

Five Models of the Political Economy of Trade Policy: A Review Essay

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Abstract

This paper summarises five of the most important politic-economy models of trade policy. Each of them seeks to provide a plausible explanation of the positive levels of tariffs currently present in the formation of tariff policy. The five models spelled out in this work are: (1) the tariff-formation approach, (2) the political-support-function approach, (3) the median-voter approach, (4) the campaign-contribution approach, and (5) the political-contribution approach. Indeed, each model has its own advantages and drawbacks, and none has been able to entirely explain the nature of trade policy theory. However, there is a clear-cut result among all the models presented: protection is preferred to free trade i.e. optimal tariffs are strictly positive.

1. Introduction

If free trade is so widely preached by economists, why it is then so rarely practised among countries? Economists have addressed this question by improving the modelling of the political and economic activities in the theory of trade policy. Basic analytical frameworks do not account for the political-economy of trade; that is, these models do not consider the pressures that interest groups and politicians exert to the domestic trade policy-making process. Four key aspects have to be noted when trying to incorporate the political-economy aspects into the basic framework (Rodrik 1995). First, individual preferences over the domain of policy choices have to be described i.e. they are assumed to be self-interest driven. Second, a description of how these preferences are to be channelled to lobby for a particular policy is important because it allows economists to incorporate the new element of politics into the analysis of trade policy. Third, policy-makers' preferences have to be defined; that is, what do policy-makers really intend to do while in office? Do they want to get re-elected or maximise their citizens' welfare? Finally, the institutional framework (e.g. parliamentary system) within which policy-makers implement policies has to be specified so as to be consistent with the real-world setting that the new political-economy framework intends to model.

This work reviews the new literature on the political-economy of trade theory. It focuses on five political-economy models of trade theory: (1) the tariff-formation approach, (2) the political-support-function approach, (3) the median-voter approach, (4) the campaign-contribution approach, and (5) the political-contribution approach. Because of space constraints the models are not fully shown, but their main arguments and intuition are presented. The work is divided as follows. The first part presents a brief discussion on why politics should be included into the trade policy analysis. The second part delves into the five political-economy models of trade theory. Finally, new lines of research are suggested and a summary of the literature is offered.

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2. Is a Political-Economy Model Of Trade Theory Important?

Since David Ricardo, economists have believed that free trade is optimal from an individual country's point of view. In spite of this well-agreed result among economists, they have had a difficult time understanding why then protection (e.g. tariffs) has been a persistent phenomenon in both small and large economies. To address this inconsistency, researchers first tried to find some theoretical justification for the existence of tariffs.

In 1923 Frank Graham created a great deal of response from economists by suggesting economies of scale as a justification for protection. He considered two countries, namely a 'home' and a 'foreign' country. Assume that under free trade the former specialises in and exports the constant-returns good, and the latter specialises in and exports the increasing-returns good. In this set-up the 'home' country benefits from an import tariff on the increasing-returns good since it otherwise would not earn income. Even though this rationale provides a reason for protection, "...it does not go very far in explaining the bulk of it." (Reizman & Wilson 1995: 109).

Another line of justification stresses that large countries have an incentive to protect domestic-produced goods through the improvement in the terms of trade.¹ This view does not fit with the fact that most small economies charge tariffs and large economies tend to charge lower tariffs. A third strain in the literature has been called the "profit-shifting" explanation. It argues that in an oligopolistic economy firms could benefit from protection because profits will be shifted to the protecting country. All three views, as explained in Riezman & Wilson (1995), do not account for the magnitude of the actual observed protection among countries.

Thus, economic theory has failed to explain protectionism and that is why economists have turned to political factors to explain such phenomenon (Helpman & Grossman 1994). This new approach towards trade theory says that, even though protectionism is regarded as inefficient, it is the outcome of political processes. Hence, the political-economy of trade policy seeks to explain protectionism through an equilibrium model where policy making, assumed to be a political process, is explicitly modelled. In what follows, five different approaches in the political-economy of trade policy literature are reviewed to understand how political processes have been included into the 'old' trade theory framework to account for the live protectionism among countries.

