

The Politics of Trade Liberalization in the Presence of FDI Incentives

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Abstract

This paper examines whether inward FDI incentives can soften the political constraints associated with trade liberalization. After introducing the role of capital inflows into the political economy of trade framework pioneered by Grossman and Helpman (1994, 1995 and 1996), the paper traces the effects of FDI incentives on the politically sustainable equilibrium level of trade protection. In particular, the paper shows that FDI incentives reduce the politically sustainable level of trade protection when capital-owners are politically organized, while they inhibit the process of trade liberalization when labor is the main influential political force. Welfare implications are also considered.

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1 Introduction

There are many reasons why the interlinkages between trade and foreign direct investment (FDI) have become a much-discussed topic. First, the sheer size of these flows makes them difficult to ignore. Estimates suggest that over the period 1973-1995, the value of annual FDI global outflows increased by 12 fold (from US\$25 billion to US\$315 billion), while the value of merchandise exports multiplied by eight-and-half times (from US\$575 billion to US\$4,900 billion) over the same period.¹ Second, FDI is often seen as one of the main forces feeding the ongoing integration process of the world economy. According to the WTO, the increased importance of foreign-owned production, together with the more or less steady rise in the trade-to-GDP ratio, are "tangible evidence of globalization" (WTO, 1996, p.15).

Traditionally, an open and liberalized investment regime was regarded as an important feature determining the attractiveness of a country as a desirable destination for FDI. According to the 1996 UNCTAD report on FDI, although this feature remains important, it no longer constitutes the predominant element in the determination of FDI destination. Indeed, countries have greatly liberalized their FDI policies, which, as a result, have become increasingly similar. Today, host governments offer extensive *investment incentive* schemes to differentiate themselves as desirable locations for FDI. These incentive schemes include communications infrastructure, marketing networks, favorable business and legal environments and access to innovative capacity. Although earlier studies have argued that incentives do not play an important role in attracting FDI (Reuber et al., 1973; Toye, 1978), their strong and pervasive use across countries indicates the contrary.² Recent empirical evidence suggests that investment incentives can be significant factors in influencing firms' FDI *locational choices* (Devereux and Freeman, 1995; UNCTAD, 1996b; Devereux and Griffith, 1998).

Investment incentives comprise any measurable economic advantages afforded to specific firms or industries by a host government in an attempt to encourage inward FDI. Different types of common FDI incentive measures are presented in Boxes below. While countries differ greatly in both, the level and the type of incentives they propose to attract FDI, these measures can be classified into three broad categories, namely, (i) *financial* incentives (see Box 1); (ii) *fiscal* incentives (see Box 2); and (iii) *indirect* incentives (see Box 3).

¹For the most part, the leading investor countries were also the leading host countries for FDI. In 1995, for example, of the total US\$315 billion FDI flows, US\$203 billion went into OECD area (WTO, 1996).

²Based on their extensive study of inward FDI incentives, Guisinger and Associates (1985) conclude that 50 of the 74 investment projects analyzed over 30 countries (DCs and LDCs) had been influenced by host government incentives. Woodland and Rolfe (1993) present a similar view for inward FDI in the Caribbean countries.

Box 1: Financial Incentives

- Direct subsidies to lower investment-related cost.
- Subsidized loans.
- Loan guarantees.
- Guaranteed export credits.
- Publicly funded venture capital participating in high-risk commercial investment.
- Government insurance at preferential rates to cover risks related to exchange rate volatility, currency devaluation, or expropriation and political turmoil.

Incentives may be granted unconditionally or conditionally (e.g., upon performance requirements); they may be granted automatically under certain conditions or with discretion. Clearly, FDI incentives not only entail a financial burden (in the form of cash outlays or lost revenues) to host governments but they also distort the production structure and the allocation of capital in the host economy.

While the use of FDI incentives is more accepted in practice than in theory, the literature offers several theoretical justifications for them. The theory of externalities (Pigou, 1920) is one of them. In the presence of production spillovers (such as economies of scale, the creation or diffusion of new technology, and skill up-grading), social rates of return may differ from private rates of returns. To optimize social welfare, a government may impose taxes/subsidies that cover this gap. Another approach interprets FDI incentives as a signaling device used by governments to indicate a favorable investment environment (Raff and Srinivasan, 1998). Alternatively, FDI incentives can also result from intense competition between governments for foreign capital (Mintz, 1990; UNCTAD, 1996b).

However, in the context of international trade, this literature sheds little light on the interactions between tariffs and FDI incentives. While a number of theoretical models have addressed certain aspects of this issue, few have tackled the *political* implications of FDI incentives, and how these, in turn, influence the government's set of feasible actions in the context of trade policy. In fact, to our knowledge no paper has traced directly the effects of FDI incentives on the politically sustainable level of trade protection. This is an important omission since both sets of policies are likely to affect the interests of the politically influential interest groups, which, in turn, lobby the government to protect their interests. Thus, the politically sustainable level of trade protection cannot be evaluated solely on the basis of its economic merits from a social welfare point of view, but it also needs to incorporate the political motives of the concerned special interest groups.

Box 2: Fiscal Incentives

- Reductions in and deductions from corporate income-tax rates.
- Accelerated depreciation allowances on capital taxes
- Reductions in social security contributions.
- Incentives based on value-added, including:
 - income tax credits based on the net local content of outputs;
 - income tax credits based on net value earned.
- Import-based incentives, including:
 - tax credits for duties paid on imported material or supplies;
 - exemptions from import duties on parts and inputs related to the production process.
- Export-based incentives, including:
 - exemptions from export duties;
 - preferential tax treatment of income from exports;
 - tax credits based on export performance;
 - income-tax credits based on net local content of exports;
 - income-tax reduction for foreign-exchange transactions.

