in the range of 1.19 to 2.07 percent. Any growth rate in pork imports below the lower limit will not cause the trigger to be exceeded, while any growth rate above the upper limit will always exceed the trigger. There is no incentive collude under both scenarios.

In a policy regime with quantity trigger and specific duty, the appropriate measure of suppliers' welfare is net profit. The percentage change in net profit with the SG invoked is

$$\Delta\pi = \frac{\varepsilon_{ed}\lambda}{\varepsilon_s^w \alpha}, \tag{4}$$

where ε_s^w is the supply elasticity of the foreign suppliers in [1c] and α is the proportion of net profit to total revenue. The sign of [4] depends on the sign of the parameters only and not on their relative magnitudes. Since λ, α, and ε_s^w are non-negative, the sign of [4] is always non-positive because ε_{ed} is always non-positive. This suggests that foreign suppliers are always worse off when SG is invoked. Hence, an incentive to collude among suppliers to avoid triggering the SG always exists. With an essentially variable levy import protection regime, the relevant price faced by foreign pork suppliers is determined by their respective marginal cost given the import quantity demanded. As smaller quantities of pork are demanded under an SG, total revenue (and net revenue, too) of foreign pork suppliers declines because both quantity and prices are lower.

The strength of the incentive, however, depends primarily on the relative magnitudes of the parameters. That is, on the demand side, the more elastic (inelastic) the excess demand function the stronger (weaker) the incentive to collude. The reason is that with a rise in the gate price by λ when the trigger is exceeded, there is a bigger reduction in the quantity of pork import demanded when demand is more elastic. On the supply side, the more inelastic (elastic) the supply function of foreign suppliers the stronger (weaker) is the incentive to collude. The reason is that for a given drop in the quantity of pork import

demanded there is a larger decline in the effective price faced by foreign suppliers when their supply function is more inelastic.

We use a multi-plant monopolist structure to derive workable and efficient rules of allocating market share under a collusion scenario. Under this scenario, aggregate output is constrained in the neighborhood of the SG trigger (i.e., $Q^C = Q^T - \varepsilon$, where $\varepsilon \to 0$). The rule for efficient allocation is to equalize marginal cost across all foreign sources of pork supply. At the aggregate level, the marginal cost is determined by substituting the SG trigger quantity in the aggregate marginal cost function (i.e., $C'(Q^C)$, a horizontal aggregation of the individual marginal cost functions of all suppliers). Then the output of the individual supplier is determined by substituting the marginal cost at the trigger quantity to the respective supply functions,

$$q_i^C = c_i'^{-1}(MC^C) \;\forall \text{ i, j = 1, …, n, and } \sum_{i=1}^{n} q_i^C = Q^C. \tag{5}$$

This allocation favors suppliers with lower marginal cost. However, it is likely that the allocation of Q^C based on [5] may not be acceptable to existing suppliers. A compromise may be made to retain output level in the previous year and allocate only the additional output based on [5]; i.e.,

$$q_{i,t} = q_{i,t-1} + \frac{q_i^T}{Q^T}(Q^T - Q_{t-1}). \tag{6}$$

However, the workable rule given in [6] does not guarantee the most efficient allocation. An additional provision is needed to improve efficiency. That is, the rule in [6] can be considered as simply allocating an initial export quota, and then allow free trade of quota rights among the foreign suppliers. With this arrangement, the initial workable allocation in [6] will approach a more efficient allocation in [5] at the equilibrium of the quota market, as quota rights are traded from high cost exporters to low cost exporters.

Consumer and producer surplus measures are used to examine the welfare implications of the collusion scenario.

Data, Estimation, Results, and Discussion

Data are from the Agriculture and Livestock Industries Corporation's (ALIC's) Monthly Statistics, and data provided directly from their North American Representative Office for November 1992 to August 1998. All estimations used Seemingly Unrelated Regression (SUR) and were conducted in SAS, release 6.12.

Impact of the Safeguard

The first SG was invoked from November 1, 1995 to March 31, 1996. The second SG was invoked on July 1, 1996 until March 31, 1997 (see Table 2 for trigger quantities). Moreover, because the SSG was triggered on January 1, 1997, the second SG was extended until June 30, 1997. The safeguard was not invoked for the remainder of 1997 partly due to limited pork availability in the world with the FMD in Taiwan and classical swine fever (CSF) in the European Union (EU). In 1998, the SG trigger was again not exceeded due to the macroeconomic crisis in Asia including Japan. However, with low imports in 1997 and 1998, and the continuing decline in domestic pork production, it is very likely that when Japan's economy recovers, its import level may again exceed the SG trigger.

