

Why government hurts the poor ? the case of Indonesia's rice protection ¹

M. Chatib Basri
dede@lpem-feui.org

Arianto A. Patunru
patunru@lpem-feui.org

University of Indonesia

Abstract

Indonesia is a country very much dependent on rice. It has consistently been a rice net importer for a long time, except for a brief intermittent of self-sufficiency in late 1980s. Yet, resistance to importation is always strongly pronounced. As a result, government policy tends to bias against the majority net consumers of rice, a group dominated by the poor. This paper offers two explanations on the rice protection in Indonesia. First, it shows that the demand for protection is likely to be affected by the movement of real effective exchange rate. Second, it uses the logic of collective action framework to explain why the government opts for hurting the poor. In particular, the paper asserts that the lobby of net producers is stronger than that of net consumers, because the latter group relatively lacks of incentive to fight.

1. Introduction

The years of the 1980s witnessed a declining trend of trade protection in many countries in the world. In Indonesia, trade protection levels were relatively high from the 1970s up to the mid 1980s, before being reduced substantially as a result of various trade reforms. Despite slow progress of trade reform in 1990s, Indonesia has become a relatively open economy and deserves much credit for its unilateral liberalization. The trade regime became more open when the International Monetary Fund (IMF) entered following various unsuccessful attempts by Indonesian government to stabilize *rupiah*. Unlike in Thailand and in other countries, IMF packages in Indonesia included trade reform which was normally beyond the mandate of the Fund. As discussed in Soesastro and Basri (2005), the structural adjustment program encouraged a gradual reduction of import tariffs. In addition, as part of the structural reform program of 15 January

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1998, domestic trade in agricultural products, including rice, was fully deregulated. The clove marketing board, which was owned by Suharto's son, was eliminated. In February 1998 all other marketing arrangements were terminated, specifically those of cement and paper, while plywood cartels were dissolved. Formal and informal barriers to investment in palm oil plantation were removed in February 1998, followed by the removal of all investment restrictions in wholesale and retail trade. Proposals for trade deregulation commonly associated with the World Bank had been captured in these IMF packages. The trade reform program was obviously significant and has removed most of the non-tariff barriers.

Nevertheless, it would be unwise to assume that pressures for trade protection will subside. Resistance to market reform from protectionist groups cannot be underestimated. These groups are still prevalent and hold some key positions both in the government and in the business sector. This was indicated by the rising of protectionism from 2001 to 2004 particularly in agricultural products including rice. This phenomenon leads us into a question of why protectionism, particularly in rice sector, was on rise again.

Rice is the most 'politicized' commodity in many countries in the world, including Indonesia. For this country, rice not only continues to be the most important staple food, but it is also the main source of living of small farmers and agricultural households in Indonesia. Warr (2005) stated that in Indonesia, rice represents 7.2% of average consumer expenditure and rice sector employs 7.1% of the total workforce at farm alone. This suggests that rice is a very important commodity for Indonesia. The country is in fact a net importer of rice.² Furthermore, more than three-quarters of the poor are net consumers of rice (World Bank, 2007), so the rice price increase must have hurt the poor on average (Basri *et al.*, 2004). One can therefore expect a strong resistance toward trade protection on rice.

The reverse is true, nevertheless. Rice has been protected since 2000, and yet there appears to be a little resistance, if any, from consumers. Then what determines rice protection in Indonesia? Political economy model mostly point to "politics" as the cause, arguing that governments form trade policy in response not only to concerns about social welfare, but also to pressures from special interest groups. The political support function model for example argues that government acts as an intermediary to balance various conflicting groups in the society in order to maximize political support (Hillman, 1982). The government's objective function takes into account the favored treatment of organized industry as well as the welfare consequences for consumers.

This paper aims to elucidate conflicts over trade protection on rice after the economic crisis and to examine why there is a strong pressure against trade

² Indonesia was briefly a net exporter only in 1985-1987 and a one shorter period during the Second World War (Dawe, 2006)

liberalization on rice sector in Indonesia.

2. Trade protection in Indonesia

Indonesia has been making efforts to increase efficiency by removing restrictions on trade, investment, and production, and streamlining procedures at the border. As a consequence, it has been able to afford tariff reduction to an average of below 10%. In general the Indonesian average tariff is relatively low compared to some Asian countries and to Mexico, Poland, Brazil, and Turkey. Furthermore, the implementation of the tariff reduction program has reduced the unweighted average applied tariff rate from 15.5% in 1995 to 7.2% in 2002 (WTO, 2007).³

However, although the number of Indonesia's applied MFN tariffs under 10% decreased from 83.4% of the total tariff lines in 2002 to 75% in 2006, the share of duty-free tariff lines stay at 22%. In addition, there is evidence that tariffs dispersion has increased since 2002 (WTO, 2007).⁴

While tariff rates have gone down (or at least maintained), non-tariff barriers have flourished. Agricultural sensitive products, such as rice, cloves, sugar, corn, and soy beans, have been subject to special import licensing; with the former three have also been exposed to exclusive import rights granted to domestic producers (World Bank, 2005).