The main contribution of this paper is to develop an analytical framework that examines whether a government can mitigate the political opposition to trade liberalization by allowing interest groups to lobby not only over the equilibrium level of trade protection but also over the equilibrium level of FDI incentives. To determine the equilibrium policy outcome, we rely on the political economy of trade framework pioneered by Grossman and Helpman (1994, 1995 and 1996). Our model, however, differs from the original Grossman and Helpman framework in two major respects. First, in addition to trade policy we introduce a second policy instrument (FDI incentives) into the domestic policy-making process. This allows us to investigate whether the presence of FDI incentives is likely to facilitate or to hamper trade liberalization. Second, lobbying takes place among two types of factor owners (capital and labor) belonging to the *same* sector (i.e., as opposed to sector-specific lobbying). Thus, in our model, capital-owners and labor lobby jointly over the desired levels of tariffs and FDI incentives.

We obtain three sets of results. The first set of results concerns the conditions under which FDI incentives soften the political constraints associated with trade liberalization. In particular, lobbying over FDI incentives reduces the politically sustainable level of trade protection when capital-owners are politically organized, while it exacerbates the process of trade liberalization when labor represents the main influential political force. The intuition for this result goes as follows. While both interest groups benefit from trade protection, domestic capital owners are most interested in preventing foreign capital inflows, which would reduce their market share. Thus, in return for a reduction in the existing FDI subsidy, the capitalist association is willing to accept a lower equilibrium level of trade protection. This is

why, in the presence of strong lobbying by the capitalist association, FDI incentives can mitigate political opposition against trade liberalization.

Box 3: Indirect Incentives

- Subsidized dedicated infrastructure.
- Subsidized services, including:
 - collection of information related to domestic markets and availability of raw material;
 - assistance to identify sources of finance, to manage projects and to carry-out pre-investment studies.
- Preferential government contracts.
- Closing market to further entry and granting monopoly rights.
- Protection from import competition.
- Special treatment with respect to foreign-exchange, including:
 - special exchange rates and foreign debt-to-equity conversion rates;
 - elimination of exchange risks on foreign loans.

If, however, labor is the most influential lobby group opposing trade liberalization, introducing FDI incentives into the political arena does not soften the political constraints associated with trade liberalization. While labor benefits from both, an FDI subsidy and trade protection, the positive income effects derived from trade protection exceed those derived from an FDI subsidy. Thus, if given the choice, the labor union prefers to lobby for a relatively higher level of trade protection at the expense of a relatively lower FDI subsidy. In this case, FDI incentives *raise* the equilibrium level of trade protection and thereby lower the likelihood of implementing a successful trade liberalization.

The second set of results concerns the welfare consequences of trade liberalization associated with the introduction of FDI incentives. Our model suggests that when both the capitalist association and the labor union participate in the political game, the government achieves a higher level of social welfare if it allows interest groups to lobby over a single policy instrument (tariffs) rather than over two policy instruments (tariffs and FDI incentives). If, however, only one of the political groups is politically active, the welfare effects associated with the introduction of FDI incentives into the political arena can be either positive or negative, depending on the parameter values.

Finally, the third set of results focuses on how political parameters affect the government's objective function and thereby, the optimal policy design. Our model suggest that the highest level of policy intervention occurs when special interest groups participate in the lobbying process, when the politically influential groups represent a relatively small fraction of the population and when the government places a relatively large weight on political contributions.

The remaining of this paper is organized as follows. Section 2 reviews the related literature. In particular, it presents the influence-driven approach to the political

economy of trade literature and discusses the main arguments underlying the relationship between FDI and trade protection. Section 3 outlines the basic framework of the model, while the relevant derivations of the paper are presented in Section 4. Section 5 performs a numerical simulation exercise, assuming a reasonable range for the economic and political parameters of the model. The purpose of this numerical simulation exercise is two-fold, namely, (i) to examine how optimal policy outcomes are influenced by the political parameters of the model; and (ii) to evaluate the welfare consequences associated with the introduction of FDI incentives into the trade policy decision-making process. Concluding remarks are presented in Section 6.

2 Related Literature

In this section, we review quickly the main strands of the literature, which pertain to the present paper. First, we present a brief overview of the influence-driven approach of the political economy of trade literature. Then, we present the main arguments found in the literature, regarding the relationship between FDI and trade protection.

2.1 Political Economy of International Trade

While there exists an abundant and broad literature on the political economy of trade, the present paper is set in the tradition of the influence-driven approach.³ Pioneered by Grossman and Helpman (1994, 1995 and 1996), this approach emphasizes campaign contributions (rather than election outcomes) as the primary motive for influencing policy choices. It stems from the empirical observation that special interest groups often try to use campaign contributions to influence politicians' positions.⁴ In this context, political contributions can be thought of as either, campaign contributions, financial bribes, or simply some demonstration of political support. The government, on the other hand, is assumed to maximize a political objective function which depends on both, the level of contributions it collects from the special

³In addition to the influence-driven approach, the political economy of international trade literature can be classified into four further approaches, namely, the *tariff-formation approach*, which links the degree of trade protection afforded to a special interest group to the amount of lobbying resources deployed by this group relative to its competitors (Findlay and Wellisz, 1982); the *political support-approach*, which views trade policy as the outcome of an optimizing problem in which the government trades off political support from special interest groups against the dissatisfaction of all consumers (Hillman, 1982 and 1989; Long and Vousden, 1991); the *direct democracy approach*, which views trade policy as the outcome of majority voting (Mayer, 1984); and the *electoral competition approach*, which views political contributions as a motive to promote the electoral prospect of a preferred candidate (Magee, Brock and Young, 1989; Austen-Smith, 1991; Mayer and Li, 1994). For excellent surveys of political economy of trade, see also Helpman (1997) and Rodrik (1995).

