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“The Political Economy of Protection”

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Abstract: This paper offers a selective, interpretative survey of the literature on the political economy of international trade policy. Unilateral trade policy and multilateral trade agreements are covered, but preferential trading arrangements are not. Much of the literature is characterized either by a discrepancy between what policymakers say they are doing and how the theory models their actions (the Cognitive Dissonance issue) or by a lack of a detailed microeconomic foundation (the Black Box issue).

Keywords: Political support function, Protection For Sale, trade agreements, exchange of market access

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ISET

This chapter addresses the political-economy aspect of international trade policy. I do not attempt to be comprehensive. Instead I focus on what I regard as the central issues.

I. Introduction

International trade theory has traditionally examined protection from a *normative* perspective: What are its consequences and when is it justified from the point of view of national welfare? Beginning in the 1980s increasing attention has been paid to analyzing protection from a *positive* perspective: What actually determines it? These two approaches are obviously complementary—both are necessary. This chapter addresses the latter. Other surveys are provided by Nelson (1988), Magee (1994) and Rodrik (1995).

I address the ability of our theory adequately to explain trade policy and trade agreements. My bottom line will be tentative: We have made much progress, but we have a good way to go. It is important that we make the effort.

*I thank Arye Hillman, Donald Regan and Robert Staiger for useful discussions.

II. An Analytical Framework

To facilitate comparison across contributions it helps enormously to have a common theoretical framework in which to view them. I shall use the following.

Assume two countries (*Home* and *Foreign*), two factors (*Kapital* and *Labor*), and $N + 1$ traded goods ($0, 1, \dots, N$). Good 0 is a numéraire good, produced by labor alone. Goods 1 to N are produced by capital and labor, with capital specific to each of these sectors. *H* imports goods 1 to n and exports goods $n + 1$ to N .

I follow the preponderant part of the political-economy literature in assuming a sector-specific factor. There are two reasons for this. *First*, much of the literature suggests that specific factors are much more likely to be able to organize and so exert political influence. See Olson (1965), Pincus (1975), and Caves (1976). *Second*, specific factors, together with the demand separability discussed below, allows the analysis to employ simple partial-equilibrium techniques.

Ownership of each specific factor i is distributed uniformly over a fraction α_i of the population (labor force), with each individual owning some of at most one of the specific factors. Let $\alpha = \alpha_1 + \dots + \alpha_N$ denote the fraction of the population owning some of a specific factor. Choose units so that a unit of good 0 is produced by a unit of labor. Thus, assuming good 0 is actually produced, the wage $w = 1$.

In each country individual preferences are summarized by the utility function

$$U = c_0 + u_1(c_1) + \dots + u_N(c_N)$$

where c_i denotes consumption of good i . This implies individual demand functions $d_i = d_i(Q_i)$, $i = 1, \dots, N$, where Q_i denotes the domestic relative price of good i in terms of good 0 . Residual income is all spent on the numéraire good 0 . I assume that endowments in both countries are such that each both produces and consumes good 0 . Then an individual's utility can be expressed in the indirect form

$$v(Q_1, \dots, Q_N; y) = \sum s_i(Q_i) + y \tag{1}$$

where $S_i(Q_i) = u_i(d_i(Q_i)) - Q_i d_i(Q_i)$, the consumer surplus derived from good i , and y denotes the individual's income.

III. Unilateral Trade Policy

I briefly describe the principal alternative explanations of tariff determination, before focusing in more detail on the one that has most been used.

Voting models

Wolfgang Mayer (1984) introduced voting models to endogenize tariff formation.

The median voter approach. To see how this might work in a simple framework, suppose that $n = N = 1$, so that good 1 is imported in exchange for the numéraire good, and that H is small, so that the world relative price $P_1 \equiv P$ is given. Thus $Q = P(1+t)$, where t denotes the tariff on good 1. If ϕ denotes some individual's share of national income Y .

$$y = \phi Y = \phi [L + \pi(Q) + tPM] \quad (2)$$

The three terms in brackets respectively denote labor income, specific-factor income, and tariff revenue. Substitute (2) into (1) and differentiate to see the effect of a change in t on the individual.

$$\frac{\partial v}{\partial t} = t\phi P \frac{\partial M}{\partial t} + LPd \left[\phi - \frac{1}{L} \right] + Y \frac{\partial \phi}{\partial t} \quad (3)$$

(Use has been made of the facts that the derivative of consumer surplus is commodity demand and that that of specific-factor income is commodity supply). Setting $\partial v / \partial t = 0$ yields the individual's most preferred tariff:

$$t' = \frac{Pd \left[\phi - \frac{1}{L} \right] + Y \frac{\partial \phi}{\partial t}}{-\phi P \frac{\partial M}{\partial t}} \quad (4)$$

The denominator of the right-hand side of (4) is positive, since an increase in t lowers M . Assume that tariff revenue is distributed to the population in a manner neutral in the sense of

Ethier (1984): proportional to each individual's share in factor income. Thus φ equals the individual's factor income share.

Individuals in the $1 - \alpha$ share of the population that owns no capital have a share of national income φ below their share of labor income ($1/L$), and a tariff will lower their share of national income. Thus $t' < 0$ for such workers: They prefer a particular import subsidy. Since the ownership of capital is distributed uniformly over the share α of the population, this situation is the reverse for them: They all prefer a particular tariff.

Suppose trade policy is decided by a direct popular vote. A majority (and so the median voter) will support the tariff if and only if $\alpha > 1/2$; otherwise the subsidy wins (ignoring the minute possibility of a tie). Mayer investigates such voting in the Heckscher-Ohlin-Samuelson model and in a specific-factors model, but the above simple framework suffices to illustrate several key points.

Key points about the median-voter approach. *First*, the great advantage is that this approach grounds trade policy in a fully specified political-economy model. The political component is not reduced to a black box.

Second, a disadvantage is that trade policy is almost never voted on directly by the public: It is implemented by governments. Elections in which the parties or candidates compete solely on trade policy may proxy for direct voting. Perhaps that did occur sometimes in the 19th century, but it is very rare now.

Third, by focusing only on direct voting, this approach excludes lobbying and political campaigning. In particular, it gives no scope to the factors determining the potential for special interests to organize, as emphasized by Olson (1965).