3. Five Different Approaches to The Political-Economy Of Trade Policy

The political-economy models differ from the classical ones in that the policy-maker's objective function is different from that of the social planner, and/or that individuals are assumed to be able to influence the policy-maker's preferences. By

¹ See Baldwin (1994).

differentiating the policy-maker and social planner's objective functions the new set-up clearly identifies the inclusion of the political processes into the analysis. Moreover, the linkage between voters' economic interests and the trade theory policy decision-making allows these new equilibrium models to account for the political factors influencing trade policy. Let us now look at the different approaches developed on the political-economy of trade policy.

3.1 The tariff-formation-function approach

Findlay & Wellisz (1982) present a model in which tariffs are endogenously determined through a general equilibrium model modified so as to incorporate the influence of interest groups on the tariff determination process. Their analysis consists of a two-sector, two-goods and constant returns to scale economy in which one sector uses only labour and the second uses labour and capital i.e. the second sector considers capital as a sector-specific factor, and labour is assumed to be transferable between sectors. Both sectors are assumed to be politically active in that they lobby for a specific level of tariff and use only the production factor labour to lobby for their respective tariff policy preferences. Clearly, the level of policy instrument (tariffs in this case) is determined by the amount of labour a particular sector employs to lobby for its preferred tariff level.

Thus, tariffs are a function of labour which can be written as:

$$t = t(L_1, L_2) \quad (3.1.1)$$

where L_1 and L_2 denote the amount of labour used by sector one and two in the political process to lobby for a certain tariff level respectively. Equation (3.1.1) is increasing in the import-competing industry's lobbying and decreasing in the export-competing industry. If we assume that sector one lobbies for an import tariff then we have $\partial t(\cdot)/\partial L_1 > 0$, and if sector two lobbies for an export tariff (subsidy) then $\partial t(\cdot)/\partial L_2 < 0$. Moreover, labour exhibits diminishing returns to lobbying; that is, $\partial t(\cdot)/\partial L_1 > 0$, $\partial^2 t(\cdot)/\partial L_1^2 < 0$ and $\partial t(\cdot)/\partial L_2 < 0$, $\partial^2 t(\cdot)/\partial L_2^2 > 0$.

Provided that both sectors are politically active and there are constant marginal product of labour, the Nash level of labour used to implement a specific tariff level is determined by maximising each sector's income, $g(\cdot)$, net of lobby costs, in both sectors:

$$\max_{L_i} g_i(p^*(1+t(L_i, L_j)), \bar{w}) - w_i L_i; \quad \forall i = 1, 2; \quad i \neq j.$$

where p^* is the market price, \bar{w} implies that wages in both sectors are set equal, L_i is the amount of labour devoted to lobbying for sector i 's policy preferences, and $w_i L_i$ is the cost of lobbying for sector i . Note that each sector maximises $g(\cdot)$ with respect to L_i taking the other sector's lobby cost, L_j , as a parameter so as to obtain the desired tariff

level t . From the maximisation problem the resulting tariff level can be expressed as $t = t(L_1, L_2)$.

Note that the rationale behind this model entails that both sectors are interdependent by the endogenous nature of the tariff, but separate in that the economic interests of land and capital owners are opposed. Despite the popular rationale of this approach, the model takes political institutions as given, the free-rider problem that may arise in this context is assumed to be solved, and it does not consider the policy-maker's objective function explicitly.

3.2 The political-support-function approach

This approach can be viewed as an extension to the tariff-formation approach (Rodrick 1995). In this case, however, the policy-maker maximises a welfare function which trades off the gains from protection against the losses to the population. The political support function is given by:

$$\max_p M(\pi(p) - \pi(p^*), p - p^*), \quad (3.2.1)$$

where p denotes the relative price of the organised industry, p^* is the market price, and $\pi(p)$ represents the industry's profit function. Note that in equation (3.2.1) the policy-maker maximises both industry profits and the population's well-being based on deviations from an international benchmark, namely $\pi(p^*)$ and p^* respectively. Note also that $\pi(p)$ represents the industry's profit under protection, $\pi(p^*)$ the industry's profit under free trade, and the term $p - p^*$ depicts the policy distortion in the economy. From equation (3.2.1), $\pi(p) - \pi(p^*) > 0$ and $(p - p^*) \geq 0$, for $p \geq p^*$. The first-order condition from the maximisation problem can be written as:

$$(\pi(p) - \pi(p^*)) \cdot \frac{\partial(\pi(p) - \pi(p^*))}{\partial p} + (p - p^*) = 0 \quad (3.2.2)$$

