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FOOD SECURITY, FREER AGRICULTURAL TRADE AND ENDOGENOUS POLICY FORMATION

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ABSTRACT

In light of the ongoing policy debate on globalization issues, this paper illustrates the implication of interest group influence and national strategic interests on policy formation in the Malaysian rice sub-sector when the policymaker welfare criterion was used in drawing up policies. This paper suggests a domestic and international political-economic scenario where joint welfare maximization will be the desirable policy choice among trading countries.

ABSTRAK

Seiringan dengan debat tentang isu globalisasi, kertas ini menerangkan implikasi pengaruh kumpulan berkepentingan serta kepentingan strategik nasional terhadap proses pembentukan dasar dalam subsektor padi negara apabila kriteria kebajikan pembuat dasar digunakan. Kertas ini juga mencadangkan senario politik dan ekonomi domestik serta antarabangsa yang akan membenarkan pilihan dasar perdagangan yang akan memaksimumkan kebajikan bersama.

INTRODUCTION

Many developments in the evolution of world agricultural policies have been evident over the last decade of the past millenium. One important development, especially, relates to the development of regional free trading zones (e.g., AFTA) and general trade framework which affects many countries (e.g., WTO).

In a multi-sector general equilibrium framework, economic theory asserts that free trade would be beneficial to all parties. It contends

that all resources would be fully utilized and joint maximum welfare attained when all parties forego trade distortions or protectionism. Numerous empirical studies have ascertained the potential gains from trade liberalization. But the basic question remains; Why countries have been so reluctant in freeing up trade and especially agricultural trade? Why do agricultural policymakers especially insist on support measures and protectionism in agriculture? The experiences of free trade negotiations under the auspices of GATT and later the WTO were never an easy one. The delays in the GATT rounds, the arguments that flared in the Seattle WTO negotiations, and the on going debates on the merits and demerits of globalization had been mostly on agriculture, though agriculture comprises only about 10 percent of world trade share. In the light of the current policy debate about agricultural trade liberalization, it is essential that we address these important questions in a more objective manner. As McCalla (1993) had long put it, "if one could understand the "why" of domestic protectionism, we would be in a better position to advise on its dismemberment".

The overall objective of this study is to illustrate the process of policy formations by agricultural policymakers. Specifically, the paper depicts how optimal policy choices is made when policymakers are faced with varying political influence and pressures among the various domestic interest groups, i.e., the use of policymakers' welfare criterion in modeling endogenous policy choices. An empirical illustration is shown for the case of the Malaysian rice sector. Subsequent sections present an overview of the conceptual model, model applications, summary and policy implications.

THE CONCEPTUAL MODEL

Policymakers Behavior and Welfare

National policies are not made in a vacuum. Often, policies are shaped by the political influence and power of the various domestic interest groups on policymakers in the effort of the former to secure the benefits of the policy decisions. Policymakers may also establish policies to favour a particular interest group based on some strategic or national interests such as political or social stability. Very rarely are policies based on the ideal but less intuitive expected net repercussions (general equilibrium) of the said policies to the entire economy. For that matter it is not surprising that most policy decisions tend to be sectoral or partial equilibrium-based in nature.

Many studies have attempted to consider explicitly the interaction between policymakers and interest group influence as a basis for policy formulation. Notable examples include Sarris and Freebairn (1983), Karp and McCalla (1983), Rausser, Lichtenburg, and Lattimore (1983). To illustrate the theoretical framework that embodies our endogenous policy trade model, let us consider an example of a world market comprising N countries, engaged in a single commodity trade. Let E countries be net exporters while all others (N-E) net importers. Further, we assumed that the objective of public policymakers in each country is to select levels for a set of domestic and trade policy variables which maximize its welfare as represented by a preference function (Rausser Lichtenburg, and Lattimore (1983)). The preference function for this policymaker can be expressed as:

$$(1) \qquad W_i = \sum_{t=1}^{n} \gamma_i^t \mu_i^t (i = 1,...., N)$$

where W_i denotes the welfare of the policymaker, μ_i^t is the welfare criterion for the various interest groups in country i, and γ_i^t specifies the relative weight (marginal values) attached to the tth group's welfare by the policymaker in country i. These weights describe the policymakers' perspective toward the influence and power of the various domestic interest groups. In this study, the welfare criterion for the various specific interest groups (μ_i^t) is derived by assuming optimizing (maximizing) behavior for consumers, producers, and taxpayers. The above welfare criterion assumes each interest group may face a different price which is affected by public policies. Producer and consumer prices are both affected by production and trade policies. Taxpayers' welfare is expressed as net revenue to the government as a result of policies levied on the commodity. The policymakers' preference function W_i, for an individual country with domestic and trade policy options can therefore be expressed as:

$$(2) \qquad dW_i = (\gamma_i^C d\mu_i^C + \gamma_i^C d\mu_i^P + \gamma_i^T d\mu_i^T (i = 1,...., N)$$

where dW_i represents the change in the policy makers' criterion function and $d\mu_i^C$, $d\mu_i^P$ and $d\mu_i^T$ represent changes in consumer surplus, producer surplus and taxpayer surplus, respectively.

Linear price dependent, Hicksian domestic supply and demand functions are used to estimate the change in producer and consumer surpluses, respectively. The welfare measures for consumers and producers in terms of changes (denoted by d) are then expressed, respectively, as:

$$(3) \qquad d\mu_i^C = (q_{0i}^C p_{0i}^D (-\hat{p}_i^D))(1 + 0.5\hat{q}_i^C), (i = 1,...., N)$$

and

$$(4) \quad d\mu_i^P = (q_{0i}^S p_{0i}^S(\hat{p}_i^S))(1 + 0.5\hat{q}_i^S),\ (i = 1,\ldots,N)$$

while taxpayer welfare for country i with output and trade policy options is expressed as:

$$(5) \quad d\mu_i^T = -\hat{(}O_i^S p_{0i}^S q_{1i}) - \hat{(}t_i^S P_{oi})(|q_{1i}^S - q_{1i}^C|),(i = 1,\ldots,N)$$

The variables q_{0i}^C, p_{0i}^D, q_{0i}^S, and p_{0i}^S, are base levels of domestic consumption, demand price, domestic production, and supply price in country *i*, respectively, while the *subscript 1* denotes the respective new equilibrium levels. Complete references of the variables are shown in Table 1. The policymaker in country *i* is assumed to select levels for a set of policies that maximize his/her welfare as given by (2).

International Market Behaviour

The above framework relates policy choices to welfare within a country. When the policymaker in country *i* believes all other countries will not impose policies, the optimal policy levels for i can be determined as a function of only one country *i's* policies and interest group weights. However, agricultural policies are not only made within a set of national policy context, but interact with other international relationships. To allow for possible interaction of policy makers between countries, a global welfare criterion is formulated. This is done by extending (2) to represent global welfare, which is a weighted average of welfare in all countries.

$$(6) \quad dGW = \sum_g \sum_i \theta_i \gamma_i^g d\mu_i^g,\ (i = 1,\ldots,N),(g = C,P,T)$$

where *dGW* is the change in global welfare, where θ_i is the weight attached to each country. If all trading countries wish to maximize joint welfare, equation 6 is maximized. This will be equivalent to a free trade scenario where all interest groups in all countries are equally weighted and $\theta_i = 1$. Note that maximizing 2 for a single country is equivalent to maximizing 6 given (i set equal to zero for all other countries. In a trade game where the policymaker in one country assumes all other countries will not impose policies, a monopoly or monopsony game, 2 is maximized for the country imposing policies. In a non-cooperative Nash game (equivalent to a Cournot equilibrium), where it is assumed that all countries set policies assuming optimal policies in each country, 2 is maximized simultaneously for all the countries.

A free trade model assumes that all countries cooperate to maximize joint welfare, defined as the sum of the national welfare gains in all countries. With equal weights assigned to the welfare of each political interest group in each country $\{\gamma_i = 1\}$, the global welfare criterion (6) is equivalent to the sum of national welfare in all countries. Therefore, maximizing global welfare requires maximizing (6) with $\{\theta_t, \gamma_i^{s's} = 1\}$. In this trade scenario, maximum joint welfare would be attained if all countries decided not to impose distortionary policies, meaning that the best policy option for all countries is free trade. Cooperative solutions assume that all players will not jointly forego possible gain.