Fourth, the interior solution for t' in (4) is critically due to the fact that individual voters care about their share of trade-tax revenue. If such revenue is ignored, capitalists, if they do want a tariff (which they must do if the import-competing sector is initially large enough), wish it to be prohibitive, and laborers want a very large import subsidy, that is, one large enough that the effect on trade-tax revenue cannot be ignored. But we observe neither this result nor, in the case of industrial countries, any real interest in trade tax revenue (Regan (2006)). Still, trade-tax revenue exists, so it should logically be included in our models, but the critical role it then assumes in the theory seems totally at odds with its apparent negligible practical importance. I refer to this as the Cognitive-Dissonance (CD) issue. I assign it a label because, as will become apparent, it is pervasive in the literature on the political economy of trade policy.

Partisan politics. Brock and Magee (1978) did focus explicitly on the roles of lobbies and parties in the electoral process. [See also Magee, Brock and Young (1979) and Austen-Smith

(1991)]. Suppose, in the above context, that capital and labor organize lobbies to influence the outcome of an election between two political parties. This outcome is inherently uncertain, with the probability of success of a particular party dependent on the contributions received by the two parties from the two lobbies plus the platforms announced by the parties. Those platforms consist of proposed tariffs. Each party, eyeing its rival and aware of how lobbies determine their contributions, sets its platform to maximize its chance of success. Each lobby, eyeing the other, reacts to the platforms by making the contribution that will maximize its expected welfare.

This approach accommodates partisan politics and lobbying at the expense of relegating the electoral process itself to a black box (the **BB** issue). The substitution is, on the whole, a step toward greater realism. But, because of its cumbersome analysis, the approach has been little used.

Political support

The portion of the literature discussed thus far has focused on the electoral process, but another, larger, portion has addressed the behavior of an incumbent government in office.

The basic political-support approach. Hillman (1982) introduced the concept of a political-support function to analyze the behavior of an incumbent government confronted by a special-interest group. [See also Hillman (1989, 1990), Long and Vousden (1991) Hillman, Long, and Moser (1995), and Hillman and Moser (1996)].

Suppose, in the model of Section II, that the owners of capital specific to an import sector i constitute an interest group desiring tariff protection. The incumbent government wishes to set a tariff that will maximize its political support:

$$W^i = f^i (\psi(Q_i) - \psi(P_i), Q_i - P_i). \quad (5)$$

Here ψ measures the concerns of the interest group. The first argument of f^i accounts for the influence of the interest group on political support and the second argument that of the population at large. In both arguments, political support depends not only on the outcome (Q_i) but on how that outcome differs from what it would be were the government to take no action. The idea is that the government would be held politically accountable only for what it has done. This is an important distinction. But it is relevant only in cases where the economy is subject to an external shock that influences the free-trade equilibrium [Hillman (1982) for example]. So subsume for now the free-trade situation into the functional form. Assuming that f^i is increasing in its first argument and decreasing in its

second, the government will maximize its political support W^t in (5) by trading off the general welfare for that of the interest group.

To be more specific, assume that the measure of interest-group benefit is the income of the corresponding specific factor $\pi_i(Q_i)$ and that the measure of the effect of policy on the general welfare is the effect on the per-capita consumer surplus derived from the corresponding good: $S_i(Q_i)$. Then, suppressing for convenience the index i , (5) can be expressed as follows

$$W = W(\pi(Q[t]), S(Q[t])) \quad (6)$$

where W is increasing in both arguments. Differentiating (6) with respect to t and rearranging terms yields

$$\frac{1}{PW_2} \frac{dW}{dt} = I(Q)x - M \quad (7)$$

where x denotes the output of the sector, and $I(Q) \equiv (W_1 - W_2)/W_2$ can be interpreted as an index of the political influence of the special-interest group. Call the interest group *influential* if the right-hand side of (7) is positive when $t = 0$; that is, an influential interest group is able to obtain protection.

A tariff will increase x in (7) and lower M , so, *unless* I also falls sufficiently rapidly, the government will impose a prohibitive tariff whenever confronted by an influential interest group.

There are two ways to alter the model to avoid this extreme result. One is to add trade-tax revenue appropriately to the arguments of (6), as was done in the voting model discussed above. But of course this will also introduce the **CD** issue: The chosen tariff or subsidy will depend *crucially* upon its effect on trade-tax revenue.

The second way to alter the model is to suppose that the influence of an influential special-interest group is limited, that is, that I declines as t (and so Q) increases. If I declines rapidly enough, (7) will have an interior solution corresponding to a non-prohibitive tariff. Consider this possibility in more detail.

The influence of a special-interest group can be measured by the value of I when $t = 0$, that is, $I(P)$, and also by the rate of its decline: $I' < 0$. Assume for simplicity that these measures are in accord: $I(P)$ is larger when the absolute value of I' is smaller.

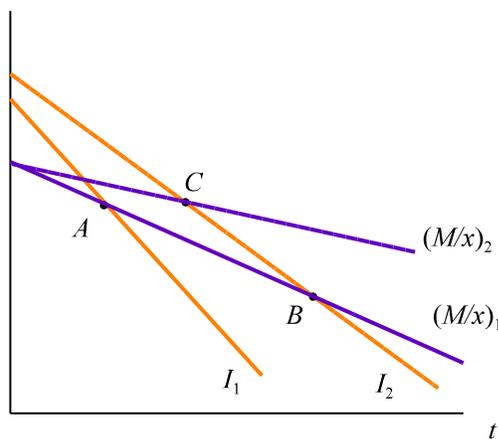


Figure 1

Figure 1 shows the case of an influential interest group (the right-hand side of (7) is positive when $t = 0$) where I falls rapidly enough to give an interior solution (at point A). I_2 (where point B indicates the equilibrium) shows more influence than I_1 . Other things equal, a greater influence implies a larger t and a lower import-penetration ratio M/x .

The elasticity e of import demand plays an important role in many tariff issues,¹ so it is of interest to examine its effect. This is more complex. In Figure 1 $(M/x)_2$ reflects a lower elasticity than $(M/x)_1$. Along a given I_1 the reduction in e lowers t and raises M/x . But a lower e also implies a lower deadweight loss to increasing t , so the lobby should become more influential, which is reflected in I_2 replacing I_1 . This raises t and lowers M/x , so the net effect is ambiguous. For a given reduction in e , as reflected in given $(M/x)_1$ and $(M/x)_2$, this net effect depends upon the sensitivity of lobby influence to e . With low sensitivity, t falls and M/x increases; with intermediate sensitivity, t and M/x both increase; with high sensitivity, t increases and M/x falls. In other words, at a given level of import penetration, t is negatively related to e .