The first-order condition implies that, since $\partial\pi(p)/\partial p > 0$ because of the profit function's properties, a solution to this problem requires a positive level of protection i.e. $p > p^*$. In other words, provided that the first term in equation (3.2.2) is positive and the second term is negative, optimal prices, p , must be greater than the market prices p^* which implies a positive level of protection.

Through an explicit policy-maker's objective function the model clearly shows a positive level of protection as the optimal policy under the conditions assumed in this set-up, being thus a possible explanation for the real-world policy-maker's practise on protection. One advantage of this rationale is that it can be applied in any open economy model and not only on the Heckscher-Ohlin or Specific-Factor models. This approach, however, relinquishes the influence that other interest groups might exert on the protection policy decision-making process.

3.3 The median-voter approach

Using the Heckscher-Ohlin, Mayer (1994) takes a step forward to incorporate the political and economic forces into the tariff determination process. The premise underlying this approach is that political decisions reflect the self-interest voters, lobbying groups, politicians, or other decision makers' preferences in trade policy matters (Mayer 1994). The author attempts to evaluate the dependence of actual tariff rates on factor-ownership distribution, voter participation rules, and the degrees of factor mobility and industry diversification in the economy. The model endogenously allows for the formation of interest groups within a specific sector which influences tariff policy outcomes through majority voting.

Consider a 2x2 small open economy under the well-known Heckscher-Ohlin set-up. Individual preferences are homothetic and identical, and each inhabitant possesses one unit of labour, L , and no or some positive amount of capital K . Both factors are perfectly mobile, production functions are homogenous of degree one (i.e. they exhibit constant returns to scale), and markets are competitive. There are three sources of revenue: (1) ownership of labour, (2) ownership of capital, and (3) a redistribution of tariff revenues. Hence, income for individual i is given by:

$$y^i = w + rK^i + T^i \quad (3.3.1)$$

where r and w denote the returns on labour and capital respectively. T^i is the tariff revenue for individual i , and is defined as $T^i = \phi^i T$; where ϕ^i is an individual's income share. Total tariff revenues, T , is defined as: $T = tpm$; where m is the quantity imported of the first good.

Under this set-up individuals maximise each one's indirect utility function given the price of the first good in terms of the second, p , and income, y , measured in terms of the second good, i.e. let good 2 be the numeraire good. Hence, prices for both goods can be defined as $p_2 = p_2^* = 1$ and $p_1 = p = p_1^*(1+t) = p^*(1+t)$; where subscripts denote each good, and t the tariff policy. Each individual's utility is maximised according to his/her income share apart from prices and aggregate income level. A tariff change confronts all people with the same aggregate income and price change, but with different effects on each income's share. Assuming that tariff revenue is distributed proportionally according to each inhabitant's share in factor income, an individual i maximises his/her utility by choosing the optimal tariff rate t^i . More formally, each individual i maximises his/her indirect utility function with respect to prices p :

$$W^i = \max_p V^i(p, y^i) \quad (3.3.2)$$

which yields an individual optimal tariff, t^i ,

$$t^i = -\frac{y}{p \cdot \partial m / \partial t} \frac{\partial \phi^i / \partial t}{\phi^i} > 0 \quad (3.3.3)$$

where ϕ^i is an individual's share in aggregate income. Since imports are negatively related to changes in the tariff rate, t , and $\partial \phi^i / \partial t > 0$, t^i must be positive. Note that the relationship between a person's income share and a tariff is further related to that person's factor endowments. Thus, the optimal tariff level depends on an individual's endowment level of the factor more intensively produced. Since capital endowments are different across individuals and labour endowments are constant, tariffs depend on this factor's endowment level. Hence, import tariffs are desirable for those with high capital endowment levels as equation (3.3.3) shows.