Table 1
Definition of Variables

Endogenous Variables	
$\hat{q}_i^D$	Percentage change in demand for output produced by country
$\hat{q}_i^S$	Percentage change in supply of output produced by country *i*
$\hat{p}_i^D$	Percentage change in demand (consumer) price of output in country i
$\hat{p}_i^S$	Percentage change in supply (producer) price of output in country i
Exogenous Variables	
q_i^C	Base level of consumption in country *i*
q_i^S	Base level of production in country i, $(q_i^S = q_i^D)$
q_t^S	Base level combined production across countries, $(q_t^S = q_t^D)$
E_i^S	Output supply elasticities in country *i*
E_i^D	Consumer demand elasticities in country *i*
E_i^{ed}	Export demand elasticity for country *i*
E_i^{es}	Export supply elasticity for country *i*
E_i^{id}	Import demand elasticity for country *i*
E_i^{is}	Import supply elasticity for country *i*
E_i^T	Total Demand elasticity for country *i*
Ad-Valorem Policies	
$\hat{O}_i$	Percentage change in ad valorem subsidy (tax) on output in country *i*
$\hat{t}_i$	Percentage change in ad valorem export subsidy (tax) imposed by country *i*

Symbolic solutions which express the effects of policy changes on prices $(\hat{p}_i^D, \hat{p}_i^S)$ and quantities $(\hat{q}_i^D, \hat{q}_i^S)$ in a multicountry trade framework are

presented in Table 2 — equations 7-12. These equations came from Jamal (1994). Similar frameworks are also found in Gunter, et al. (1996). The respective equations are substituted into equations 3-5. The latter equations are then substituted back into 1 which represents the policy maker preference criterion for each country. The explicit policy-price linkages (7-12) in Table 2 assume that each policy maker knows with certainty the long-run equilibrium effects of a given level of policies in any given country on prices and quantities. Policy impacts in all countries are directly modeled.

Solutions for optimal endogenous policy levels for the multi-country model depend not only upon the parameter values for the exogenous variables but also upon the game type that is assumed. The exogenous variables are observable except for the values of relative influence of interest groups.

Effects of Political Weights on Policy Choices

By changing the weights in the global welfare function (6), the effects of shifts in political weights across countries on optimal policies can be analyzed. For instance, increased concerns about the welfare of commodity producers in one country can be modeled by increasing the political weights of that country's producers while keeping the relative weights between consumers and other interest groups constant. Similar results would be obtained if the relative weights of consumers and other political interest groups are reduced while producer weights are held constant.

It can be shown both mathematically and empirically when all political weights across countries are not equal (political weights within a country may, however, be equal), policy choices that maximizes *dGW* (policymakers') global welfare criterion - equation 6) will either be a domestic or trade or a mix of both policies.

Table 2
Policy-Price Linkages (Symbolic Solutions)

Percentage change in demand price of output in country i — country *i* is exporter (*i* =1,..., *E*; where *n* = 1,..., *E* are exporters and *n* = *E* + 1,..., *N* are importers):

(Table 2, continued)

$$(7)\quad \hat{p}_i^D = (\hat{O}_i)\left(\frac{E_i^S}{E_i^T E_i^S}\right) + {}^{N}\Sigma_{n=1(n\neq i)}(\hat{O}_n)\left(\frac{E_n^S}{E_n^T E_n^S}\right) + (\hat{t}_i)\left(\frac{E_i^{ed}}{E_i^{ed} E_i^{is}}\right)$$

$$+ {}^{E}\Sigma_{n=1(n\neq i)}(\hat{t}_n)\left(\frac{E_n^{es}}{E_n^{ed} E_n^{es}}\right) + {}^{N}\Sigma_{n=E+1(n\neq i)}(\hat{t}_n)\left(\frac{E_n^{id}}{E_n^{id} E_n^{is}}\right)$$

Percentage change in supply price of output in country *i* — country *i* is exporter (*i* =1,..., *E*; where *n* = 1,..., *E* are exporters and *n* = *E* + 1,..., *N* are importers):

$$(8)\quad \hat{p}_i^S = (\hat{O}_i)\left(\frac{E_i^T}{E_i^T E_i^S}\right) + {}^{N}\Sigma_{n=1(n\neq i)}(\hat{O}_n)\left(\frac{E_n^S}{E_n^T E_n^S}\right) + (\hat{t}_i)\left(\frac{E_i^{ed}}{E_i^{ed} E_i^{is}}\right)$$

$$+ {}^{E}\Sigma_{n=1(n\neq i)}(\hat{t}_n)\left(\frac{E_n^{es}}{E_n^{ed} E_n^{es}}\right) + {}^{N}\Sigma_{n=E+1(n\neq i)}(\hat{t}_n)\left(\frac{E_n^{id}}{E_n^{id} E_n^{is}}\right)$$