The impact of a safeguard can be gleaned from the outcomes of the 1995 and 1996 SG. Firstly, it increased both the level and volatility of retail price. The reported range of price transmission elasticity between the gate price and retail price is from 0.71 to 1.42. This study estimates a transmission elasticity between wholesale and retail price, in real terms, at 0.55. With the 24 percent rise in the gate price under the SG (i.e., 140 y/kg), retail price increased in the expected range of 17 to 34 percent (i.e., 150 to 200 y/kg). Also, due to speculative purchases and stockholding, the SG and SSG have created price variability that is much higher than normal in non-SG periods. Figure 2 shows that changes in retail pork prices were bigger immediately prior to and after an SG was invoked.[1] Secondly, the higher gate price raised the CIF of imported pork. Since the gate

[1] There is some indication that prices seem to be more stable after an SG is invoked because of the larger than normal size of meat in stock.

price does not differentiate between fresh-chilled or frozen pork imports, the CIF of both types of products are similarly impacted by the gate price policy. That is, with a higher gate price, foreign suppliers use a product strategy to come up with a product mix that gives a CIF value that is in the neighborhood of the gate price (see Figure 3). In effect, even with the higher specific tax, the GOJ revenue may not increase proportionately, because the CIF also rises as the gate price is increased. In the 1995 SG, while the gate price increased by Y140/kg, the increase in tax revenue was only Y16/kg. In the 1996 SG, while the gate price increased by Y137/kg, tax revenue actually declined by Y6/kg.

Thirdly, the SG impacted the level and timing of imports and stocks. Figure 4 seems to suggest that during normal periods Japan hold an inventory of pork that is equivalent to 73 percent of its monthly pork consumption and then imports 100 percent of the deficit between domestic production and consumption in a given month. This pattern has changed radically with the SG and SSG. Both in the 1995 and 1996 SG and SSG, speculative purchases raised the import level to 211 to 258 percent of domestic deficit, while stocks increased from 119 to 240 percent of consumption. Also, timing of imports normally follows consumption where it is 10 percent higher in the third quarter. But with the SG, imports are highest in the quarter before it is likely triggered.

New Supply and Demand Elasticities and Incentive to Collude

Since the magnitude of the underlying supply and demand elasticity is an important determinant of the strength of the incentive to collude, we estimate a new supply and demand elasticity using more disaggregated and recent monthly data. On the demand side, [1a] is specified as an Almost Ideal Demand System (AIDS) meat demand system, which includes beef, pork, and broilers. Imported beef and imported pork are treated as a differentiated product to generate tighter estimates. The formula in Green and Alston (1990, 1991) is used to estimate demand elasticities. On the supply side, [1b] is separated into two functions representing the number of swine slaughtered and the average slaughter weight. Total supply is a product of these two functions with elasticity equal to $\varepsilon_s = \varepsilon_s^n + \varepsilon_s^w$.

Demand elasticities in Table 3 show that imported beef has the highest income elasticity at 1.527, while imported pork has the lowest at 0.612. Strong preference by Japanese consumers for domestic pork over imports may explain the low expenditure elasticity for imported pork. The uncompensated elasticities suggest that domestic pork is a net complement to domestic beef (and vice versa), and imported pork is a net complement to imported beef (and vice versa).

The downward trend in the estimated number of swine slaughtered reflects the declining swine inventory base. The responsiveness of pork supply at 0.231 is largely contributed by the slaughter weight elasticity at 0.161, rather than the elasticity of the number slaughtered, which is only 0.07. That is, since the current policy regime is more likely to generate temporary price movements, producers are likely to respond through changes in slaughter weights rather than through changes in the numbers slaughtered. This is due to the flexibility the former affords and the lower fixed cost it involves compared to the later.

A comparison of elasticities in Table 4 indicates that the estimate using monthly data gives higher demand elasticity but lower supply elasticity. Since the data are released monthly, the responsiveness of supply may not fully capture the response through the inventory. When this is accounted for, supply elasticity could possibly increase but not any higher than 0.35. The demand elasticity, on the other hand, is more reasonable. But as the proportion of imported pork continues to increase relative to total consumption, this elasticity might approach –0.40.