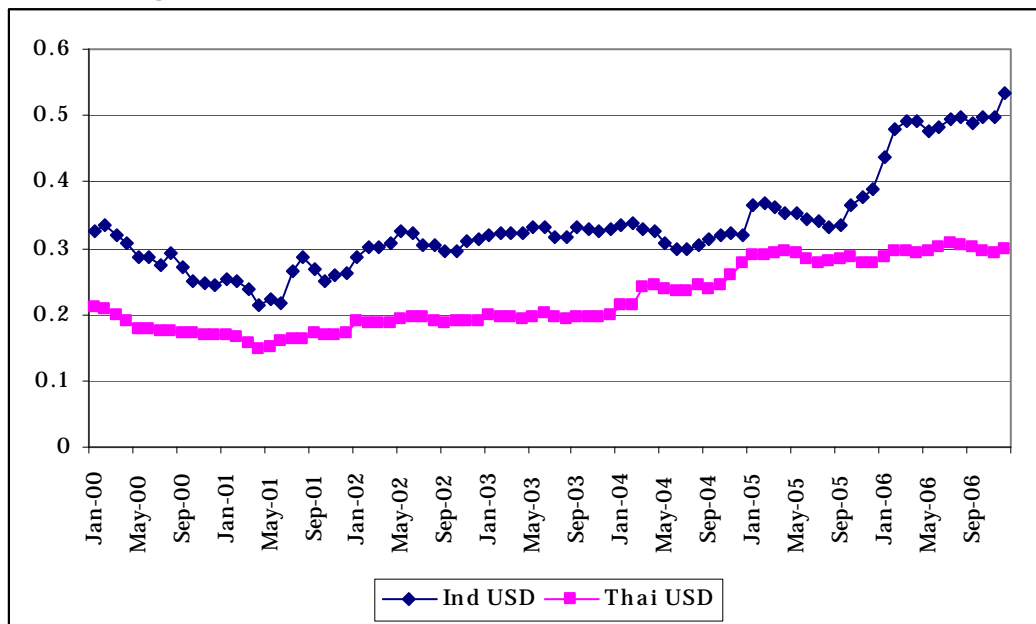
Rice protection

Indonesian rice sector was basically liberal in 1998 following the IMF structural reform package. As mentioned earlier the structural adjustment included the removal of various trade barriers in agricultural products, including rice. However, the relatively liberal period was short-lived. Worrying about massive influx of imported rice, Indonesian government started to impose specific tariff of Rp 430/kg in 2000. Subsequently, in 2003, Ministry of Agriculture raised the tariff by 75% to Rp 750/kg – or raising the ad valorem equivalent tariff from 25% to 45% (Warr, 2005). This policy was enjoined by a non-tariff barriers such as import arrangement, control and restriction. In 2004, Ministry of Trade and Industry issued a decree which effectively prevented imports except when explicitly authorized by the Minister. The ban was supposed to be seasonal, but it remained in place until 2006. As a result of the import restriction since 2000, domestic price has been diverging away from international price (Figure 1).

³ It is true that the simple average tariff increased to 9.9% in 2004, but it was due to the adoption of ASEAN Harmonized Tariff Nomenclature (AHTN) as part of Indonesia's commitment under ASEAN Free Trade Area (AFTA).

⁴ Note, however, that it was due mainly to the high tariffs on alcoholic beverages. Excluding these products will reveal a downward overall trend of tariff rates.