Percentage change in demand price of output in country *i* — country *i* is importer (*i* = *E*+1,..., *N*; where *n* = 1,..., *E* are exporters and *n* = *E* + 1,..., *N* are importers):

$$(9)\quad \hat{p}_i^D = (\hat{O}_i)\left(\frac{E_i^S}{E_i^T E_i^S}\right) + {}^{N}\Sigma_{n=1(n\neq i)}(\hat{O}_n)\left(\frac{E_n^S}{E_n^T E_n^S}\right) + (\hat{t}_i)\left(\frac{E_i^{is}}{E_i^{ed} E_i^{is}}\right)$$

$$+ {}^{E}\Sigma_{n=1(n\neq i)}(\hat{t}_n)\left(\frac{E_n^{es}}{E_n^{ed} E_n^{es}}\right) + {}^{N}\Sigma_{n=E+1(n\neq i)}(\hat{t}_n)\left(\frac{E_n^{id}}{E_n^{id} E_n^{is}}\right)$$

Percentage change in supply price of output in country *i* — country *i* is importer (*i* = *E*+1,..., *N*; where *n* = 1,..., *E* are exporters and *n* = *E* + 1,..., *N* are importers):

$$(10)\quad \hat{p}_i^S = (\hat{O}_i)\left(\frac{E_i^T}{E_i^T E_i^S}\right) + {}^{N}\Sigma_{n=1(n\neq i)}(\hat{O}_n)\left(\frac{E_n^S}{E_n^T E_n^S}\right) + (\hat{t}_i)\left(\frac{E_i^{is}}{E_i^{ed} E_i^{is}}\right)$$

$$+ {}^{E}\Sigma_{n=1(n\neq i)}(\hat{t}_n)\left(\frac{E_n^{es}}{E_n^{ed} E_n^{es}}\right) + {}^{N}\Sigma_{n=E+1(n\neq i)}(\hat{t}_n)\left(\frac{E_n^{id}}{E_n^{id} E_n^{is}}\right)$$

(Table 2, continued)

Percentage change in consumption in country *i*:

(11) $\hat{q}_i^C = \hat{p}_i^D E_i^D$, ($i = 1,...,N$)

Percentage change in supply of output produced in country *i*:

(12) $\hat{q}_i^S = \hat{p}_i^S E_i^S$, ($i = 1,...,N$)

Total demand elasticity, country *i*

(13) $E_i^t = ({}^N\Sigma_{n=1} q_n^C E_n^D {}^N\Sigma_{n=1,n\neq i} q_n^S E_n^S)/q_i^S$, ($i=1,...,N$)

Export demand elasticity, country *i*

(14) $E_i^{ed} = ({}^N\Sigma_{n=1} q_n^C E_n^D q_n^S E_n^S)/(q_i^S q_i^C$, ($i=1,...,E$)

Export supply elasticity, country *i*

(15) $E_i^{es} = (q_i^S E_i^S q_i^C E_i^D)/(q_i^S q_i^C$, ($i=1,...,E$)

Import demand elasticity, country *i*

(16) $E_i^{id} = (q_i^C E_i^D q_i^S E_i^S)/(q_i^C q_i^S$, ($i=E+1,...,N$)

Import supply elasticity, country *i*

(17) $E_i^{is} = ({}^N\Sigma_{n=1} (q_n^S E_n^S q_n^C E_n^D)/(q_i^C q_i^S$, ($i=E+1,...,N$)

In this scenario, the appropriate game assumption would be the Non-cooperative Nash Games. No policy maker can do better than his/her Nash strategy given that all of his/her then counterparts are playing their Nash strategies. The Nash equilibrium is found by solving n simultaneous equations:

(18) $\dfrac{\partial dw_i}{\partial s_i} = 0,\ i = 1,....,n)$

Equation (18) differentiates the respective policy maker welfare criterion (2) for countries i with respect to their respective policy options, and finding the policy vector which simultaneously makes all derivatives equal zero. The more policymakers in a country view farmers or producers as strategically important, then policy choices (e.g., output/

input and/or trade subsidies/taxes) which would provide more protection to its producers become more desirable.

On the other hand, maximum joint welfare is attained when all countries forego all trade enhancement or protective policies. This is achieved when a cooperative solution is feasible. Conceptually, if policymakers consider all political interest groups within each country and across countries are of equal importance, free trade by all countries would be desirable.