Also, Table 4 gives the pork excess demand elasticity estimates using equation [3] with supply and demand elasticities from the Organization of Economic Cooperation and Development (OECD), the Food and Agricultural Policy Research Institute (FAPRI), and own new estimates, and the level of pork production and consumption for 1995 to 1998 from production, supply, and distribution (PS&D). The excess demand elasticity is greater than one for all years in all models, with the elasticity from monthly data giving the largest (in absolute value) excess demand elasticity of –1.773. Using this elasticity and assumed values for the other parameters, Table 5 shows that the rate of net profit

reduction is three times larger when the SG is invoked than under the collusion scenario that avoids triggering the SG.

Welfare Impacts of Collusion

There are several losers when the SG and SSG are invoked. Foreign suppliers lose revenue. Japanese pork processors pay higher prices for imported frozen pork and higher storage cost, especially when they involve in speculative purchases. Consumers are worse off with limited availability of pork imports at a higher price. The winners are the GOJ with added tax revenue and domestic producers with higher prices. But an increase in GOJ revenue from duties may not be very significant, as shown earlier. Also, with price more volatile and increases not permanent, the long-run benefit to domestic producers is also suspect.

The reduction in consumer surplus between the initial equilibrium vector $E^0(p^0, q_s^0, q_d^0, q_m^0)$ and the SG equilibrium vector $E^1(p^1, q_s^1, q_d^1, q_m^1)$ can be decomposed into several components,

$$\Delta CS_1 = \left[\int_{p_1^0}^{p_1^1} S(\bullet)dp_1\right] + \left[\int_{p_1^0}^{p_1^1} D(\bullet)dp_1 - q_d^1.(p^1 - p^0)\right] + \left[q_s^1.(p^1 - p^0) - \int_{p_1^0}^{p_1^1} S(\bullet)dp_1\right]$$

$$+ \left[(p^1 - p^0).(q_d^1 - q_s^1)\right].$$

The first term of the right hand side (RHS) represents the portion of the consumer surplus that is purely transferred to domestic producers. The remaining three terms are losses due to inefficiencies induced by the SG. The second term of the RHS is the additional deadweight loss caused by the larger wedge created by the SG between market price and marginal cost. The third term in the RHS represents the inefficiency caused by the substitution of the low-cost imports with high-cost domestic supply. Since foreign suppliers respond to the higher specific tax with a product mix strategy that raises their CIF to the neighborhood of the new higher gate price, welfare losses may not be fully recovered through higher tax revenue because the tax revenue may not actually increase proportionately. That is, the inefficiency—caused as foreign suppliers substitute a

low-cost products mix with high-cost product mix imports to avoid paying the higher specific tax—may approach the last term.[2] Moreover, the losses from higher production cost of domestic supply may actually be higher and the surplus appropriated by producers may actually be smaller when the higher cost of storage is accounted for, causing the domestic supply function to move to the left (shift or rotate).

Clearly, since consumer surplus is lost from inefficiencies induced by the SG, collusion among foreign suppliers to avoid triggering the SG is welfare-improving. Also, since each component in the RHS is non-trivial, it is likely that welfare losses of consumers and foreign suppliers are more than enough to compensate domestic producers to favor the collusion scenario.[3]

Summary and Conclusion

Under the present pork import policy regime in Japan, there is an incentive for foreign suppliers to collude to avoid exceeding the SG trigger. This paper determined that the range of growth in the quantity of pork imports demanded to be in the range of 1.19 to 2.07 percent for this incentive to exist. The strength of this incentive depends on the magnitude of the underlying supply, demand, and policy parameters. Measured by the net profit of suppliers, the more inelastic (elastic) the supply function the stronger (weaker) the incentive, and the more elastic (inelastic) the excess demand function the stronger (weaker) the incentive to collude.

Rules for sharing out the market under the collusion scenario use a multi-plant monopolist structure to determine a workable initial distribution of export quota rights, and include provision for trade of export quota rights to allow low-cost suppliers to increase their share in order to improve efficiency.

[2] There might be quality issues involved in the change in product mix strategy by foreign suppliers that complicate the assessment of welfare impacts.

[3] This collusion behavior is not similar to a Voluntary Export Restraint (VER). Whereas, exporting countries appropriate the higher rent under the VER, with a variable levy-like import protection in the present case, domestic consumers pay a higher price while foreign suppliers face a lower price even with collusion.

It can be shown that this collusion is welfare-improving since the SG induces inefficiencies from larger deadweight loss, substituting low-cost imports for high-cost domestic supply, and substituting low-cost product mix imports for a high-cost product mix. Moreover, welfare losses of consumers and foreign suppliers are more than enough to compensate domestic producers and the GOJ to favor the collusion scenario.