⁴For empirical support, Grossman and Helpman (1994) cite the work by Magelby and Nelson (1990) where lobby groups are shown to be more likely to offer political contributions to incumbent candidates (who are in a position to influence policy outcomes), as opposed to political challengers (whose actions can affect election outcomes).

interest groups and the well-being of the general public.⁵ The government chooses its policy stance, knowing how each policy choice will affect the amount of political contributions it will receive from the various lobby groups.

In Grossman and Helpman (1994), trade policy is determined by only three variables (import elasticity, import-penetration ratio, and whether or not an industry is represented by a lobby). This model predicts that: (i) trade protection is higher in politically organized industries; (ii) trade protection is negatively related to the import elasticity; (iii) trade protection is positively correlated to import penetration in the case of non-organized groups, while it is negatively correlated in the case of politically organized groups. Goldberg and Maggi (1999) test these predictions and find that the model fits the data reasonably well.

Grossman and Helpman (1994) study specifically how sector-specific lobbying of owners of fixed factors influence trade policy in a small open economy. While each sector may be politically represented, only the owners of sector-specific factors lobby for protection, leaving the interests of consumers unrepresented. In contrast, Rama and Tabellini (1998) model a situation where different factor owners (capital and labor) belonging to the same sector lobby the government over two distortionary policies (tariffs and a minimum wage). While the interests of capital and labor coincide with respect to trade policy, they clash with respect to labor policy. In equilibrium, lobbies are able to determine the direction of trade policy outcomes, but find it much more difficult to influence labor policy outcomes. This paper reveals the importance of examining how one policy (say, trade policy) affects the equilibrium of another policy (minimum wage).

Using a similar framework, Magee (1998) examines how the existence of trade adjustments assistance (TAA) affects the equilibrium level of tariffs and welfare in an economy. The economy consists of two sectors, a declining sector and a rest-of-economy sector. The declining sector uses both, labor and industry-specific capital and the rest-of-economy sector uses only labor. Again, the government controls two policy instruments: tariffs and TAA, where TAA is modeled as a lump-sum payment to workers who exit the declining sector. TAA are found to raise the equilibrium tariff level and to lower welfare when the government cares highly about social welfare relative to campaign contributions. This is contrary to the conventional wisdom of international trade theory, which predicts that trade adjustment assistance, by paying off interest groups to reduce their lobbying efforts against trade liberalization, always lowers the equilibrium level of tariffs. Again, Magee's paper highlights the need to carefully examine how different policies affect a government's set of politically feasible actions.

In the same spirit, the model presented below examines how the introduction of FDI incentives into the lobbying game may strengthen or hamper the political support for trade liberalization. Before turning to the basic framework of this pa-

⁵Grossman and Helpman (1996) present some theoretical underpinnings for this common specification.

per, we briefly discuss next the main theoretical and empirical issues regarding the relationship between FDI and trade protection.

2.2 FDI and Trade Protection

A large body of economic literature has focused on the question as to why a foreign firm may choose to invest in a foreign market rather than to trade with it and, in particular, whether trade crowds out or stimulates FDI.⁶ To date, the conventional wisdom on this issue tends to perceive exports and FDI as complementary to each other, rather than mutually exclusive.⁷ By and large, however, trade economists do not seem to have participated much to the debate of how multinational ownership affects trade liberalization scenarios. There are, however, a few important exceptions.

Markusen (1997), for example, constructs a theoretical model to show how the liberalization of trade may lead to quite different outcomes than the liberalization of FDI, and how the combination of the two types of liberalization leads to quite different outcomes than either alone. In his model, the simultaneous liberalization of trade and investment is clearly welfare-improving. This would suggest a positive correlation between a government's willingness to implement trade liberalization policies and its willingness to implement FDI-friendly policies.⁸ This result is largely supported by the observation that the largest share of FDI takes place among developed countries, which have also been the most forceful advocates of large regional trading blocs (such as, the EU, the NAFTA and the ASEAN).

By modelling explicitly the use of FDI incentives, Motta and Norman (1996) show that when a member country considers offering investment incentives to extra-regional firms, both, the minimum subsidy needed to induce inward FDI and the

⁶In particular, to explain FDI activities, the literature relies on three broad hypotheses, namely, (i) the *factor-proportions hypothesis*, which states that multinational firms fragment production across borders to exploit differences in international factor prices due to divergences in factor endowments (Helpman, 1985; Helpman and Krugman, 1985); (ii) the *proximity-concentration hypothesis*, which focuses on a multinational firm's trade-off between establishing production in close proximity to customers and specializing production in one location (Horstmann and Markusen, 1992; Brainard, 1997); and (iii) the *internalization hypothesis*, which assumes that multinationals possess proprietary advantages, such as asymmetric information, control over quality and technology diffusion (Ethier, 1986; Dunning, 1988; Ethier and Markusen, 1996). For a recent discussion on the literature on multinational firms and the theory of international trade, see Markusen (1995), Caves (1996), Markusen and Venables (1996), and Lipsey (1999).