An influential interest group will of course be concerned that any protection it receives not be undone by the government of a trading partner subsidizing its exports. That the home government shares this concern is implied by (5), which says that the home government is rewarded on the basis of the net effects of its actions. Thus we should expect the government to implement a countervailing duty law, providing that any foreign subsidy be countervailed

¹For contrasting recent examples, see Broda, Limão and Weinstein (2008) and Magee and Magee (2008).

by an increase in the home tariff. To my knowledge, the political-support literature has not actually made this point, but it seems a clear inference from its approach.

The above discussion applies to an influential interest group. But what happens when it is not influential? There seem to be two alternatives.

1 An interest group for which the right-hand side of (7) is negative when $t = 0$ will induce the government to subsidize imports without bound (or as much as the treasury will bear) unless I rises sufficiently rapidly as the subsidy is increased.

2 This literature seems based on the observation that import-competing interests are individually much more affected by trade policy regarding their goods than are the more numerous but more diffused consumers. Then such interests, even if not politically organized at all, are much more likely than consumers to vote on the basis of such policy. This suggests assuming that the right-hand side of (7) is never negative when $t = 0$: It is positive for an influential group and zero for a non-influential group. Thus the latter will result in $t = 0$.

Of these alternatives, **2** seems to me more in accord with the spirit of the general support-function approach, so I shall take it as characterizing that approach. But, to my knowledge, that literature again has not addressed these alternatives at all, much less providing a formal framework to indicate when one or the other might be more appropriate.

Suppose, finally, that the interest group corresponds to an export sector. Analogously to the above, an influential group would be able to induce the government to provide an export subsidy. However, if, as discussed above, foreign governments have adopted countervailing-duty laws, such a subsidy would amount to a cost that conferred no benefit on the interest group and so would not be adopted. The government is powerless to aid such a group with trade policy. Non-influential groups can be treated analogously to such groups in import-competing sectors. That is, $t = 0$ in export sectors with non-influential interest groups. Again, this seems to be a reasonable inference from the nature of the political-support approach, though it is not discussed in that literature.

Key points about the political-support approach. *First*, political support depends upon the effect of the government's actions on agents' well-being, not just the latter itself.

Second, the approach exhibits the **BB** issue: the political-support function is not derived from microeconomic fundamentals.

Third, for influential import-competing sectors the degree of influence is positively correlated with the tariff rate.

Fourth, for influential import-competing sectors the tariff is negatively correlated with the import-penetration ratio.

Fifth, for influential import-competing sectors the tariff is negatively correlated with the elasticity of import demand, at a given import-penetration ratio.

*Sixth**, if the country has at least one influential import-competing sector it will adopt a countervailing-duty law.

*Seventh**, non-influential import-competing sectors are likely to be characterized by an absence of trade-policy intervention.

Eighth, the government is unable to do anything for, and therefore to extract political support from, influential export sectors.

*Ninth**, non-influential export sectors are likely to be characterized by an absence of trade-policy intervention. (An asterisk indicates a point that reasonably characterizes the political-support approach but that, to my knowledge, has not been discussed explicitly in its literature).

The campaign-contributions variant of the political-support approach. This variant of the political-support approach, due to Grossman and Helpman (1994, 2002), identifies such support as financial contributions (or bribes). Following the authors, we can denote this approach as Protection For Sale, or PFS. This has become the most widely used political-economy model of protection, not because it is realistic – or even plausible – but because it delivers a tariff formula based squarely on a complete micro political-economy description of behavior.

The distinguishing assumptions of this version of the political-support approach are as follows. **i** The N specific factors are exogenously divided into N^1 that are politically organized and N^0 that are not (so $N = N^0 + N^1$). **ii** Political support consists of campaign contributions (or bribes). **iii** Each lobby, with an eye on the other lobbies, offers the government a *contribution schedule* detailing the contribution it will make as a function of the vector of all N trade policies. The lobby wishes to maximize the excess of its specific-factor income over its actual contribution. **iv** The government wishes to maximize a weighted average of national income and total contributions,

$$W = \beta Y + (1 - \beta) \sum_{N^1} C^i \quad (8)$$

where C^i denotes the actual contribution of lobby i and $\beta \leq 1$ the weight the government attaches to national income. **v** The outcome is modeled as a menu-auction equilibrium in the sense of B. Douglas Bernheim and Michael Whinston (1986).

The PFS model yields equilibrium contributions and tariffs. The former are of little interest, given the contrived nature of the model. But the latter, as pointed out by Goldberg and Maggi (1999), follow directly as necessary conditions for maximizing the joint surplus

of the government and the lobbies, regardless otherwise of the actual bargaining model. The equilibrium tariffs are given by

$$\frac{t_i}{1+t_i} = \frac{\xi_i - \alpha}{\frac{\beta}{1-\beta} + \alpha} \cdot \frac{1}{\frac{M_i}{x_i} \cdot e_i} \quad (9)$$

where $\xi_i = 1$ if the industry is politically organized and 0 if it is not.

Note that if the government cares only about social welfare ($\beta = 1$) it adopts a policy of free trade. This is also the result if everyone belongs to some organized lobby ($\alpha = 1$), but this latter result is of little interest as it just reflects the extreme assumptions that all organized sectors are equally potent politically and that they all lobby equally about all trade policies.

Equation (9) implies the following. *Organized import-competing sectors* ($\xi_i = 1$) will receive positive protection that is positively related to the degree of influence ξ_i (though of course that is here constrained to be only zero or unity), and negatively related to the import-penetration ratio and to the elasticity of import demand. This is exactly what the general political-support function approach predicts, of which the PFS model is a special case.

Unorganized import-competing sectors ($\xi_i = 0$) will be confronted with subsidized imports. This contrasts with my interpretation of the spirit of the political-support approach ($t = 0$), though, as pointed out above, that literature has not been explicit about this.

Organized export sectors ($\xi_i = 1$) will find their exports subsidized. This also contrasts with the predictions of the general political-support approach.

Unorganized export sectors ($\xi_i = 0$) will find their exports taxed. This again contrasts with my interpretation of the spirit of the political-support approach ($t = 0$), though, again, that literature has not been explicit about this.

Empirical investigations of the PFS variant. The PFS model has received considerable empirical attention [Goldberg and Maggi (1999), Gawande and Bandyopadhyay (2000), Mitra, Thomakos, and Ulubaşoğlu (2002), and McCallum (2004)]. These papers uniformly claim support for the PFS model, but in a highly selective way. They have confined themselves to import-competing sectors. An important claim in this literature is that they are estimating (9), an equation that comes directly from a detailed microeconomic model (*i. e.*, no **BB** issue).