Figure 1. Domestic and international prices of rice



Source: BULOG

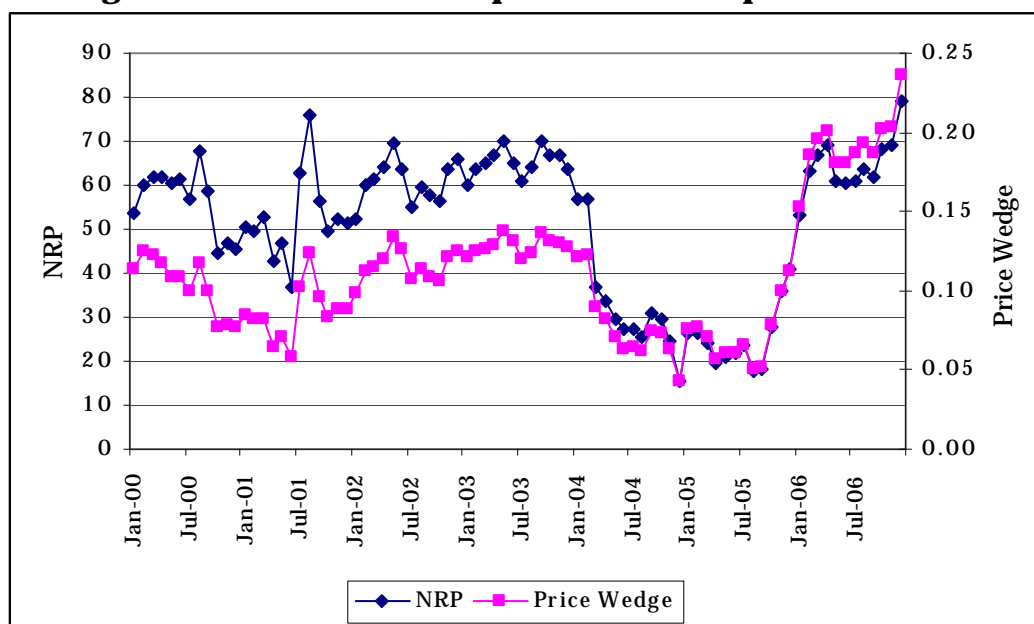
The impact of government policies on rice price is measured by nominal rate of protection (NRP) defined as the percentage difference between the domestic price and the world price at the border converted at official exchange rate. The NRP is negative when rice is taxed and positive when it is protected. One shortcoming of measuring the rate of protection by simply comparing the domestic price and world price is that it does not capture the impact of NTB's or subsidies, which are generally part of trade protection. Nevertheless, such simple NRP is used in this analysis to allow for the examination of the time series path.⁵

Figure 2 shows that the increase of NRP was consistent with the price diversion between domestic and world price.⁶ For example, NRP increased substantially after the Indonesian government imposed import tariff in 2000. Similar pattern also appears in 2006, when domestic price and world price diverged substantially after December 2005 due to shortages in domestic supply, partly caused by government ban on rice importation (World Bank, 2007). This figure suggests that domestic price of rice is affected by trade protection.

⁵ It is reasonable to assume that NTBs are factored in by prices already, albeit not accurately.

⁶ World prices are for Thai 25% FOB, adjusted with freight and transportation costs of additional 10% in 2000-2001, 15% in 2001-2004, and 20% in 2004-2006. Domestic prices are for medium wholesale rice in Indonesia. All data are from BULOG.

Figure 2. Nominal rate of protection and price diversion



Source: BULOG, Bank Indonesia

3. Who is being protected? ⁷

The Indonesian government has two objectives in relation to rice. First, it wants to maintain a national stockpile to deal with disasters and to ensure access for the poor to rice. Second, it wants to stabilise the domestic price at levels considered reasonable for both producers and consumers.⁸ In 2006, due to budget stringency, the government allowed for maintaining a stock well below the ‘iron stock’ level. But much of the previous limited stock had been used up in helping the victims of natural disasters. After long deliberation, the government decided to import large amount of rice in order to keep to the budgeted stock level. As has been the case in the past, this created much controversy, with strong opposition from the Indonesian Farmers Association (*Himpunan Kerukunan Tani Indonesia*, HKTI), Indonesian Farmers Union Federation (*Federasi Serikat Petani Indonesia*, FSPI), members of the legislatures, and several NGOs, as well as independent observers. As always, the debate was around the close connection between rice price, import, and poverty.

The number of people living below the poverty line increased from 16% in February 2005 to 17.8% in March 2006, as reported by the Office of Statistics. World Bank (2007) argues that around 77% of the rise was accounted for by the increasing price of rice. In fact, the price of rice increased by no less than 33% during the period (Mallarangeng *et al.*, 2006). Basri and Patunru (2006) went on

⁷ This section draws rather heavily from Basri and Patunru (2006)

⁸ The Vice-President asserted in September 2006 that the desirable stable price range is Rp 4,200–4,300/kg (*Kompas*, 2/9/2006). In July 2007 an official from the Office of Coordinating Minister for Economic affairs said that the price should be kept between Rp 4,500- 5,000/kg (*The Jakarta Post*, 29/7/2007).

to conclude that the surge in rice price was a consequence of rice import ban imposed by the government in late 2005. Thus, contrary to its stated intent, such policy hurt the poor significantly. What it seemed to protect instead was richer farmers, absentee landlords, and a few other interest groups. It may be true that higher prices lead to increased farm employment as rice output expands in response. But a study by Warr (2005) has shown that, even after taking the employment effect into account, the rice import ban still increases the incidence of poverty.