⁷While Lipsey and Weiss (1981, 1984) support the view that FDI and exports occur simultaneously, Ray (1989) presents slightly less conclusive results. See Caves (1996) for a general review. More recently, Brainard (1997) presents convincing evidence that the *share* of foreign affiliate sales in the total of exports and affiliate sales is positively related to trade barriers and transport costs.

⁸The author points out, however, that while governments may be keen to attract FDI, domestic firms may not all share their enthusiasm. This suggests that, if governments want to foster an environment conducive to trade liberalization, they must take into account not only the social welfare implications of their policies, but also the political and economic motivations of the economic agents most likely to lobby against these policies.

maximum subsidy willing to be paid on the part of the host country, decrease with greater market accessibility (i.e., with lower intra-regional barriers to trade). Thus, a country that considers offering investment incentives to encourage FDI by extra-regional firms has an interest to ensure that intra-regional barriers to trade are as low as possible.⁹ Here again, trade liberalization policies tend to be positively correlated with pro-FDI policies. This result is consistent with the observation that the United Kingdom has been a strong supporter to remove intra-regional barriers to trade, while offering significant incentives to Japanese manufacturing firms wishing to establish operations in the EU.

So far, however, none of these treatments shed much light on the way in which inward FDI may affect the prospects of trade liberalization. In an attempt to fill this gap in the literature, some economists have pointed out that inward FDI may play a special role in the determination of trade policy. The literature refers to this phenomenon as either *tariff-jumping* FDI (when FDI reacts to existing tariff or non-tariff barriers) or *quid-pro-quo* FDI (when FDI responds to the threat of future protectionist measures)¹⁰.

Ellingson and Wärneryd (1999), for example, show that import-competing industries may not always choose to extract the maximum level of trade protection from the government. Rather, because inward FDI could be even less desirable than import competition, domestic firms want the highest level of protection that is consistent with the foreign firm staying abroad. Thus, according to their model, when FDI presents an easy alternative to exporting, inward FDI may operate as a threat and hence, may lower the optimal level of trade protection. Alternatively, however, Blonigen and Ohno (1998) present a model where foreign firms, which have already located their production in the home country, try to *increase* the level of protection to provide barriers against future foreign competitors. These seemingly contradictory results highlight the importance of understanding not only the overall economic interests at stake but also the political motivations of the politically influential members of the society.

In this respect, Blonigen and Figlio (1998) present an interesting empirical work examining the effects of FDI on trade protection. By looking at how patterns of FDI affect U.S. congressional voting patterns on trade issues, they find compelling evidence

⁹As the authors point out, this set-up evades an important strategic dimension. For example, if two noncooperative member countries compete for inward FDI, they will try to outbid their competitors by offering higher subsidies than they would under no competition. The winners are the extra-regional firms, who collect a larger subsidy.

¹⁰An often-cited example is the Japanese automobile industry, which began producing in the United States and in the European Union following the imposition of the so-called "voluntary export restraint" (VERs) agreements. While Motta (1992) relies on the tariff-jumping argument of FDI, a standard model of explicit *quid-pro-quo* FDI is found in Bhagwati et al. (1992). Grossman and Helpman (1996a) develop the notion of *quid-pro-quo* FDI in the context of the influence-driven approach to the political economy of trade literature. Further references are presented in Wong (1995).

that FDI influences indeed legislators' behavior, although not always in a way that is consistent with the standard quid-pro-quo arguments. In particular, they find that while inward FDI tends to soften the protectionist stance of those legislators, who already exhibited a leaning towards free trade prior to the inflow of foreign capital, it tends to strengthen the protectionist stance of those legislators, who started with an anti-free trade position. Again, the asymmetric nature of these results opens up important questions about the political-economy implications of domestic policies and highlights the need to forge a better understanding of the pattern of political support towards liberalization programs.

The present paper is not about examining the economic justifications of trade versus FDI liberalization. Nor is it about presenting an economic rationale for why a host government may wish to offer incentives to encourage FDI. But rather, the purpose of this paper is to examine whether inward FDI incentives can soften the domestic political constraints associated with trade liberalization. Indeed, to foster an environment conducive to trade liberalization, a government must not only take into account the social welfare implications of its policies, but it must also understand the political and economic motivations of the people most affected by these policies and hence, most likely to lobby against these policies. Thus, we address how the government's willingness to introduce a second policy instrument (inward FDI incentives) affects its ability to liberalize trade. We will now turn to our basic framework of our model.

3 Basic Framework

3.1 Economic Structure

Consider a small open economy with two sectors, which can be labelled, respectively, agriculture and manufacturing. There are two factors in this economy, labor and capital. No international migration is allowed. Thus, the total quantity of labor is fixed and equal to L . Labor can be allocated either to the agricultural sector (l_a) or to the manufacturing sector (l). The total stock of capital in this economy consists of a fraction θ of domestically-owned capital and a fraction $(1 - \theta)$ of foreign-owned capital. The stock of domestic capital is assumed fixed. Thus, changes in the total stock of capital can only be induced through international capital flows.