These papers do not employ actual tariffs² because they are constrained by international trade agreements, not part of the basic PFS model. So data on administered protection is used instead. It's not clear how much this helps, since administered protection very often involves a good deal of bilateral negotiation [*e.g.*, Goldberg and Maggi (1999, p 159)]. But there are more serious concerns.

Administered protection using tariffs involves primarily antidumping and countervailing duties. These are imposed as a result of a well-defined legal procedure that, in sharp contrast to the PFS model, gives no weight to either national welfare or tariff revenue. So if such data does fit (9), even though we *know* it was not generated by what the PFS approach models, one must wonder what such a fit means. (Political organization also plays no role in the administrative procedure, but one might conjecture that politically organized sectors are also better able to file petitions).

Administered protection using non-tariff barriers involves, in data from the 1980s, primarily voluntary export restraints (VERs). A key property of VERs is that the rents from the barriers are captured by exporters, whereas the assumption in the PFS model that the importing country captures those rents is crucial to the derivation of (9). If the PFS model is altered to constrain the importing country from capturing the rents, necessary if VER data is used, the model predicts nothing like (9). So a good fit to (9) is not a confirmation of the PFS model: Indeed it is a rejection if (9) fits better than what the PFS model would imply for VER data.

The empirical studies have also not investigated the predictions of the PFS model that most closely reflect its central assumptions: import subsidies for all politically unorganized import-competing sectors and export taxes for all politically unorganized export sectors. These predictions involve instruments that are *not* constrained by international trade agreements and are therefore free of the issues that prevented the use of conventional tariffs. But it appears obvious that these predictions are not borne out by the facts.

Thus the empirical work has not provided support for the PFS model itself (apparently the CD issue dominates). But it has given powerful evidence that, in politically organized import-competing sectors, protection is negatively related to the import-penetration ratio, presumably reflecting the tug between sectoral special interests and consumer surplus central to most political-economy approaches to trade policy. See Ethier (2006). Also in such sectors, protection appears to be negatively related to the domestic elasticity of import demand. Furthermore, this literature argues persuasively that distinguishing between politically organized and unorganized sectors is crucial to understanding this dependence.

²McCallum (2004) is an exception.

So we have support not for the PFS model in particular, but for “something else.” What else? The general political-support approach makes just those predictions that have been verified and is free of the issues, attending the PFS model, mentioned above. Thus the empirical literature can be interpreted as providing strong evidence for the general political-support approach, but not for its PFS variant.

This is a notable accomplishment. In my mind it is the most valuable contribution to date in the large empirical literature addressing the political economy of trade policy. And the PFS model, by supplying **(9)** in explicit form, was critical in stimulating this contribution. However, the more general approach does not derive the political-support function from microeconomic fundamentals, so the **BB** issue remains. Thus the empirical literature, intriguing as it is, cannot be interpreted as successfully confirming a structural model derived directly from a theory based on microeconomic fundamentals. More work is called for.

The empirical literature on the PFS model uses its parameter estimates to infer the size of the structural parameter β , the weight the government attaches to social welfare. Typically this weight turns out to be quite high: The government is seen as valuing social welfare much more than contributions. But since that literature has not succeeded in confirming the structure specific to the PFS model, it is not clear what, if any, significance can be attached to this seemingly optimistic inference.

Key points about the PFS variant. *First*, political support is identified with contributions (bribes).

Second, the approach is free from the **BB** issue: Both the contributions and the trade policies are derived from microeconomic fundamentals.

Third, the PFS variant is subject to the **CD** issue.

Fourth, for politically organized import-competing sectors the degree of influence is positively correlated with the tariff rate.

Fifth, for organized import-competing sectors the tariff is negatively correlated with the import-penetration ratio.

Sixth, for organized import-competing sectors the tariff is negatively correlated with the elasticity of import demand, at a given import-penetration ratio.

Seventh, unorganized import-competing sectors are characterized by import subsidies.

Eighth, unorganized export sectors are characterized by export taxes.

Ninth, the empirical literature supports those predictions of the PFS model that overlap with the general support-function approach, but fails to support those that distinguish the PFS model from the general approach.

IV. An Analytical Framework for Trade Agreements

I next turn to the political economy of international trade agreements. For this it is convenient first to extend the analytical framework presented in Section II to an international equilibrium with two countries.

Each country may tax or subsidize either imports or exports. For H , let Q_i and P_i denote, respectively, the domestic and international relative price (in terms of the numéraire) of good i , and τ_i one plus the *ad-valorem* trade tax t_i . Thus

$$Q_i = \tau_i P_i$$

for $i = 1, \dots, n$, and

$$Q_j = P_j / \tau_j$$

for $j = n + 1, \dots, N$. Analogous F variables will be distinguished by asterisks.

Equilibrium in the world market for good i , $i = 1, \dots, n$, is represented by

$$M_i(\tau_i P_i) = X_i^*(P_i / \tau_i^*) \quad (10)$$

where M_i and X_i^* respectively denote H import demand and F export supply. H 's import tax and F 's export tax thus determine P_i , independently of other sectors. This in turn implies the following.

$$\frac{\tau_i}{P_i} \frac{dP_i}{dt_i} = - \frac{e_i}{e_i + f_i^*} \quad (11)$$

and

$$\frac{\tau_i}{Q_i} \frac{dQ_i}{dt_i} = \frac{\tau_i}{P_i} \frac{dP_i}{dt_i} + 1 = \frac{f_i^*}{e_i + f_i^*}$$

$$\text{where } e_i \equiv -\frac{\tau_i P_i M_i'}{M_i} > 0 \quad f_i^* \equiv \frac{P_i X_i'}{\tau_i^* X_i^*} > 0 \text{ and}$$

Similarly, equilibrium in the world market for goods $n + 1$ to N can be represented by

$$M_j^*(\tau_j^* P_j) = X_j(P_j / \tau_j).$$

Thus,

$$\frac{\tau_j}{P_j} \frac{dP_j}{dt_j} = \frac{f_j}{f_j + e_j^*}$$

and

$$\frac{\tau_j}{Q_j} \frac{dQ_j}{dt_j} = \frac{\tau_j}{P_j} \frac{dP_j}{dt_j} - 1 = -\frac{e_j^*}{f_j + e_j^*}.$$

H imports of goods $1 \dots n$ need not equal in value H exports of goods $n + 1, \dots, N$: Trade balance is reached with a net exchange of good 0 .