APPLICATION TO THE MALAYSIAN RICE SUBSECTOR

We will now apply the endogenous policy model to the Malaysian rice subsector using 2000 as the base year. However, in this paper, the model only focuses on the determination of optimal policy choices under assumption that all other trading countries (such as Thailand, Vietnam, and the US) will not change their policy mix regardless of Malaysia's policy choices. This is equivalent to maximizing equation 2 for a single country or maximizing equation 6 given (i set equal to zero for all other countries. This assumption is considered appropriate as Malaysia is only a small player in world rice trade. Any changes in Malaysia's rice policy regime will not affect world trade flows and prices substantially.

It is important to note here that the type of trade game assumed is immaterial in illustrating the mechanism of the endogenous policy model in this study. Optimal policy levels might differ across game types, however, policy implications will remain the same for all games.

Specifically, in this paper we examine the impacts on optimal policy choices under varying assumptions of political influences for all interest groups in Malaysia.

Before the endogenous policy model can be empirically applied, several methodological issues need to be resolved. These include determining the baseline or free-trade solutions and the relative influence of the various political interest groups with policymakers in Malaysia.

The data requirements for the optimization model are: a) base prices (producer, consumer, and trade) and quantities (supply, consumption, and trade) and b) output supply and demand elasticities. These data are used to calculate the base year: a) export and import elasticities, b) free trade prices and quantities, c) world price, d) implied policies,

and e) implied political influences of interest groups with policymakers in all countries. Supply and demand elasticities can be obtained from Roningen, Wainio, and Sullivan, (1989), while trade elasticities are derived using the respective equations shown in Table 2. In this study, Thailand's rice production cost (US118 per metric ton) plus a margin of 20 percent was used as the reference world and free trade price.

We assert that the solutions for the optimal policy levels depend not only upon the parameter values and elasticities but also upon values of the unobserved relative political weights of all interest groups in one or all countries, depending on the assumption of the game type. There are a number of ways to estimate the political weights. Following Paarlberg and Abbott (1986), we used the revealed preference methodology. To estimate these weights using revealed preference, the first task was to determine a set of policies for each country that was consistent with the hypothetical base year prices and quantities. Although there are a myriad of policies that policymakers might employ we considered only two basic policy types: output policies (deficiency payment/consumer tax) and trade policies (trade subsidy/tax). Output policies result in a wedge between producer and consumer prices within a country, and trade policies result in a wedge between domestic consumption price and world price. Implied output and trade policies were calculated by finding policy levels that were consistent with the observed price wedges in the base year data. This assumes that all policies employed in agriculture in the base year can be modeled as equivalent output or trade policies.

The implied trade policies imposed by policymakers in the chosen base period can be deduced by solving equation 20 as follows:

$$\hat{p}^W = \hat{p}_i^D + \hat{t}_i, \ (i=b,d) \qquad (19)$$

The implied output policies (o_i) are simply the difference between the percentage change in domestic demand and supply prices, from the free trade prices to the base period prices, i.e., $O_i = P_i^S/P_i^D$, i = *country i.*

Table 3 shows the elasticities, model solutions, and calculated free trade (prices and quantities) in relation to actual values in the 2000 base year. Note that with the exception of the free trade solutions, all other solutions were based on the assumption that only Malaysia maximizes welfare while all other countries were not allowed to respond strategically to changes in Malaysia's policies.

Analyses of Changes in Policymakers' Concern about Malaysian Interest Groups

Revealed preference 2000 weights for Malaysia were used as the base weights in the analyses. The relative weights of the Malaysian interest groups were parameterized to assess the effects of varying influence of Malaysian policymakers on optimal policies in the country. Four sets of weights were modeled. The first set of weight represents the base year scenario. The second set considers the situation where consumers were more influential relative to others while the third set favors the taxpayers. The fourth set models the situation where all interest groups had equal weights to policymakers. Optimal policies for the various weight scenarios are shown in Table 4.

The base policies show that in 2000 Malaysia was heavily supporting producers via a high import tariff (tarification of import quota) and consumer taxes (effects of consumer tax outweighs the output subsidy). This is consistent with the implied political weights of 0.9 for consumers while both the taxpayers and producers show equal weights of 1. In an earlier study (Jamal, 1998), using a Nash non-cooperative game assumption, the political weight for consumers and tax-payers for the 1991 base year were found to be respectively, 0.75, and 0.84 relative to 1 for producers.