The production of the agricultural good requires only labor, according to a constant return technology. We assume that the labor supply, L is large enough to ensure a positive output of this good. Then, we can normalize the competitive wage rate to unity. Moreover, the price of the agricultural good is chosen as the numeraire. Thus, while p^* is the international price of the manufacturing good, the price of the numeraire good is equal to one. The manufacturing sector uses both capital and sector-specific labor. Without loss of generality, the manufacturing sector is assumed to be made up of only one firm, which uses a Cobb-Douglas technology of the type

$f(k, l) = k^b l^c$. This economy is small, in the sense that it can influence neither the international rate of return to capital, r^* , nor the international goods price, p^* . We assume a perfectly competitive capital market, in the sense that the domestic rate of return to capital is always equal to the international rate of return to capital ($r^d = r^*$).

The government's policy options are limited to two instruments, namely, (i) ad-valorem trade tariffs/subsidies, and (ii) ad-valorem capital taxes/subsidies. Both of these instruments drive a wedge between the international and the domestic prices. In the case of trade protection, this wedge is represented by $p - p^*$, where $p = \tau p^*$. $\tau > 1$ represents one plus the tariff (subsidy) rate on the import (export) good, while $\tau < 1$ represents an import subsidy (export tax). Similarly, the capital policy drives a wedge between the net (subsidy-inclusive) domestic rental rate of capital and the international rental rate of capital, which is represented by $r^n - r^*$, where $r^n = s r^d$. If $s < 1$, capital is taxed and foreign capital flows out of the domestic economy. Alternatively, if $s > 1$, capital is subsidized and foreign capital flows into the domestic economy.

In this model, where the domestic stock of capital is fixed, the main role of a capital subsidy is to induce foreign investors to invest their capital in the domestic economy. Indeed, a capital subsidy, which raises the net (subsidy-inclusive) domestic rental rate above the international rental rate, induces an inflow of foreign capital. Under perfect capital markets, this inflow of foreign capital occurs instantaneously and until the net (subsidy-inclusive) rental rate is equal to the international rental rate (or, until $r^n = r^*$). The domestic capital owners, who always receive r^* , are unaffected by the capital subsidy and the capital tax/subsidy always act as an FDI tax/subsidy.

Finally, through these two instruments, the government collects tariff revenues and capital transfers and redistributes the government surplus equally among the total population using a (neutral) head tax/subsidy.

3.2 Political Structure

Total population is made up of N individuals. Individuals are assumed to hold only one type of endowment, either labor or capital. This implies that capital owners do not need to work as wage earners to make a living. Each domestic citizen collects income from two sources. She earns the return to her individually-owned factor of production. She also receives a fraction of government surplus, which consists of the sum of consumer surplus, tariff revenues and capital transfers.

There are inherent conflicts between the agents in an economy. For example, while producers benefit from a higher prices for their own products, they prefer a lower price for the goods for which they are net consumers. We assume that some of these agents are able to overcome the free-rider problem associated with collective action (Olsen, 1965). As in Grossman and Helpman (1994), this process is treated as exogenous. Thus, a fraction α_k of the voting population is organized in a capitalists'

association, while a fraction α_l is member of a labor union. Individual factor owners enter the political process only as voters.¹¹

As a group, factor owners can offer political contributions in an effort to influence policy outcomes. Influence-driven contributions are modeled as in Bernheim and Whinston's (1986) common agency problem.¹² Special interest groups seek to maximize the well-being of their members. They express their preferred policy outcomes in the form of contribution schedules. That is, for each possible policy outcome, they present the incumbent government with a schedule of corresponding contributions. It is assumed that the government maximizes a political objective function which depends on both, the level of contributions it collects and the well-being of the general public. Once the government chooses an action, all of the special interest groups pay the contributions stipulated in their schedules. Thus, the government chooses its policy stance, knowing how each policy choice will affect the amount of political contributions it will receive from the various lobby groups. An equilibrium requires two conditions, namely, (i) that each lobby group offers a contribution schedule which maximizes the well-being of its members given the actions of the other lobbies, and (ii) that the government chooses a policy outcome which maximizes its political objective given the contribution schedules offered by the lobbies.¹³

Note the crucial timing of this game. First, the lobby groups simultaneously commit to their contribution schedules. Then, the government chooses its policy stance, after having observed the structure of these political contributions. Although the lobby groups play a non-cooperative Nash game with each other, they recognize that the government ultimately chooses the policy which maximizes its political objective function and thus, incorporate the impact of their own choices on the government's maximization problem.

The present model interprets policy outcomes as a trade-off between the social costs associated with distortionary policies and the benefits of these policies captured by various political actors. While the latter is expressed in terms of the economic parameters of the model, the former are expressed in terms of the political parameters of the model.

¹¹The government is not allowed to accept political contributions from foreigners. In footnote 10, Grossman and Helpman (1995) discuss the implications of relaxing this assumption.

¹²In particular, influence-seeking activities are modeled as a *menu auction* game, where bidders announce a menu of offers for various possible actions open to an auctioneer and then pay the bids associated with the action selected (Bernheim and Whinston, 1986). In the present context, special interest groups (the *principals*) try to induce the government (the *agent*) to take an action that may be costly for the government to perform.

¹³Bernheim and Whinston (1986) show that under quasi-linear preferences, a noncooperative menu auction between the principals yields an efficient equilibrium. Dixit, Grossman and Helpman (1997) generalize this result by demonstrating that even under general preferences, the agent's actions yield an efficient outcome for all players (that is, for both, the principals and the agent).