V. International Trade Agreements

The political economy of trade agreements must be derivative from the political economy of protection. As there are variants of the latter, there are variants of the former.

There are two basic approaches to trade agreements. The *terms-of-trade externality approach* sees the sole basis for a trade agreement as the possibility that national governments, conducting national policies, ignore the effects of those policies on trading partners through the terms of trade. Thus all can gain by expanding trade at unchanged terms of trade.

The *exchange-of-market-access approach* sees the attraction of a trade agreement for a national government as due to the fact that such an agreement enables the government to do something for export interests that it cannot do unilaterally. As this applies to all governments, it can serve as a basis for negotiation.

The terms-of-trade externality approach has by far received the most formal attention by trade theorists. But this has not at all been echoed by trade policymakers, who virtually

without exception speak in terms of the exchange of market access. Furthermore, some of the formal papers claiming to espouse the exchange-of-market-access approach actually use an analytical framework equivalent to that of the terms-of-trade externality approach, so that, in essence, they offer only an alternative rhetoric.

The terms-of-trade externality approach

A prominent twentieth-century accomplishment of international trade theory was its theory of international trade policy and trade agreements. Building on Harry Johnson's classic paper (1953/54), scores of contributions developed and elaborated what is now often called the terms-of-trade externality approach. The deservedly influential work of Bagwell and Staiger (1999, 2002) may justly be seen as triumphantly completing the research agenda implied by Johnson nearly half a century earlier. [See also Grossman and Helpman (1995)].

Suppose initially that $N = 1$, so that H imports good 1 from F in exchange for the numéraire good. The H government wishes to maximize the objective function $W(Q, P)$; the subscript 1 is omitted for simplicity. W is assumed to have the following properties:

$$W_1(P, P) > 0, \quad W_2(Q, P) < 0. \quad (12)$$

W can be thought of as an example of a political-support function. The first assumed property, that W can be increased by departing from trade to protect the import-competing sector, allows the political dimension; the second property simply says that a terms-of-trade deterioration lowers W , presumably because of its negative effect on social welfare. This formulation is consistent with many political-economy models, including much of the political-support approach literature such as the PFS campaign-contributions variant.

The F government analogously wishes to maximize the objective function $W^*(1/Q^*, 1/P)$, where $Q^* = P/\tau^*$, and τ^* denotes one plus the F tariff on the numéraire good. W^* is assumed to have the properties:

$$W_1^*(1/P, 1/P) > 0, \quad W_2^*(1/Q^*, 1/P) < 0. \quad (13)$$

Here the political dimension reflects a benefit to the F government from aiding labor via protection, since the import-competing sector in F uses only labor.

The role of trade agreements. If neither government cares about the terms of trade ($W_2 \equiv 0 \equiv W_2^*$), each government's objective depends only upon the respective relative domestic price. This can be controlled unilaterally by each government with trade policy, so

there is no scope for international cooperation about such policies. In this context concern for the terms of trade is necessary to motivate a trade agreement.

Suppose, by contrast, that both governments care only about social welfare. Then global efficiency requires that agents in both countries face the same prices, $Q = Q^*$, indicating that opportunities for gainful trade are being fully exploited. This will be true when $\tau = \tau^* = 1$ [Mayer (1981)]. This *social efficiency locus* includes free trade plus cases where one country taxes imports and the other subsidizes exports, in effect using trade policy to add an international side payment to the free-trade outcome.

However W and W^* include political influences, so there is no reason to believe that social efficiency will coincide with political efficiency. The set of politically efficient policy pairs can be determined by solving the problem:

$$\text{maximize } W(Q, P) \text{ subject to } W^*(Q^*, P) = W_0^*$$

for all feasible values of W_0^* . This problem has the following first-order conditions, for each feasible value of W_0^* :

$$\frac{\partial W}{\partial \tau} + \lambda \frac{\partial W^*}{\partial \tau} = 0$$

$$\frac{\partial W}{\partial \tau^*} + \lambda \frac{\partial W^*}{\partial \tau^*} = 0$$

where λ denotes the Lagrange multiplier. Solving to eliminate λ gives an implicit relation in τ and τ^* : the *political efficiency locus*.

The multiplier λ represents the shadow cost to each government in being constrained in its policy choice by the size of the negative externality it can impose on the other government. In the Nash equilibrium (where each government is implementing the tariff that maximizes its own objective function given the tariff chosen by the other government) λ is in effect set at zero, whereas it is positive along the political efficiency locus. Thus there is something to be gained by cooperation. So, in the present framework: *A desire to deal with a terms-of-trade externality can motivate a trade agreement, and it is the ONLY thing that can motivate a trade agreement.*

Reciprocity. Such a trade agreement is necessarily reciprocal in the sense that each country is departing from its Nash tariff in exchange for its partner doing the same. But the central role of the terms of trade in the present framework suggests a natural precise definition of reciprocity. Let P_0 denote the value of P that obtains in the Nash equilibrium. Then a *price-reciprocity schedule* can be defined as the set of all $\tau - \tau^*$ pairs that satisfy:

$$M(\tau P_0) = X^*(P_0 / \tau^*).$$

Along this schedule,

$$\frac{\tau d\tau}{\tau^* d\tau^*} = \frac{f^*}{e}.$$

A trade agreement implemented on the price-reciprocity schedule involves the two countries altering their trade policies in such a way as to keep the terms of trade unchanged.

Figure 2 illustrates the terms-of-trade externality approach. The *SEL*, *PEL*, and *PRS* curves respectively depict the social efficiency locus, the political efficiency locus, and the price-reciprocity schedule. *N* and *TA* illustrate the Nash equilibrium and an efficient trade agreement. As the two governments move from *N* towards *TA* along *PRS* they are reciprocally reducing their tariffs so as to leave the terms of trade unchanged. The tariff reductions generate beneficial reductions in the consumption costs and production costs caused by the tariffs, but they also generate political costs. Initially the efficiency benefits outweigh the political costs because of the terms-of-trade externalities in place at *N*. Beyond *TA* further political costs begin to outweigh further efficiency benefits.

TA is an efficient reciprocal trade agreement in the sense that any other agreement on *PRS* could be renegotiated to the mutual benefit of both countries. If governments cared only about social welfare, *TA* would coincide with *S*; if governments were unconcerned with the terms of trade, *N* would be at *TA*.