As consumer weight increases (scenario 2), optimal policies shift to favor output or price subsidies (or deficiency payments) as well as import subsidies. On the other hand, as taxpayers weight was increased relative to other groups, both consumer and import taxes became more desirable to policymakers. When all political weights are equal, the optimal policy choice is a 40 percent import tax. The above findings are interesting since they demonstrate that trade policies could be a rational policy choice in the face of varying interest groups influence and monopsony trade relationship. Figures 1-3 present an intuitive graphical illustration on the linkages between optimal policies and interest groups influences.

In general, given an increase in Malaysian consumers' political influence with policymakers, policymakers would respond by favoring output subsidy and less import taxes. Table 4 also shows the impacts on rice imports under varying optimal policies. Generally, an increase in consumer and taxpayer weights would, respectively, increase and decrease rice imports.

Table 3

Elasticities, Model Solutions, and Calculated Free Trade (Prices and Quantities) in Relation to Actual Values in 2000

Variables	Units	
Supply		
Actual	T.M.T.	1410.00
Model Solutions1	T.M.T.	1399.00
Free Trade (q_0^S)	T.M.T.	1313.00
Consumption		
Actual	T.M.T.	1960.00
Model Solutions	T.M.T.	1936.00
Free Trade (q_0^C)	T.M.T.	2191.00
Export /(Import)		
Actual	T.M.T.	550.00
Model Solutions	T.M.T.	537.00
Free Trade (q_0^e)	T.M.T.	878.00
Producer Price		
Actual	RM/M.T.	800.00
Model Solutions	RM/M.T.	660.00
Free Trade (p_0^S)	RM/M.T.	583.00
Consumer Price		
Actual	RM/M.T.	990.00
Model Solutions	RM/M.T.	788.00
Free Trade (p_0^C)	RM/M.T.	583.00
Elasticities		
Supply (E^S)		0.50
Total Demand (E^T)		-1.60
Domestic Demand (E^D)		-0.33
Import Demand (E^{id})		-1.57
Import Supply (E^{is})		1.57

Table 4

Effects of Varying Assumptions of Malaysian Interest Groups' Political Influence (assuming only Malaysia maximizes welfare)

Policy Options Available	Political Weights			Optimal PolicyChoices (percent)		Import (000 mt)
	Y^C	Y^P	Y^T	$\hat{t}(1)$	$\hat{e}(2)$	
Free Trade Results	1.0	1.0	1.0	0.00	0.00	878.00
Base Scenario						
Output and Trade Policies	0.9	1.0	1.0	-22.00	60.00	536.28
Scenario 2						
Output and Trade Policies	1.2	1.0	1.0	64.86	-11.07	741.60
Scenario 3						
Output and Trade Policies	1.0	1.0	1.2	-71.80	81.06	554.43
Scenario 4						
Output and Trade Policies	1.0	1.0	1.0	0.05	42.4	585.00

1/. Deficiency payments (price or output subsidies) when positive and consumer taxes when negative.

2/. Import tariff when positive and subsidy when negative.

SUMMARY AND POLICY IMPLICATIONS

- Often, policies are shaped by the political influence and power of the various domestic interest groups on policymakers in the effort of the former to secure the benefits of the policy decisions. Policymakers may also establish policies to favor a

particular interest group based on some strategic or national interest such as social stability or national food security needs. As a matter of fact, very rarely are policies based on the ideal but less intuitive expected net repercussions (general equilibrium) of the said policies to the entire economy.

- This study illustrates how agricultural policies are endogenously determined via the use of policymakers' welfare criterion.

- An empirical application was presented for the case of Malaysian rice sub-sector. It has been shown that if a country maximizes interest group welfare under the presumption that all other countries are free traders, then the optimal policies will be a function of domestic interest groups influence on policymakers.

- The theoretical model in the model can also be used to illustrate the undesirability of free trade if at least one country in the model views one domestic interest group as more or less important relative to the others.

- Differences in political weights can result from either socio-political or national interest considerations such as the need for reliable and adequate supply of food at all times (food security). In recent years, agriculture has been seen in terms of "multifunctional resource" or "environmental services" which produces food and a myriad of intrinsic public goods. This implies that farm commodities may not be equated with or given the same policy treatment as any conventional industrial good. This contention only reinforces the idea of the existence of unequal political weights and the need for the use of policymaker welfare criterion in analyzing globalization issues affecting agriculture.