This framework is further developed to account for majority voting in the country. As long as voters' economic interests differ in their capital-labour endowment, majority voting will determine the tariff policy. A tariff rate is in equilibrium when no majority of voters can change the actual tariff rate Mayer (1994). Hence, using the fact that individuals exhibit similar preferences and unique voting preferences but different levels of capital-labour endowments a policy-maker can determine the endogenous tariff rate by maximising the median voter utility. That is, maximise:

$$W^m = \max_p V^m(p, y^m) \quad (3.3.4)$$

where m superscripts denote 'median voter'. Thus, a citizen's optimal level of tariff depends upon the relation between his/her capital-labour and society's endowment.

The median-voter approach explicitly and fully specifies citizens and policy-maker's preferences and objective functions. This rationale, however, lacks a realistic element since tariff policy is not commonly determined by majority voting. It is therefore a theory of majoritarian politics, and not pressure group politics (Reizman & Wilson 1995).

3.4 The campaign-contribution approach

The models by Magee, Brock, and Young (1989), and Grossman and Helpman (1994) explicitly address the role of political contribution in trade policy-making. In the former lobbies contribute to the political campaign of a particular party so as to increase the probability of election of such political candidate. On the other hand, the Grossman-Helpman model's lobbies contribute to the political campaign of a certain candidate to influence trade policy of the incumbent government (section 3.5).

Magee *et al.* (1989) extend the Heckscher-Ohlin model by adding two factors, two goods, two lobbies and two parties to the equilibrium trade policy determination process. All actors maximise their welfare, and each factor receives its marginal product in competitive factor markets. Each lobby maximises the returns to the factor of production it represents, each party maximises its probability of election by its policy instrument, and voters are rational ignorant i.e. they under-invest in information. The model assumes that voters select the party that provides them with the best information-policy trade-off. One party is assumed to be pro-protection while the other is pro-trade. Furthermore, the authors assume that the capital-intensive sector only lobbies for export subsidies (pro-trade party) on capital-intensive goods, and the labour-intensive sector lobbies only for tariff-imports (pro-protection party) on labour-intensive goods. Note that such export subsidies will increase the capital-intensive good's price which, by the Stolper-Samuelson theorem, would increase the real income of capital.

Formally, assume that sector one is capital-intensive and sector two is labour intensive. Let q ($1-q$) be the probability of the pro-trade (pro-protection) party to be elected. Denote C_K and C_L the contributions of the capitalist and labour lobbies respectively. Magee *et al.* (1989) express the probability q as a function of contributions C_K and C_L , and the pro-labour and pro-capitalist price distortions. That is,

$$q = q(C_K, C_L, p_1 - p_1^*, p_2 - p_2^*) \quad (3.4.1)$$

where p_1 and p_2 represent the domestic price of goods produced in sector one (capital intensive) and two (labour-intensive) respectively, and p_1^* and p_2^* denote the international (free trade) price for capital- and labour-intensive goods respectively which are exogenously given under this small-economy set-up. Note that the third and fourth terms in equation (3.4.1) denote the distortions in the capital- and labour-intensive sectors respectively; that is, these are the proportional ad valorem export subsidy and import tariff supported by the pro-capital and pro-labour parties respectively. Intuitively we can assert that equation (3.4.1) is increasing in C_K and $p_2 - p_2^*$, and decreasing in $p_1 - p_1^*$ and C_L . Note that equation (3.4.1) depicts the fact that the more the pro-capital party has capital resources the higher the probability of election.²

The pro-capital (pro-labour) party selects p_1 (p_2) so as to maximise $q(1-q)$. On the other hand, lobbies maximise their expected income of the factor returns net of lobby contributions with respect to campaign contributions. Let r_i and w_i be the factor returns when party i is in power (for $i = K, L$). Hence, the capital and labour lobby objective functions can be respectively written as:

² Because of space constraints the pro-labour party probability function, $(1-q)$, is not explicitly stated. However, similar arguments hold for the characteristics of the pro-labour party probability function i.e. it is symmetric to the pro-capital party's probability function.

$$\max_{C_K} [qr_K + (1-q)r_L]K - C_K \quad (3.4.2)$$

$$\max_{C_L} [qw_K + (1-q)w_L]L - C_L \quad (3.4.3)$$

where K and L are the economy's capital and labour endowments respectively, and r and w are defined as before.