Key points about the terms-of-trade externality approach. *First*, this approach takes the government objective functions W and W^* as given. But this is *not* an example of the **BB** issue. Rather, it is a source of generality since many models featuring government behavior based on microeconomic fundamentals are special cases of these objective functions.

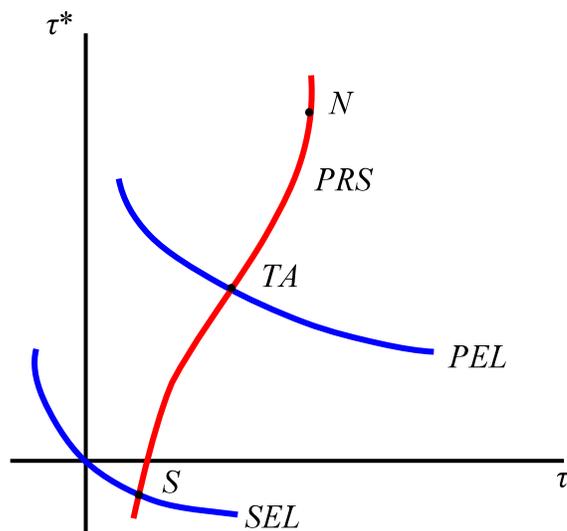


Figure 2

Second, the approach does display the **CD** issue. Indeed, it does so in an extreme form, as it posits that government concern for the terms of trade, and so for trade-tax revenue, is the *sole* reason for a trade agreement.

Third, the approach sits uncomfortably with actual trade agreements. While WTO members have bound their tariffs on literally thousands of imports, only a few have bound only a few taxes on exports. The WTO explicitly allows the taxation of unbound exports. Thus actual trade agreements do not prevent countries from manipulating their terms-of-trade. At a trade agreement such as *TA* in Figure 2, each country has an incentive to use trade policy to turn the terms of trade in its favor. With the existing GATT/WTO framework of trade agreements, it is fully entitled to do so with export taxes.

In the simple model described above, a trade agreement that bound each country's tariff but left export taxes unbound would be completely meaningless, regardless of its purpose. But that extreme result is an artifact of the two-good assumption. If a country binds tariffs on many imports it does constrain its ability to use trade policy to influence the relative prices of those imports in terms of each other. Thus actual trade agreements do have real effects, but constraining terms-of-trade manipulation is not one of them.

There is one exception to this. The US Constitution prohibits the US government from taxing exports. So, from the terms-of-trade externality perspective this raises the following question: Why does the US sign on to trade agreements that prevent itself from influencing the terms of trade in its favor while imposing no such constraint on its trading partners?

While the GATT/WTO allows countries to tax their exports, it significantly constrains their ability to subsidize exports. That is, it explicitly seeks to deny countries the option of conferring a positive terms-of-trade externality upon their trading partners.

Fourth, although this approach is consistent with much of the political-support literature, it does differ from it in a potentially significant way. That literature emphasizes that political support depends on the perceived *actions* of a government, not on *outcomes*. The approach just described, however, makes political support depend entirely on outcomes: Q and P . In some cases this distinction may not matter — if there is a transparent one-to-one relation between actions and outcomes, for example — but in other cases it may. To see this, consider the following simple example.³ Suppose the H government cares nothing about the terms of trade. Now suppose there is an exogenous, from the H point of view, increase in τ^* . The H government then alters τ to keep Q unchanged. The political support it receives will not change if that support depends only upon outcomes, which have not changed, but it will increase if that support depends upon H government actions, which have changed in response to an event beyond its control.⁴ There is a real issue here, which the terms-of-trade externality approach assumes away.

The exchange-of-market-access approach

A large literature insists that trade agreements seek to *exchange market access*: I'll grant your exporters increased access to my market in exchange for increased access to your market for my exporters. For an institutional approach, see Hauser (1986), Finger (1988, 1991), and Moser (1990); for a more formal approach, see Hillman, Long, and Moser (1995), Hillman and Moser (1996) and Ethier (2008). Bagwell and Staiger use similar terminology to describe their approach. For example, they state (2002, pp 28–29), “we may interpret ‘cost shifting,’ ‘terms-of-trade gain,’ and ‘market-access restriction’ as three phrases that describe ... [a] single economic experience.” The earlier literature, it seems clear, had “something else” in mind. But drawing an analytical distinction has proved elusive, largely because the earlier literature, when it expressed its ideas in formal terms (*e.g.*, Hillman and Moser [1996]), did so in models that, as Bagwell and Staiger (2002, p 20) correctly observe, were

³In this example, I have benefitted from discussions with Don Regan and Bob Staiger.

⁴This conclusion is sensitive to what the H government's “action” actually is. If that government had earlier acted by committing to allow no change in Q , come hell or high water, then its support will not increase as a result of abiding by that commitment. Such an action corresponds to a variable levy, which the WTO now prohibits.

very often special cases of their own. In such cases the distinction from the terms-of-trade externality argument is entirely one of rhetoric, not substance.

The description in Section III of the basic political-support approach can provide a formal basis to define trade agreements based on the exchange of market access and to distinguish them from those that are not. The essential idea behind the exchange of market access seems to be that each country, for whatever reason, agrees to allow increased imports of a particular good in exchange for increased exports of another particular good. That is, such trade agreements are necessarily *inter-sectoral*.

The analytical framework of Sections II and IV features extensive separability: Equilibrium policies in each sector are determined independently of those in the other sectors. With policies in each sector determined independently, there could be an incentive for independent sector-by-sector international negotiations not involving inter-sectoral trade-offs, such as the 1965 US-Canada automobile agreement. In such an *intra-sectoral* negotiation the governments would bargain over t_1 and t_1^* , with any implied change in $M_1 = X_1^*$ settled by a change in the trade volume of the numéraire good.

Consider the following question. With policy determination in each sector independent of that in the other sector, is it *necessary* for trade negotiations to serve a useful purpose that they address inter-sectoral trade-offs? If so, we may regard the negotiations as motivated by a desire to exchange market access: *Trade agreements can be said to be based on the exchange of market access if and only if there is no reason for sector-by-sector negotiations.*

Note that this definition requires the necessity of inter-sectoral negotiations. Since in this analytical framework agents ignore cross-sectional effects, negotiations addressing those effects could well be useful, as would national policy-making addressing those effects. So defining the exchange of market access on the *sufficiency* of inter-sectoral negotiations would not be a useful discriminatory device.

Our analytical framework and discussion of the basic political-support approach in Section II offers no opportunity for an intra-sectoral trade agreement. In sector 1, for example, F is implementing no policy and so can offer H nothing in return for a lower tariff. Thus any trade agreement must be based on the exchange of market access.