It is remarkable, however, that opposition to rice import is always strongly pronounced. No matter how sensible the decision to import rice, political interests always create obstacles to its implementation. To make things worse, government officials often make confusing statements. The government claims that the imported rice will not affect the domestic rice price. Of course this is a contradiction to the stated objective of the policy itself, namely to stabilize prices. Rice traders know that the purpose of having the stockpile is precisely to push prices down if they become too high, and to provide a supply of heavily subsidized rice to the poor and those stricken by natural disasters. So they make their own adjustments as soon as the intention to import is announced. Knowing that demand for market-sourced rice will decrease because consumers will be supplied by the government, they decrease their buying price even before the import policy becomes effective.

Some recent developments have been encouraging, however. Unlike the case in 2005/2006 and before, the government seems to be more careful in managing people expectation regarding price import. In April 2007 the Ministry of Trade signed an MOU with the Vietnamese government that allows Indonesia to import up to 1 million tons of rice per year until 2009 (*Media Indonesia Online*, 6/4/2007). Prior to the MOU, the maximum import from Vietnam was 500,000 tons. The decision was made without too much noise beforehand, and afterward the Minister hold a press conference stating that Indonesia would import 'only when needed'. In May 2007, the Vice President even went further to state that the government would directly import rice whenever the 'iron stock' fell below 1 million tons or the domestic price went beyond Rp 3,500/kg (*Media Indonesia Online*, 10/5/2007).⁹ Finally, on August 31, 2007 the Coordinating Minister for Economic Affairs issued a letter granting an import monopoly right back to BULOG (the government-run logistics agency for basic foodstuffs). More interestingly, the letter also stated that BULOG is allowed to purchase rice to keep a stockpile of at least one million tons and to take measures to stabilize rice price without having to get consent from higher authority (i.e. permission from the Minister of Trade, Ministry of Finance, and Ministry of State-Owned Enterprises – a process that usually invited public controversy). Not surprisingly the Minister of Agriculture reacted strongly against this policy. Citing a

⁹ It is surprising, however, that later in June the Vice President promised that Indonesia would become self-sufficient in rice by 2008 (*Media Indonesia Online*, 19/7/2007).

production data that indicated a surplus in rice production, the Minister told the media that he had asked BULOG to stop import realizations (*Kompas*, 5/11/2007).¹⁰

Distributive consequences

Understanding who gains and loses from trade protection is important to help explain the determinants of rice protection in Indonesia. The standard political economy model of trade protection normally focuses on simple short-run, profit-seeking activities. However, the reality is considerably more complex, as evident in the Indonesian context. We therefore need to look at the distributive consequences of the reform.

Support for, or objection to, trade reform is determined by the distributional impact among various interest groups. This approach argues that the politics of trade liberalization usually focuses on the conflict among interest groups attempting to increase their share of national income. In other words, trade liberalization is closely associated with income distribution (Rodrik, 1998). The distributive consequences framework argues that some groups will be hurt by trade reform and so will oppose it, while other groups will benefit and therefore support it. From the policy makers' viewpoint, the pure reallocation of income is considered a political cost. While, on the other hand, the efficiency gain from reform is a political gain.

Although this framework can help configure the winners and losers from trade reform, it has its own limitations. As Rodrik (1998) admits, by its very nature, trade liberalization creates a lot of winners whose identity cannot be predicted prior to the reform. For example, after a medium or even a long term, some import competing industrialists could transform themselves into export-oriented industrialists, and eventually support the reform.¹¹ The full configuration of winners and losers only becomes apparent after the reform takes place.

With that qualification regarding distributive consequences approach, **Table 1** roughly summarizes the expected winners (W) and losers (L) of trade protection on rice in the post-crisis Indonesia.

¹⁰ BULOG has been notorious for its corruption cases. It was first established as an independent state agency by President Soeharto in late 1960s with the main task of stabilizing the prices of basic commodities. In effect, BULOG is an import monopoly of rice, wheat, sugar, and soybeans. BULOG's rice monopoly function was abolished in 1998 as a part of the IMF structural reform package. From 1999 BULOG's right to import rice was not exclusive anymore until it was restored in 2002. In 2003 the government transformed BULOG into a profit-oriented state enterprise albeit still with a series of "social" obligation programs, most notably rice procurement program to be delivered to poor households – a program that has been a key playground for corruption in BULOG (see for example Olken, 2006). Its new status as "semi-private" agency in fact limited BULOG's effort to maximize profits. The decision by the Coordinating Minister to give back its pre-crisis authority and status was therefore welcome wholeheartedly by BULOG.

¹¹ It should be clarified here that we are talking about import restriction, not export restriction.