3.3 Government

Following Grossman and Helpman (1994), the government maximizes a weighted average of social welfare and of political contributions it receives from the various lobby groups. Thus, the government maximizes

$$\Phi(\mathbf{p}, \mathbf{s}) = aW(\mathbf{p}, \mathbf{s}) + C_k + C_l \quad (1)$$

where C_x (for $x = k, l$) represents the compensation that the government collects from lobby group x in return for a given policy action. a represents the "government's weighting of a dollar of social welfare compared to a dollar of campaigning contributions, considering both the perceived political value of funding and the indirect cost associated with contributor's loss of welfare" (Grossman and Helpman, 1995, p.682).¹⁴ The larger a , the more weight is placed on the well-being of voters relative to contributions. Gross social welfare (that is, pre-contributions) can be expressed as the sum of aggregate income to each domestically-owned factors of production, consumer surplus, tariff revenues and capital transfers.

$$W(\mathbf{p}, \mathbf{s}) = w_a l_a + wl + \theta s \pi(\mathbf{p}, \mathbf{s}) + CS(\mathbf{p}) + TR(\mathbf{p}, \mathbf{s}) - (s - 1)r^d k \quad (2)$$

While the first term represents labor income in the agricultural sector, the second term represents wage earnings to manufacturing workers, and the third term represents the fraction of income accruing to domestic capital owners. Gross capital rents are given by $\pi(\mathbf{p}, \mathbf{s}) = pf(k, l) - wl$, where p is the domestic relative price of the manufacturing good. Consumer preferences are given by $q_a + u(q)$, where q_a and q represent, respectively, the quantity demanded of the agricultural and manufacturing good. We assume that consumers have identical preferences, such that the utility of a representative consumer is given by $u(q) = [\Psi q - \frac{q^2}{2}]$ with the demand implicitly defined by $u'[d(p)] = p$. For simplicity, the demand for the manufacturing good is assumed to take a simple linear form, $d(\mathbf{p}) = \Psi - p$. Assuming that all domestic production is geared towards domestic consumption, consumer surplus can then be expressed as $CS(\mathbf{p}) = N\{u[d(\mathbf{p})] - pd(\mathbf{p})\}$. Tariff revenues are defined in the usual way by $TR(\mathbf{p}, \mathbf{s}) = (p - p^*)[Nd(p) - f(k, l)]$. Finally, $(s - 1)r^d k$ represents the transfer payments from the government to capital owners resulting from the capital tax/subsidy. Note that this term is positive in the case of an FDI subsidy and negative in the case of an FDI tax.

In equilibrium, the marginal change in policy x (for $x = p, s$) must raise contributions by just enough to offset the loss in social welfare due to the implemented policy x . When determining the political equilibrium level of either FDI incentives or trade

¹⁴See Grossman and Helpman (1996) for a theoretical justification. Empirically, Goldberg and Maggi (1997) estimate a to be between 50 and 88 using 1983 data on US non-tariff barriers. Although this estimate seems surprisingly high and may not taken at face value, it suggests that social welfare has a substantial weight in the government's objective.

protection, the government chooses the vector of policy instruments that satisfies, respectively,

$$-a \frac{\partial W(\mathbf{p}, \mathbf{s})}{\partial s} = \frac{\partial C_k}{\partial s} + \frac{\partial C_l}{\partial s} \quad (3)$$

$$-a \frac{\partial W(\mathbf{p}, \mathbf{s})}{\partial p} = \frac{\partial C_k}{\partial p} + \frac{\partial C_l}{\partial p} \quad (4)$$

3.4 Lobbying

This economy is comprised of two lobby groups, namely, (i) a capitalist association, and (ii) a labor union. By assumption, agricultural workers do not engage in lobbying activities to influence economic policy outcomes. Each lobby group maximizes its net income, that is, net of political contributions.

3.4.1 Capitalist Association

The objective of the capitalists' association is to maximize the well-being of its members, which is given by

$$V_k(\mathbf{p}, \mathbf{s}) = \Delta_k [\theta s \pi(\mathbf{p}, \mathbf{s})] + \alpha_k \{CS(\mathbf{p}) + TR(\mathbf{p}, \mathbf{s}) + (1 - s)r^d k\} - C_k \quad (5)$$

where Δ_k represents the fraction of capital owners that are organized politically in an association. This parameter ranges between 1 and 0. If it is equal to one, every domestic capital owners belongs to the association. If it is equal to zero, none of the domestic capital owners are members of the association, in which case no association exists.¹⁵ This parameter reflects the importance of the association, relative to the total number of capital owners in the economy. The parameter α_k , on the other hand, represents the fraction of voters belonging to the association and reflects the size of the association, relative to the total voting population.

Capital owners may lobby for two reasons, namely, (i) to capture higher real income as capital owners, and (ii) to promote their general interests as recipients of government surplus. In the short-run, or, in the absence of tariff-jumping FDI, capital owners benefit from trade protection because it raises the domestic price of their manufacturing good. Since workers are assumed to be paid the marginal productivity of their labor, firms may have to pay higher wages following the increase in the domestic price. Whether domestic capital owners or manufacturing workers benefit the most from trade protection in the short run depends largely on the technological

¹⁵This is drawn from Grossman and Helpman (1994, 1995), who assume a binary variable, which equals to one if the group is organized politically and zero if it is not organized.

parameters of production and eventually, on the bargaining power of the respective groups. In the long run, higher trade barriers attract FDI. After the complete re-optimization of the manufacturing production process, the income of domestic capital owners returns to that under free trade. Nevertheless, capital owners may still support trade protection in the long run, and especially so if the ownership of capital is loosely concentrated. This is because import tariffs enter as tariff revenues, which are re-distributed equally among the population, of which capital owners make up a large percentage.