To focus on such an exchange in the sharpest possible way, consider a simple trade agreement involving only goods l and $n + l$. Suppose for simplicity that the two implemented tariffs are both prohibitive.

The motive for a trade agreement based on the exchange of market access would be to enable each government to offer its export sector something while taking something less from its import-competing sector. It is true that, with a non-cooperative equilibrium featuring countervailing-duty laws, each government is powerless to offer its export sector something in any other way. But it is not clear that it will be tempted to use this way. The reason is that,

since retreating from the imposed t_1 would impose a first-order cost on H , doing so would be tempting to H only if the implied negotiated benefit for good $n + 1$ is large enough. It is not clear that a trade agreement can be found that would do this for both countries simultaneously.

Now consider a hypothetical trade agreement stipulating $dt_1 < 0$ and $dt_{n+1}^* = \gamma dt_1$ for some parameter γ . Such an agreement will raise the joint surplus in each country, and so be perceived as beneficial by each government, if and only if the following holds.

$$\frac{\partial W_1}{\partial t_1} + \gamma \frac{\partial W_2}{\partial t_{n+1}^*} > 0$$

$$\frac{\partial W_1^*}{\partial t_1} + \gamma \frac{\partial W_2^*}{\partial t_{n+1}^*} > 0$$

This will in turn be possible for some choice of $\gamma > 0$ if and only if the following condition is met.

$$\left(\frac{\partial W_1^*}{\partial t_1} \right) \left(\frac{\partial W_{n+1}}{\partial t_{n+1}^*} \right) > \left(\frac{\partial W_{n+1}^*}{\partial t_{n+1}^*} \right) \left(\frac{\partial W_1}{\partial t_1} \right) \quad (14)$$

Figure 3 illustrates how satisfaction of (14) is equivalent to the existence of a mutually beneficial trade agreement. The vectors labeled \mathbf{t}_1 and \mathbf{t}_{n+1}^* depict the effects of reductions in the respective tariffs on the two joint surpluses. When these vectors have the relative slopes illustrated, reflecting (14), an appropriate linear combination, such as at point TA , will be mutually beneficial.⁵

⁵The attentive reader will recognize this logic as that behind the familiar Hawkins-Simon (1949) condition for the feasibility of an input-output system.

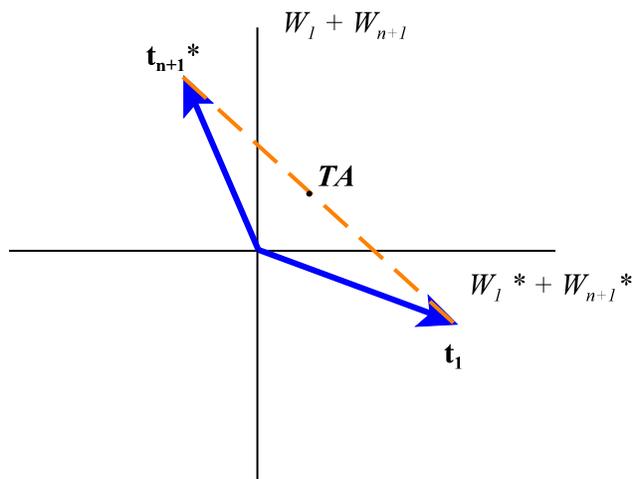


Figure 3

Condition **(14)** in effect requires that, at the margin, tariffs have relatively greater impact on export lobbies than on import lobbies. This is intuitively understandable, and, since in Nash equilibrium the tariffs were set with exclusive reliance on the effects on the latter lobbies, unlikely to be demanding. So we have the following result: *With **(14)** a mutually-beneficial trade agreement is feasible. This agreement is based on the exchange of market access, and it need not constrain export taxes.*

Condition **(14)** may appear problematical. But recall that we have chosen this pair of goods arbitrarily. The existence of a trade agreement based on the exchange of market access requires only that the analog of **(14)** hold for *some* set of goods from both countries. So, this argument can deliver trade agreements resembling those that actually exist.

Key points about the exchange-of-market-access approach. *First*, the terms of trade play no necessary role in this approach, so it is free of the **CD** issue.

Second, the exchange of market access is potentially attractive because it enables governments to confer on exporters benefits that they cannot deliver unilaterally. This is due to the countervailing duty laws suggested by the general support-function approach.

Third, the exchange of market access is inherently an exercise in reciprocity.

Fourth, because it is a consequence of the general support-function view, the exchange-of-market-access approach potentially suffers from the **BB** issue.

Does it matter?

The terms-of-trade externality and the exchange-of-market-access approach offer very different explanations of why trade agreements exist. But they both imply trade agreements with features broadly like what we see. So does it really matter which explanation is more relevant?

My answer is *yes*, because the actual explanation of the reason for a trade agreement can reveal its points of fragility. In a trade agreement as described by the terms-of-trade externality approach a country is tempted to deviate with measures that will improve its terms of trade; in a trade agreement as described by the exchange-of-market-access approach the temptation is to limit foreign access for the benefit of domestic import-competing firms.

These objectives need not be at odds. If a country were brazenly to violate a trade agreement by simply raising tariffs above their bound levels both objectives would be met. Where the difference matters is with the “escape valves” that countries use to adjust how they fulfill their obligations without actually repudiating them. Basically, these exist because there is no international policeman to enforce trade agreements between sovereign states, so, in the end, such agreements must be self-enforcing. This involves providing escape valves and/or tolerating those not explicitly provided for. Understanding the true explanation for trade agreements is essential for understanding these escape valves and for recommending policy about them. There are several classes of such escape valves.

Administered protection. This involves measures that are both sanctioned by the GATT/WTO and embedded into national law: primarily antidumping law, countervailing-duty law, and safeguards, with antidumping the most important in practice. [See Finger, Hall and Nelson (1982) and Ethier (2002)]. Antidumping and countervailing-duty laws do indeed provide for tariffs to be levied, but the basic purpose of such laws is simply to force foreign exporters to raise their prices: If they do so the duties are not levied. In other words, the intent is to limit home market access to foreign firms at the expense of a terms-of-trade deterioration. Safeguards are more complex because of the variety of ways in which they might be implemented, but it seems clear that in practice they are used to retreat from obligations to grant market access.