Table 1 Expected winners and losers from rice protection

Group	Expected result
Government	
Ministry of Finance (MOF)	0
Ministry of Trade (MOT)	L
Ministry of Agriculture (MOA)	W
Net Producers	
Farmer-landowners	W
Farmer-traders	W
Net Consumers	
Landless farmer	L
General consumers	L

Notes: W is winner, L is loser

It should be obvious why net producers and MOA are considered winners while net-consumers and MOT losers. The case of MOF is less trivial. It is true that in other trade protection MOF gains from increased revenues, but in rice protection it is non-tariff barriers that dominate. In such case, the MOF will not reap such benefits.

It is interesting to note here that from 2001 to 2004 the non-tariff barriers fell directly under the authority of the then Ministry of Trade and Industry (Ray, 2003). In the current administration, however, the Ministry of Trade and Industry has split into Ministry of Trade and Ministry of Industry. The Ministry of Trade tends to support open trade regime as evident in various measures to continue economic deregulation and to reduce some of the non-tariff barriers. Rice import ban for example, after a heated debate between MOT and MOA, was eased somewhat in November 2005 and December 2007 as Ministry of Trade issued import permits to BULOG to allow imports amidst the high domestic price.

Trade reform unambiguously provides economic gain to net consumers of rice, because they could buy rice at international prices, which were lower than the domestic prices. On the other hand, it might be expected that net producers would oppose the trade reform. **Table 2** shows that for the country as a whole, 82% of total households are net consumers of rice. About 93% of urban households and 63% of rural households do *not* grow rice and 9% of rural households that do grow rice are actually net consumers. Since nearly two-thirds of farmers, the rice import protection will definitely hurt the poor and will only give a benefit to net producers, which are in general non-poor.

Table 2 Households that produce and consume rice

Area	Growing rice			Not growing rice	Total
	Net consumers	Net producers	Total		
Urban (HH)	468,101	1,295,589	1,763,690	21,633,220	23,396,910
percentage	2.0	5.5	7.5	92.5	100.0
Rural (HH)	2,874,932	8,772,530	11,647,462	19,299,787	30,947,249
percentage	9.3	28.2	37.5	62.5	100.0
Total (HH)	3,343,033	10,068,119	13,411,152	40,933,007	54,344,159
percentage	6.2	18.4	24.6	75.4	100.0

Source: World Bank, 2007 (based on Susenas, 2004)

These facts are hard to explain using the standard model such as the political support model (Hillman, 1982, Grossman and Helpman, 1994) that argues that government acts as an intermediary to balance various conflicting groups in society in order to maximize political support between welfare of the society and interest groups. The government's objective function takes into account the favored treatment of organized industry as well as the welfare consequences for consumers.

Furthermore, this result obviously contradicts the median voter model developed by Mayer (1984). The model argues that trade policy is the outcome of majority voting among the population. If majority of population are net-consumer, especially the poor, the government should tend to support trade liberalization on rice. Nevertheless, the reverse is true in the case of Indonesia.

Although the distributive consequences of reform approach helps us understand the gainers and losers from rice protection, it does not provide an explanation of *why* the government imposes trade protection on rice. It is thus very important to elucidate in more detail factors that determine the rice protection in Indonesia.

4. What factors determine the rice protection in Indonesia?

This section discusses two factors that might explain the trend of rice protection in Indonesia. First, it discusses the relation between the demand for rice protection and the movement of the real effective exchange rate. Second it attempts to explain the government protectionist motive using the collective action framework.

Real exchange rate and the demand for protection

The demand for protection is closely associated with the movement of real exchange rate. Corden (1997) and Rodrik (1998) argue that macroeconomic effect cannot be ignored when a country with a wide-ranging system of tariff and non-tariff barriers implements trade liberalization. Corden (1997) also argues that, if

the real exchange rate does not change and the total real expenditure stays constant, a reduction in import protection will shift demand towards imports while the output of import competing industries will decline and the current account will deteriorate. These effects will create pressure for the rejection of trade liberalization. In other words, Corden (1997) suggests that the exchange rate must either be devalued, or allowed to depreciate sufficiently. Therefore, trade liberalization should normally be a part of a policy package which includes adequate depreciation. This argument can be formally explained as follows.

Following Corden (1997), assume a small country with three types of goods, i.e. exportables X , importables M (both are called 'tradables') and non tradables N whose price is P_N . Let P_m^* and P_x^* be the prices of imports and exports, respectively; both are given under small country assumption. The nominal exchange rate is denoted by e , defined as domestic currency per unit of foreign currency. Assume that a single tariff of rate t is applied to M . There are no export taxes or subsidies. Thus, the price of imports can be defined as:

$$(1) \quad P_m = e P_m^*(1+t)$$

And the domestic price of exports as:

$$(2) \quad P_x = e P_x^*$$

The switching ratio, S , is defined as a ratio of the relative domestic price of tradables to non-tradables. The price of tradables is a weighted average of P_m and P_x with the weights of α and $(1-\alpha)$, respectively. Amongst other things, the weights depend on the shares of M and X in domestic consumption and production. The switching ratio determines the current account and the excess demand-supply situation in the market for non-tradables. It can be written as:

$$(3) \quad S = [\alpha e P_m^*(1+t) + (1-\alpha) e P_x^*] / P_N$$

In a more realistic world, some given rates of inflation abroad (causing P_m^* and P_x^* to continuously increase) and some rate of inflation in P_N can be assumed. As Corden (1997) suggests, it is therefore more useful to introduce the real exchange rate R . Assume that the terms of trade constant are constant (so that P_m^* and P_x^* always rise to the same extent) and denote the foreign price level as p^* . Thus:

$$(4) \quad R = e p^* / P_N$$

Substituting equation (4) into (3) obtains:

$$(5) \quad S = R(\alpha t + 1)$$

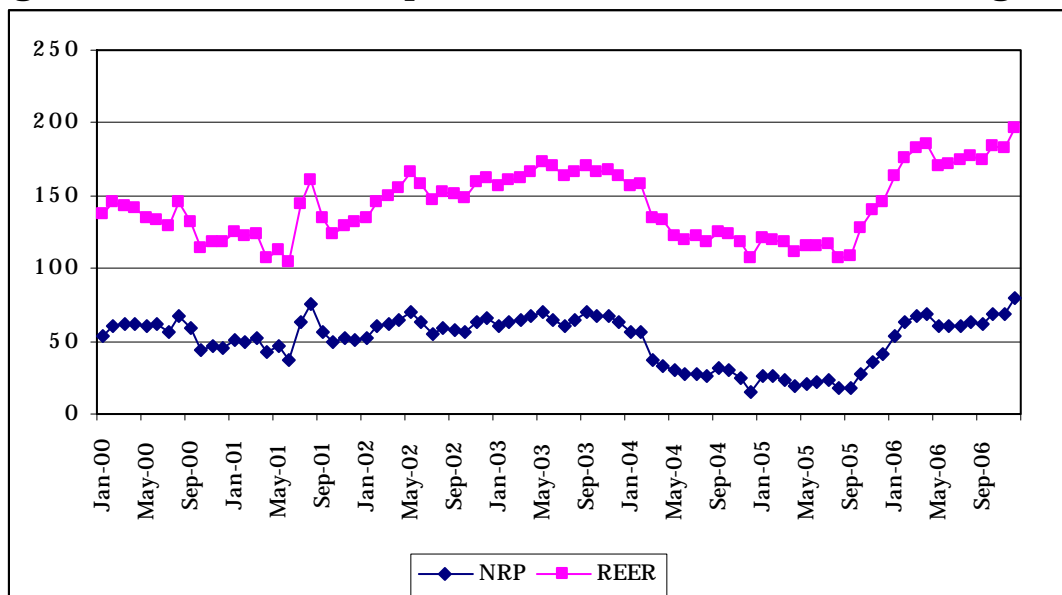
Therefore, in order to keep S constant, a reduction in tariffs (t) requires a real depreciation (i.e. rise in R). Note that the change in R not only depends on e but also on the changes in p^* and P_N . So, a rise in R (i.e. real depreciation) enables t

to decline. Real depreciation, therefore, reduces the pressure for import protection.

To investigate the relationship between real effective exchange rate (REER) and nominal rate of protection (NRP) we conducted a simple test based on monthly data from Januari 2000 to December 2006. The NRP is hypothesized to depend on REER that is itself defined as a basket of foreign currency/Rp. Thus, we expect there is a positive relationship between NRP and REER, in which appreciation of Rupiah REER will induce demand for protection as argued above. This hypothesis cannot be rejected as we regressed the change of nominal rate of protection (DNRP) on the change of real effective exchange rate (DREER) as shown in the **Appendix**. Hence there is a positive relationship between the change of NRP and the change of REER.

This result is also consistent with David and Huang (1996) who argue that NRP will decline if domestic price does not increase proportionally with the depreciation of domestic currency. **Figure 3** plots the trend of the nominal rate of protection and the real effective exchange rate. Again, it shows that the trend of NRP of rice is consistent with that of the real effective exchange rate. When the rupiah real exchange rate appreciates (i.e. moving upward), the NRP also moves in the same direction. NRP tends to increase when Indonesia's real effective exchange rate appreciates. This is particularly true in 2006 when the real effective exchange rate appreciated by almost 90% of its value prior to the economic crisis.

Figure 3. Nominal rate of protection and real effective exchange rate



Source: Calculated from BULOG data. REER is based on Bank Indonesia's estimates.