The strategic interaction in this model is the following. First, all actors behave as Nash players: both parties play Nash, as do the two lobbies, and parties can be thought of as Stackelberg leaders over the lobbies. Hence, in the first stage parties choose domestic prices (select their policies) so as to maximise their probability of getting elected, and in the second stage lobbies maximise their returns given policies. The two-stage game behaviour implies that lobbies affect party election but not policy platforms. Thus the political-campaign approach accounts for the link between economic interests and policy determination, but has been criticised because of its party policy platform rigidity i.e. parties are either pro-protection or pro-trade. Another drawback of the model is the complexity of the model which does not allow for a reduced-form analysis because optimal policy results are only obtained under parameter assumptions (Rodrick 1995).

3.5 The political-contribution approach

In contrast to the Magee et al. (1989) model of endogenous tariffs, Grosman & Helpman (1994) present a political-economy model of trade policy which does not allow for competition among politicians. Grossman and Helpman consider a small open economy in which there is only a political incumbent who is confronted by many lobbies' contribution schedules, each lobby representing industry interests. The rationale of the model is the following. Lobbies confront the government with a contribution schedule contingent on trade policies such that each lobby maximises its indirect utility function net of contributions. The government then maximises a weighted sum of aggregate social welfare and total contributions.

Formally, there are n sectors in this small open economy, and each sector produces one good using labour plus a specific factor. Despite the fact that the authors do not develop a lobby-formation theory, it is assumed that the owners of the production factors group together to form lobby groups. Each lobby group makes a political contribution contingent on the government policy vector; that is, the lobby confronts the government with a schedule that maps every policy vector (trade taxes and subsidies) that the incumbent might choose into a campaign contribution (Grosman & Helpman 1994). Hence, each lobby group i maximises the total welfare of its members by selecting an optimal contribution schedule:

$$v_i = V_i(p, y_i) - C_i(p) \quad (3.5.1)$$

The first term denotes the total indirect utility function of the i th lobby, and $C_i(p)$ is the total contribution schedule of lobby i . Note that the term $C_i(p)$ is a

function, not a variable, which contains the lobby's contribution schedules that maximise v_i for every single policy that the government might implement given other lobbies' contribution schedules.

The incumbent takes these contributions schedules as given and maximises a weighted sum of total political contribution schedules and aggregate welfare with respect to prices, p :

$$G = \sum_i C_i(p) + bW(p) \quad (3.5.2)$$

where $\sum C_i(p)$ is the total contribution to the incumbent from all sectors i , $W(p)$ is the aggregate welfare, and b is the government's weight on aggregate welfare ($b > 0$). Note that the model considers only one political incumbent ruling out explicit political competition as in Magee et al. (1989). Contributions are made not to increase the probability of election of the candidate with the desired ideology, but to influence policies. Also note that the linearity of equation (3.5.2) assumes that consumers have quasi-linear preferences which implies constant marginal utility of income.

To further understand the model's rationale, let us re-write equation (3.5.2) as:

$$G = a_1 \sum_i C_i(p) + a_2 \left(W(p) - \sum_i C_i(p) \right); a_1 > a_2 \quad (3.5.3)$$

where a_1 is the government's weight on campaign contributions and a_2 the weight on net aggregate welfare. Note that maximising equations (3.5.2) and (3.5.3) is equivalent since $b = a_2 / (a_1 - a_2)$ for $b > 0$. The first term in equation (3.5.3) is the total political contribution, the second is the sum of utilities, and the third term is the total lobby costs. Also note that when $a_1 = a_2$ there is no lobbying and equation (3.5.3) is the typical social welfare function which is maximised in the usual manner.