Table 1. Specific tax, ad valorem tax, gate price, and standard import price of pork, Japan, 1995 to 2000

	1995	1996	1997	1998	1999	2000
Specific Tax						
Carcass	414	404	393	383	372	361
Boneless Cuts	553	539	524	510	496	482
Ad Valorem Tax	4.9	4.8	4.7	4.5	4.4	4.3
Gate Price						
Carcass	439	429	420	411	402	393
Boneless Cuts	585	572	560	548	536	524
Standard Import Price						
Carcass	460	450	440	429	419	409
Boneless Cuts	613	600	586	573	559	547

Source: ALIC North American Representative Office.

Table 2. Pork safeguard trigger level for 1995 to 1998

Quarter	1995	1996	1997	1998
First	146,965	152,488	253,767	241,491
Second	286,215	311736	406,462	437,977
Third	440,494	482,268	573,390	602,519
Fourth	565,000	594,000	674,751	692,373

Table 3. Uncompensated, compensated, and expenditure elasticity estimates

	Domestic Beef	Imported Beef	Domestic Pork	Imported Pork	Broilers	Expen-diture
Domestic Beef	-1.108 -0.849	0.178 0.359	-0.838 -0.623	0.319 0.420	0.423 0.693	1.027
Imported Beef	0.173 0.559	-0.886 -0.617	0.686 1.006	-0.881 -0.730	-0.620 -0.218	1.527
Domestic Pork	-1.027 -0.750	0.551 0.744	-0.752 -0.522	0.031 0.140	0.100 0.389	1.098
Imported Pork	0.893 1.048	-1.326 -1.218	0.098 0.226	-0.312 -0.251	0.035 0.196	0.612
Broilers	0.471 0.644	-0.188 -0.067	0.111 0.255	0.001 0.069	-1.083 -0.902	0.689

Note: First entry in a cell is Marshallian elasticity and the second entry is Hicksian elasticity.

Table 4. Excess demand elasticity estimates

			1995	1996	1997	1998	Average
	Levels (000 mt)	Supply	1322	1266	1283	1290	1290
		Demand	2063	2119	2081	2080	2086
			Elasticity				
Models	Supply	Demand	Excess Demand				
OECD	0.440	-0.300	-1.620	-1.398	-1.490	-1.508	-1.504
FAPRI	0.520	-0.310	-1.791	-1.542	-1.644	-1.665	-1.661
Own	0.231	-0.532	-1.893	-1.664	-1.758	-1.777	-1.773

Table 5. Comparison of net profit change (in percent) under SG and collusion scenario

	α = 30 percent		
Scenario	$\varepsilon_s^w = 4 \bullet \varepsilon_{ed}$	$\varepsilon_s^w = 3 \bullet \varepsilon_{ed}$	$\varepsilon_s^w = 2 \bullet \varepsilon_{ed}$
Safeguard Invoked	-30	-40	-60
Collusion (No SG)	-10	-13	-19

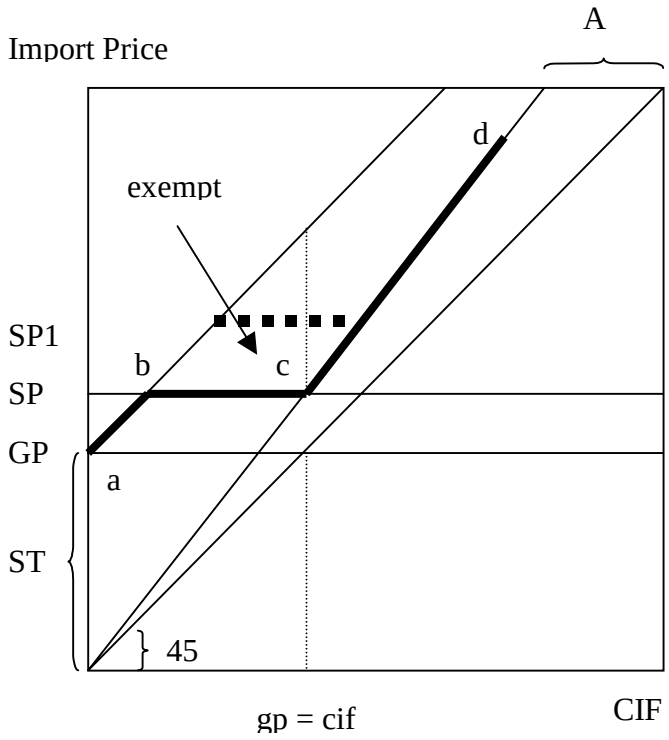

Figure 1. Relationship of the standard import price and CIF.