Voluntary export restraints. Before the Uruguay Round these were the most pervasive forms of escape valves. They were in violation of the GATT but tolerated because no one complained. The Uruguay Round attacked them, partly because they had clearly become a major drag on trade and partly as a component of an implicit bargain between rich countries

and poorer countries to eliminate the Multi-Fiber Arrangement in exchange for adopting measures to protect intellectual property. But they are still indicative of how escape valves are used. Basically, a country pushing for a trading partner to adopt a VER was offering to accept a terms-of-trade deterioration in return for a denial of market access.

Unresolved trade disputes. If one country complains that another has violated its WTO obligations, if the WTO Dispute Settlement Mechanism rules against the defendant, and if the latter refuses to comply, the complainant is ultimately authorized to retaliate. This authorization is explicitly intended to maintain reciprocity in an exchange-of-market-access sense: The complainant may reduce imports from the defendant in the same amount that the defendant's actions have reduced the complainant's exports. It is possible that this test serves as a rough and ready attempt to maintain price reciprocity and that the agents involved just do not appreciate their own true motives. But actual retaliatory acts seem intended either to maximize the political damage to the defendant government or to limit market access to politically sensitive sectors.

Renegotiation. The GATT/WTO does provide a procedure for the renegotiation of concessions. The principle is the same as with unresolved trade disputes: the maintenance of reciprocity in an exchange-of-market-access sense. Similar comments apply.

So. The escape valves clearly involve a concern for the exchange-of-market-access with virtually no terms-of-trade concern. But this should not be interpreted as evidence against the terms-of-trade externality approach. That approach explicitly allows for political considerations. Countries may wish to deviate from trade agreements to get a step up on their partners. But they may also just be reacting to unexpected political developments. In the latter case, a reaction that addresses market access may well be consistent with a trade agreement that was negotiated to deal with a terms-of-trade externality.

Still, the basic fact is that the escape valves address exchange-of-market-access concerns. If the latter is the reason for trade agreements, this is appropriate. But if trade agreements exist to deal with terms-of-trade externalities the escape valves are likely to be seriously, perhaps fatally, deficient. So it matters.

Nondiscrimination

The GATT and the WTO impose nondiscrimination as a basic principle. The tariff that each WTO member imposes on a specific good must be the same for all other WTO members.

Thus there is a sharp distinction between liberalization and discrimination: Liberalization is an issue for negotiation; discrimination is not.

Of course “discrimination” is a negatively loaded word, so that “nondiscrimination” sounds good. But imposing nondiscrimination at the outset simply means that we are ruling out discriminatory trade agreements that might potentially dominate those allowed. Furthermore, we are introducing a free-rider issue: If nondiscrimination is a basic rule, countries have an incentive to refrain from making concessions, knowing that they will benefit from concessions negotiated by other countries.

So why non-discrimination? The facile explanation is that historically countries who were serious about negotiating meaningful trade agreements with other countries did include Most Favored Nation clauses in those agreements. But, more substantively, what does such a requirement do? There are two explanations, and they are not mutually inconsistent. The answers are associated with the terms-of-trade externality approach and the exchange-of-market-access approach respectively, but the logic of each answer applies to the other approach as well.

Relative-price externality. This answer relates naturally to the terms-of-trade externality approach. Suppose some country has tariffs that discriminate between trading partners. Other countries change their policies in response to their own internal goals in ways that result in this country importing more from countries on which it levies low tariffs and less from countries for which high tariffs apply. This makes the country worse off. This could happen even if that country’s terms of trade overall are unchanged. Thus this externality is distinct from the terms-of-trade externality.

Non-discrimination will prevent this relative-price externality. But it is not clear why non-discrimination should be imposed at the outset as a basic principle rather than being the object of negotiation, as is the case for amelioration of the effects of the terms-of-trade externality.

Concession diversion. This answer is more fundamental, as it involves whether trade agreements are possible at all. Suppose that H offers F^1 a reduction of 20% on its tariff on imports of good 1 from F^1 in exchange for a reciprocal reduction of 20% on its tariff on imports of good $n + 1$ from H . (It doesn’t matter whether this is part of a broader multilateral agreement or not.) Both governments view the implied exchange of market access as beneficial. But F^1 would reasonably fear that H might subsequently negotiate a reciprocal tariff reduction of 21% with another exporter of good $n + 1$, say F^2 . This would divert the market access in H that F^1 thought it had obtained to another country instead. Of course H would reasonably entertain a reciprocal suspicion about F^1 . See Schwartz and Sykes (1996),

Horn and Mavroidis (2001), and Ethier (2004). How serious such “concession diversion” would be depends upon how substitutable exports from different countries are for each other. It could well render impossible the negotiation of any trade agreements.

To deal with this issue the trade agreement between H and F^1 could include a Most Favored Nation clause: Each country would guarantee the other that its goods will receive the lowest tariff applied to similar goods from other countries. Thus in the above example, F^1 would have assurance that the 21% reduction that H might subsequently negotiate with F^2 would apply to its own exports as well. This would ameliorate the issue of concession diversion, but it would not eliminate it. F^1 would still fear that the access to H 's market it had negotiated for might subsequently have to be shared with F^2 .

The issue can be eliminated if non-discrimination is made a basic principle, rather than something to be negotiated about on a deal-by-deal basis. In this case concession diversion becomes impossible, and the bargain between H and F^1 will reflect each country's desired trade policy with the rest of the world. The key feature from the point of view of F^1 is not that it has most favored nation status with H , but that all other countries are bound by non-discrimination as well.

With non-discrimination a general principle, the scope for bilateral deals will become exhausted since, to obtain market access from its partner, each country must grant it to all other countries. Such “concession saturation” is akin to the free-rider issue. See Caplin and Krishna (1988), Ludema (1991), and Ethier (2004). Dealing with this requires that bargaining become more truly multilateral. This has indeed been the case: While the earlier GATT rounds consisted basically of collections of bilateral deals (or deals negotiated by a few countries), more recent rounds have involved more substantively multilateral issues, such as bargaining over general tariff-cutting formulas, GATT-wide standards on intellectual property, investment, and so on.

VI. Concluding Remarks

In recent decades the political economy of trade policy has made significant progress. While before it was basically a footnote to the literature on international trade, it is now a major component.

I have argued that much of the literature is characterized either by the **DC** issue (a dramatic contrast between what policy-makers say they are doing and what trade theorists model them as doing) or by the **BB** issue (a lack of microeconomic fundamentals). When one issue is absent, usually the other is there.

But this should not be viewed with dismay. It just means that, though we have come quite a way, we still have much more work to do.

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