- Unless all policymakers across trading countries are willing to set equal political weights (which is both theoretically and structurally impossible) in trade negotiations, free trade in most agricultural commodities may only be illusive.

Figure 1
Optimal Output Subsidies or Consumer Taxes (Oa) Under Varying Consumer (wca) and Taxpayers (wta) Interest Groups

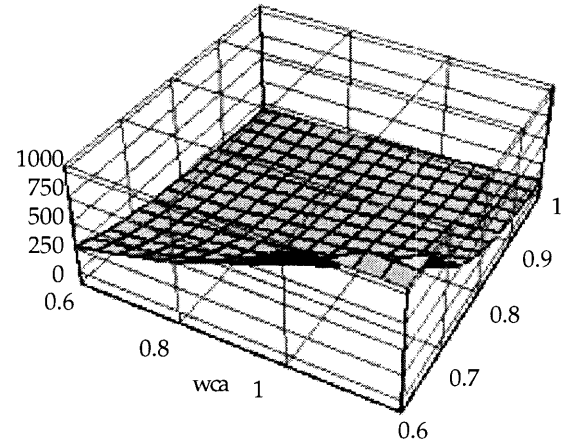


Figure 2
Optimal Import Taxes (ta) Under Varying Consumer (wca) and Taxpayers (wta) Interest Groups

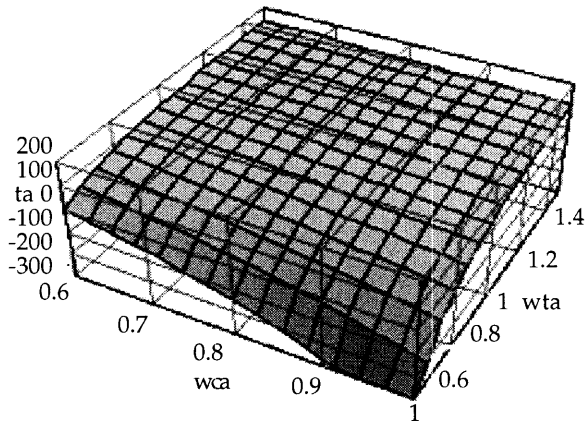


Figure 3
Optimal Policies and Welfare Impacts Under for 2000 Base Year

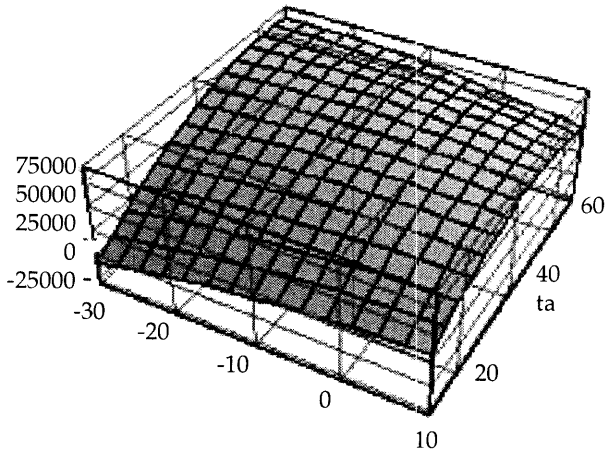
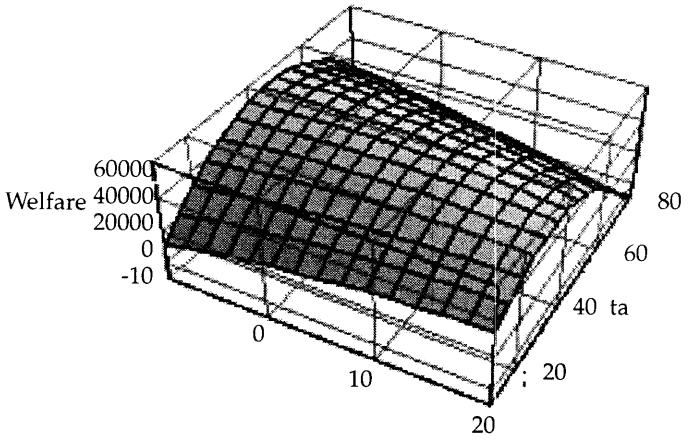


Figure 4
Optimal Policies and Welfare Impacts (equal political weights)



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