While REER can partially help us explain the change of NRP from time to time, two caveats present. First, it does not provide a ground for us to understand why the government tends to protect the minority of the population while hurting the poor, an important variable of concern if they want to be reelected in the next general election. Second, it should be noted that the relationship between NRP and REER can also stem from the definition of NRP itself as the percentage difference between the two prices, converted at official exchange rates. So there is an exchange rate element in the construction of the NRP. Simultaneity bias should be less likely, however, as the way REER is constructed is different with the nominal exchange rate.

Weak consumers, strong producers

At first, it seems rather counter intuitive that in a country like Indonesia whose population is dominated by rice net consumers, protection in the form of rice import restriction is persistent. Standard political economy approaches such as political support model and majority voting model fail to give satisfactory framework to address this issue. Here we offer another approach originating from the work of Olson (1965), the logic of collective action. We argue that despite its larger size of group, the net consumers fail to form a coordinated coalition due to low incentive and thinly dispersed expected benefits. On the contrary, net producers – or more precisely interest groups claiming to act on behalf of (net) producers – have a size small enough to suppress coordination costs and reap “lumpier” benefits and therefore are more effective in influencing the government. In this context, the “collective good” (in Olson’s sense) for the group of net consumers is lower price rice, while that for the net producers group is higher price.

To help the analysis, it might be useful also at this point to refer to Olson’s taxonomy of groups. “Privileged” group is a group whose individual member has an incentive to see the provision of the collective good, even if he has to bear the full cost alone. Here, coordination is not necessary. In “intermediate” group on the other hand the incentive to bear the full cost of providing the collective good by one self exceeds the shared benefit. In this case, there should be coordination (e.g. organization). Finally, in case of a “latent” group, the size is very large such that any action of one particular member will not significantly affect others. Thus, no one has an incentive to bear the cost of collective action necessary to provide the collective good. It is reasonable to think of the group of net consumers in Indonesia’s rice case as being the latent group, while that of net producers as either privileged or intermediate group.

Finally, we shall follow an approach offered by Dixit and Skeath (1999). That is, we shall use a game theoretical framework to formulate the collective action problem. For the purpose of this paper, we will only look closely to the (net) consumer group. Understanding the conflicting motives within this group is sufficient to understand why in the case of Indonesian rice context, the consumer group has been silent despite the fact that they are hurt by the protection policy.

Furthermore, it will automatically provide a ground for understanding why the other group, producer group, can voice up more effectively (so as to influence the policy outcome toward its interest).

Suppose there are two members in the consumer group. Each member can choose either to fight (to “Fight”) against protection (in this case, import restriction) or to not to fight (to “Giveup”). These two members can fight together or individually (without coordination). Assume that the costs and benefits of these actions are as shown in **Table 3** below. That is, if one member decides to fight alone, he *and the other member* would expect a benefit of b_1 each at the cost of c_1 paid by the fighting member. But if he joins force with the other member, the expected benefit *for each* is b_2 at the cost of c_2 each.

Table 3. Costs and benefits of fighting against protection

	Costs	Benefits
Alone	c_1	b_1
Together	c_2	b_2

A game table with expected payoffs can now be constructed as follows (**Table 4**). As conventional in game theory, the first element in each cell is associated with Consumer 1, and the second with Consumer 2. Note that if both Consumers 1 and 2 decide not to voice-up, each of them will end up having a payoff of d . In this context, d is the cost that has been paid by an average Indonesian rice consumer due to the protection. That is, it is a status quo payoff. (It should not affect the result if we replace d with zero, as we will later).

Table 4. Payoff matrix for consumer game

		Consumer 2	
		Fight	Giveup
Consumer 1	Fight	$b_2 - c_2, b_2 - c_2$	$b_1 - c_1, b_1$
	Giveup	$b_1, b_1 - c_1$	d, d

The game implies a prisoners’ dilemma if the following inequalities simultaneously hold:

$$(6) \quad b_1 > b_2 - c_2, \quad d > b_1 - c_1, \quad \text{and} \quad b_2 - c_2 > d$$

So the best response to strategy “Fight” is “Giveup”, the best response to strategy “Giveup” is “Giveup”, and the co-strategy “Fight, Fight” (i.e. both members opt for “Fight” at the same time) is jointly preferred to “Giveup, Giveup”. Note also that if only they could coordinate, they will prefer “Fight” together to “Giveup” individually if joint net benefit of the former exceeds that of the latter. That is, it is socially optimal for them to “Fight” if:

$$(7) \quad 2(b_2 - c_2) > 2b_1 - c_1$$

The implication of the game is that no matter what the other does, one member is better off opting for “Giveup”, even though the socially optimal outcome is for each member to fight simultaneously (that is, the Nash equilibrium “Giveup, Giveup” has a total payoff that is less than that of the social optimum “Fight, Fight”). This latter outcome is however unlikely because the incentive for *each* player to fight is smaller than its cost. This seems fit with the case of Indonesia’s consumer problem. No one has an incentive to stand up fighting against government protection because the net benefit is thin, even though if everybody fights *together*, the benefit can be huge. Yet, this latter possibility is unlikely, because it will require a big coordination cost as well.