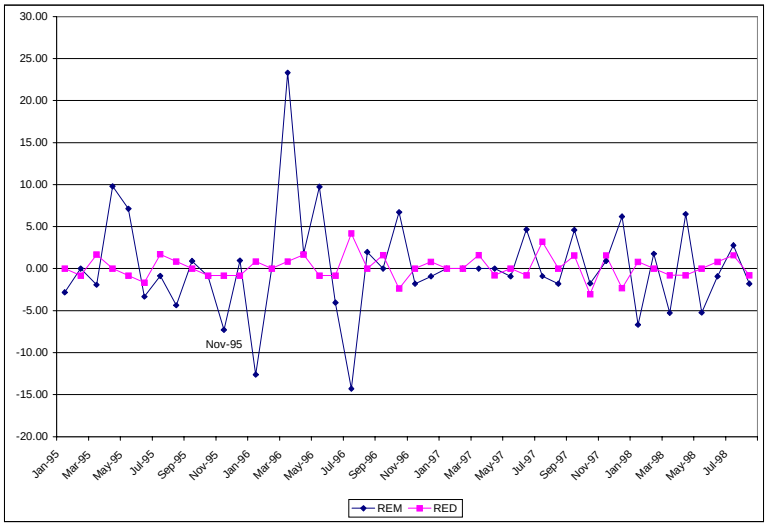

Figure 2. Retail price changes for domestic and imported pork.

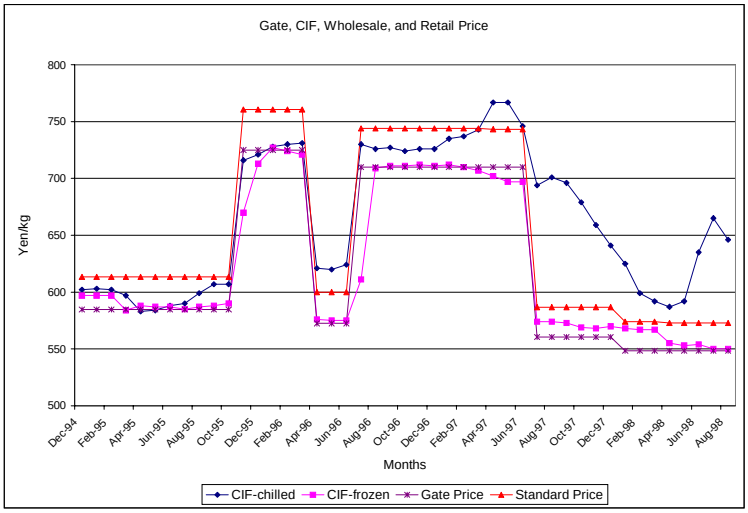

Figure 3. Gate price, standard import price, and CIF.

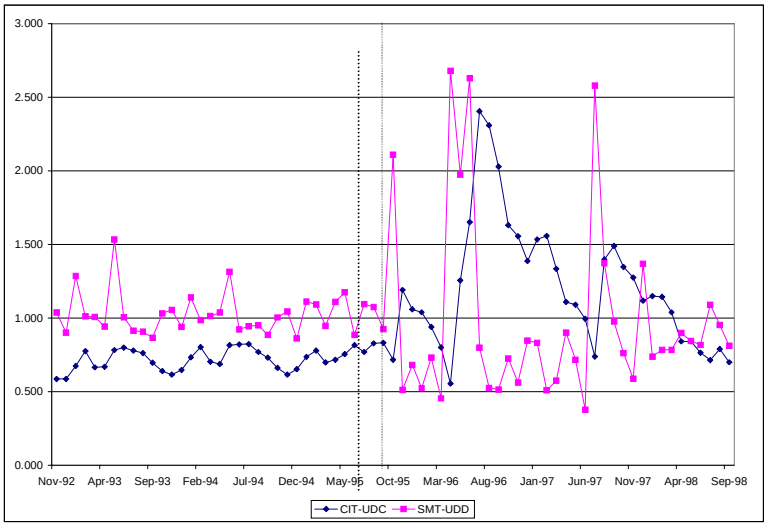

Figure 4. Proportion of stock-consumption and import-domestic deficit.

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