Capital owners favor capital subsidies, as long as capital markets are either closed or when there is some rigidity in the domestic capital markets which prevents the domestic rental rate from instantaneously equalizing the international rental rate. In the long run, however, once foreign capital has flown into the country up to the point where the net domestic rental rate (i.e., inclusive of the capital subsidy) equals the international rental rate, domestic capital owners do not gain directly from a capital subsidy. Indirectly, however, they bear a fraction of the cost of subsidies. Thus, if the ownership of capital is highly concentrated, domestic capital owners may not value very much this cost, of which they bear a relatively small proportion. Instead, they may support capital subsidies in order to reap the short run profits from trade protection.

The capitalist association designs its contribution schedule so as to maximize the well-being of its members, $V_k(\mathbf{p}, \mathbf{s})$. In equilibrium, the marginal change in political contributions must equal the change in the association's gross welfare associated with the implementation of FDI incentives. The association's contribution schedules that map possible FDI incentives and trade policy outcomes into corresponding contributions must satisfy, respectively,

$$\frac{\partial C_k}{\partial s} = \frac{\partial \Delta_k \theta s \pi(\mathbf{p}, \mathbf{s})}{\partial s} + \alpha_k \left\{ \frac{\partial CS(\mathbf{p})}{\partial s} + \frac{\partial TR(\mathbf{p}, \mathbf{s})}{\partial s} + \frac{\partial (1-s)r^d k}{\partial s} \right\} \quad (6)$$

$$\frac{\partial C_k}{\partial p} = \frac{\partial \Delta_k \theta s \pi(\mathbf{p}, \mathbf{s})}{\partial p} + \alpha_k \left\{ \frac{\partial CS(\mathbf{p})}{\partial p} + \frac{\partial TR(\mathbf{p}, \mathbf{s})}{\partial p} + \frac{\partial (1-s)r^d k}{\partial p} \right\} \quad (7)$$

Contribution schedules that are differentiable at least around their equilibrium points, are referred to as *locally truthful* (Bernheim and Whinston, 1986). This means that in the neighborhood of the equilibrium the contribution schedules reflect the true preference of the lobby groups and are stable to non-binding communication among the players (i.e., they are "coalition-proof"). Local truthfulness is an important property of this model. It provides a microeconomic justification for modeling the government's behavior as maximizing a social welfare function that "weights different members of society differently, with individuals represented by a lobby group receiving a weight of $(1+a)$ and those not so represented receiving the smaller weight a " (Grossman and Helpman, 1994, p.841).

3.4.2 Labor Union

The objective of the labor union is to maximize the well-being of its members, which is given by

$$V_l(\mathbf{p}, \mathbf{s}) = \Delta_l(wl) + \alpha_l\{CS(\mathbf{p}) + TR(\mathbf{p}, \mathbf{s}) + (1 - s)r^dk\} - C_l \quad (8)$$

where Δ_l represents the fraction of manufacturing workers that belong to the labor union. This parameter can range anywhere between 1 and 0. While this parameter reflects the significance of the union, relative to the total labor pool in the economy, α_l reflects the size of the union, relative to the total voting population.

Manufacturing workers lobby for two reasons, namely, (i) to earn higher wages and (ii) to maximize their general interests as recipients of government surplus. Generally, the labor union will tend to support both, trade protection and capital subsidies. Since the wage in the manufacturing sector is determined by the marginal productivity of labor in this sector, manufacturing workers' income is positively related to the domestic price and to the total capital stock. In the long run, workers gain from an inflow of capital, whether induced through FDI incentives or through higher tariff walls. In the short run, the net benefits accruing to labor depend largely on the technological parameters and on the union's relative bargaining power. Nevertheless it is true that unless the increase in worker's real income is large enough to outweigh the deadweight losses caused by trade protection and/or FDI incentives, the labor union will oppose policy intervention.

The labor union designs its contribution schedule so as to maximize the well-being of its members, $V_l(\mathbf{p}, \mathbf{s})$. In equilibrium, the marginal increase in political contributions must be equal to the marginal increase in the union's well-being. In equilibrium, the union's contribution schedules that map possible FDI incentives and trade policy outcomes with corresponding contributions must satisfy, respectively,

$$\frac{\partial C_l}{\partial s} = \frac{\partial \Delta_l wl}{\partial s} + \alpha_l \left\{ \frac{\partial CS(\mathbf{p})}{\partial s} + \frac{\partial TR(\mathbf{p}, \mathbf{s})}{\partial s} + \frac{\partial (1 - s)r^dk}{\partial s} \right\} \quad (9)$$

$$\frac{\partial C_l}{\partial p} = \frac{\partial \Delta_l wl}{\partial p} + \alpha_l \left\{ \frac{\partial CS(\mathbf{p})}{\partial p} + \frac{\partial TR(\mathbf{p}, \mathbf{s})}{\partial p} + \frac{\partial (1 - s)r^dk}{\partial p} \right\} \quad (10)$$

4 Basic Story

So far, we have set-up the basic framework for our analysis. Now, we can investigate the political and economic motivations underlying a government's trade-off between attracting FDI and erecting trade barriers. This is done in three steps. First, in Section 4.1 we derive the optimal level of trade protection, assuming an exogenous

level of FDI incentives. For the sake of completeness, we differentiate between the case when FDI does not respond to higher tariff barriers (a phenomenon referred to as *non-tariff-jumping* FDI behavior) and the case when FDI responds to higher trade protection (a phenomenon referred to as *tariff-jumping* FDI behavior). Then, in Section 4.2, we consider the equilibrium level of FDI incentives, assuming an exogenous level of trade protection. Finally, in Section 4.3, we relax both exogeneity assumptions and determine the joint optimal levels of FDI incentives and of trade protection. In particular, for each level of FDI incentives, we derive the corresponding optimal level of import tariffs and vice-versa, for each level of trade protection, we derive the corresponding optimal level of FDI incentives. Let us start now with the optimal trade policy, assuming an exogenous level of FDI incentives.