Again, following Dixit and Skeath (1999) we can extend the foregoing two-person game to a game of a large number of participants. Suppose there are N consumers. Each of them must decide whether to fight (or at least “voice-up”) against protection. Individual cost and benefit of fighting (or giving up) now are function of the number of those who fight. If n of N decide to fight, each of them incurs a cost of $c(n)$ and everybody (including those who do not fight) enjoys a benefit of $b(n)$. Therefore, each fighting consumer gets the payoff of

$$(8) \quad f(n) = b(n) - c(n)$$

And each quitter who gives up gets

$$(9) \quad g(n) = b(n)$$

Note that in (9) there is no d : we assume without loss of generality that d equals zero. This assumption is justified since the protection is already a status quo.

As an illustration, consider a member of the group who is thinking whether to fight or to give up. If he decides to fight, the number of fighters becomes $n+1$, so he gets $f(n+1)$. If he decide to give up, he gets $g(n)$. Therefore he will fight if and only if

$$(10) \quad f(n+1) > g(n)$$

Otherwise, he will give up.

As in the case of the two-person game above, the prisoners’ dilemma in this N -player results in a dominant strategy of “Giveup”. That is, no matter how large n becomes, the payoff to any given member of the group is higher should he opt for “Giveup” than if he chooses “Fight”. The Nash equilibrium is therefore such that everybody gives up. Note however that as n increases, the additional benefit to everybody also increases. It follows that if everyone keeps fighting simultaneously and sustainably, the social outcome is higher than that of the Nash equilibrium. But just as in the 2-person game above this scenario is unlikely. In Olson’s words,

what is good for the group as a whole might not be good for individual members. This framework helps us to understand why the group of net consumers, larger in size, has less incentive to fight against the protection.

By the logic of collective action, the group of net producers that is smaller in size than that of net consumers is easier to coordinate among the members in order to get their collective good – in this case a higher price of rice. It is interesting to see that in the Indonesian context, this group seems to fit with Olson's typology of both privileged group and intermediate group. That is, there seems to be a subgroup in the net producer group to which the relationship resembles a privileged group whose individual members are willing to pay the full cost of providing the collective good. This subgroup attitude is indicated by farmers associations such as HKTI and, to a lesser degree, FSPI. But in the larger, main net producer group, the relationship is more akin to intermediate group, i.e. coordination is needed to achieve the group's objective. It is therefore not surprising that the leaders of organizations like HKTI or FSPI frequently lobby the government or indirectly via statements in media, even without apparent coordination across organizations beforehand. But it takes time to make any political move in a grander scale since it involves the larger group of producers.

5. Conclusion and policy implication

We have constructed an argument that can explain the case of Indonesia's rice protection, i.e. import restriction. We offers two explanations on the rice protection in Indonesia. First, it shows that the demand for protection tends to increase when Indonesia's real effective exchange rate appreciates. This is particularly true in 2006 when the real effective exchange rate appreciated by almost 90% of its value prior to the economic crisis. Second, the group of net consumers, larger in size, has less incentive to fight against the protection while on the contrary the smaller group of net producers has more incentive to fight for protection. Due to thinner shared net benefit to individual consumers each rationally opt for not fighting. On the other hand, producer group (or more precisely through its subgroups) have more concentrated benefits. As a consequence, producer group appears stronger than consumer group. It is therefore predictable that the government takes side with the producer group and hence hurts the poor.

At this point, it is rather difficult to draw a policy implication from the analysis. However, if poverty eradication is the objective, one way to reduce the exposure of the poor to the negative impact of rice protection is to provide more leeway to consumer groups such as YLKI (The Indonesian Consumers Foundation) to channel the rice net consumers' aspiration. This might require a provision of incentive for YLKI in the sense of "separate" and "selective" incentive (Olson, 1965).

Appendix. Test of relationship between NRP and REER

Dependent Variable: DNRP

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Constant	-0.323417	0.499132	-0.647960	0.5188
DREER	1.538929	0.145395	10.58446	0.0000
R-squared	0.580378	Mean dependent var		0.303469
Adjusted R-squared	0.575197	S.D. dependent var		6.927577
S.E. of regression	4.515180	Akaike info criterion		5.876568
Sum squared resid	1651.335	Schwarz criterion		5.934854
Log likelihood	-241.8776	F-statistic		112.0307
Durbin-Watson stat	1.802069	Prob(F-statistic)		0.000000

Note: n = 83. Augmented Dickey-Fuller test shows that both NRP and REER are I(1)
The cointegration test shows that DNRP and DREER are cointegrated.

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