An equilibrium consists of: (1) a set of political contributions $C_i^*(p)$, one for each lobby group, such that each group maximises the welfare of its members, $V_i(p, y_i) - C_i(p)$, given the other lobby groups schedules; and (2) a policy vector p such that the government maximises equation (3.5.2) taking contribution schedules as given. The equilibrium tariff vector, t^* , takes the following form if lobbies use contribution schedules that are differentiable around the equilibrium point, and are an interior equilibrium (t^* is strictly positive):

$$\frac{t_i}{1+t_i} = \frac{I_j - \alpha_L}{b + \alpha_L} (z_i / e_i) \quad (3.5.4)$$

where I_j is an indicator variable that equals 1 if industry j is organised, and 0 otherwise; z_i is the equilibrium ratio of domestic output to imports in sector i , e_i is the elasticity of

import demand, and α_L is the fraction of the total population that are represented by a lobby. Note that the equilibrium vector t^* has to be sufficiently close to the equilibrium values, p , which the government uses to maximise equation (3.5.1). Also note that equation (3.5.4) says that, *ceteris paribus*, high import demand has a smaller ad valorem deviations from free trade. Further, it implies that the protection received by a sector is higher when it is organised, when its output-import ratio is high, and when the percentage change in import demand is low.

Following this line of research Grossman and Helpman (1996) expand their previous model so as to account for an explicit candidate rivalry. The paper focuses on the interest groups' use of campaign funds as a channel to influence policies. The authors' aim is to characterise the policies that emerge when interest groups compete for the politicians' favours while the politicians compete for voters' support for seats in a legislative body.

They analyse how lobbies confront parties with a policy-contribution trade-off under a two-stage game set-up. In the first stage, voters support a specific candidate if the policies offered by that candidate yield a higher utility compared to the other candidate's policies. In the second stage political parties set policies so as to maximise their representation in the legislature. An equilibrium consists of a pair of policy platforms and a set of contribution schedules such that no party or group can improve its welfare given other actors' actions. The difference in policies and contribution levels determines which party wins the election, which in turn decides the probability that each party's platform will be implemented.

Grossman & Helpman (1994, 1996) aim to derive optimal contribution schedules which in turn yields optimal policies from first principles, but only the latter allows for electoral competition.

Conclusions

This work spells out five different political-economy approaches to explain trade policy: the tariff-formation, median-voter, political-support function, campaign-contribution, and the political contribution approach. Each of these models has a special feature of the political-economy of trade policy. Indeed, each model has its own advantages and drawbacks, and none has been able to entirely explain the nature of trade policy theory. However, there is a clear-cut result among all the models presented: protection is preferred to free trade i.e. optimal tariffs are strictly positive.

The political approach developed by Grossman and Helpman seems of particular relevance in that it integrates elements from each of the other approaches. It also explains trade policy quite realistically providing thus a real-world framework for future lines of research. If one wants to explain trade policies, further theoretical endeavours must incorporate uncertainty and information issues that are present in the policy-making dynamics. Hence, political decisions must be included into the analysis but to do that, researchers ought to understand how politics and economics interact.

Some other explanatory factors ought to be accounted for in the models of the political-economy of trade. First, the determinants of trade policy can be divided into two broad categories (i) domestic and (ii) non-domestic. The former is more related to the classical approach of trade policy modelling where non-economic variables from the political system are excluded, and the latter to the international system of trade and structural changes in such system.

A different approach to the political-economy of trade is to account for the collective action problem that may arise from trade barriers. This would allow scholars to look at the models from a country-to-country viewpoint and hence study the interaction between trade policies. In addition, the collective action approach would account for international and political institutions related to trade policies. Thus the inclusion of these explanatory factors would help researchers build a model of trade policy formation by which the dynamics of domestic and non-domestic factors are captured.

Another area of further research is the empirics of the topic in question. The current empirical evidence is ambiguous and further endeavours in this area should be undertaken to examine the validity of the hypotheses proposed by each model. Finally, a case for Puerto Rico can be made by examining the empirical evidence. However, left- and right-wing politics are not clearly identified in the island. Moreover, Puerto Rico's trade structure is relatively homogenous; more than half of the trade activity in the island comes from the US.³ Nevertheless, a study of whether trade is influenced by political factors would help policy-makers understand the dynamics of the politico-economy system of trade in the island.

³ Puerto Rico Planning Board (2001) Selected Trade Statistics on Puerto Rico's External Trade. Tables 2 and 4.

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