4.1 Lobbying for Trade Protection

According to the basic framework presented in Section 3, we can solve for the equilibrium level of trade protection, p , by optimizing the government's objective function and by solving it recursively, taking the contribution schedules of the respective lobbying groups as given. In particular, this implies substituting the lobbyists' respective contribution schedules given in equations (7) and (10) into the government's first-order condition given in equation (4). This yields the following expression:

$$(p - p^*) = \frac{(a + \Delta_l)l \frac{\partial w}{\partial p} + (a + \Delta_k)s \left[\theta(r^d \frac{\partial k}{\partial p} + k \frac{\partial r^d}{\partial p}) + \theta_p r^d k \right]}{- (a + \alpha_t)(Nd' - f_k \frac{\partial k}{\partial p})} \quad (11)$$

$$\frac{- (a + \alpha_t)[f + (s - 1)(r^d \frac{\partial k}{\partial p} + k \frac{\partial r^d}{\partial p})]}{- (a + \alpha_t)(Nd' - f_k \frac{\partial k}{\partial p})}$$

Expression (11) is consistent with the political equilibrium level of trade protection derived in Grossman and Helpman (1994). In particular, it expresses the political support motives for trade protection as a balancing act between the deadweight loss associated with lower import demand and the income gains captured by special interest groups. But in contrast to the political economy of trade function derived in the original 1994 Grossman and Helpman model, equation (11) accounts explicitly for the interactions between trade protection and foreign capital inflows.

While the denominator expresses the deadweight loss associated with lower import demand, the numerator expresses the income gains captured by special interest groups. In particular, the first term in the numerator represents the wage effect from trade protection. *Ceteris paribus*, the equilibrium trade protection is higher, the more the government values social welfare and the stronger is the labor union.

The second term in the numerator represents the way in which foreign capital inflows affect the returns to the domestic capital owners. As will be shown below, this depends on whether or not FDI is used as a means to overcome high tariff barriers.

All else equal, the optimal trade policy is higher the larger is the fraction of domestic producers that benefit from the policy (the higher θ), the more the government values social welfare (the higher a), the stronger is the capital association (the higher Δ_k) and the higher is the level of FDI incentives (the higher s).

Finally, the third term in the numerator represents the deadweight loss associated with both, production distortions and the subsidy transfers that the government pays to foreign capital owners in return for investing their capital in the domestic economy. *Ceteris paribus*, the equilibrium level of trade protection is higher if the weight placed on the deadweight loss is small, that is, if the government places a relatively high value on political contributions (low a) and if the politically organized groups are small (small α_t).

Note that the optimal trade policy outcome given in equation (11) is expressed as a function of an exogenous level of FDI incentives, s . The fixed level of FDI incentives allows us to focus on the optimal policy outcomes, when the politically influential groups of the economy is able to influence only trade policy. The assumption of an exogenous FDI policy, however, will be relaxed in Sections 4.2 and 4.3.

In order to answer the main question addressed in this paper, namely, whether the presence of FDI incentives influences the politically sustainable level of trade protection, we need to solve for the optimal trade policy as a function of the economic and political parameters of the model. For the completeness of our analysis, we differentiate between a situation where FDI is used as a means to 'jump' trade barriers (i.e., tariff-jumping FDI) and a situation where FDI is not used to overcome trade protection (i.e., non-tariff-jumping FDI behavior).

4.1.1 In the absence of tariff-jumping FDI

In the absence of tariff-jumping FDI, foreign capital is not lured into the domestic economy through higher trade barriers and trade protection does not induce an inflow of foreign capital (i.e., $\partial k/\partial p = 0$).¹⁶ In this case, domestic capital owners and manufacturing labor may both benefit from trade protection. Domestic capital owners benefit if they can charge a higher price for the manufacturing good, while workers benefits if they are paid their higher value marginal productivity. Which of the two groups benefits relatively more from trade protection is determined ultimately by the groups' respective bargaining power. Thus, modifying equation (11) to account for the absence of tariff-jumping FDI, the equilibrium level of trade protection can then be expressed as

$$[p - p^*]_{NTJ} = \frac{(a + \Delta_l)l \frac{\partial w}{\partial p} + \{[(a + \Delta_k)\theta - (a + \alpha_t)]s - (a + \alpha_t)\}bf(k, l)}{-(a + \alpha_t)Nd'} \quad (12)$$

¹⁶Under non-tariff jumping FDI, trade protection does affect neither the domestic capital stock ($\partial k/\partial p = 0$) nor the market share of domestic capital owners ($\theta_p = 0$). Thus, the economic effects of trade protection are mitigated in the absence of tariff-jumping FDI.

According to equation (12), the equilibrium policy outcome yields a positive level of trade protection when the deadweight loss associated with trade protection (the denominator) does not exceed the benefits of trade protection enjoyed by the politically organized groups (the nominator).

To understand which political and economic factors influence the optimal FDI and trade policies, we need to solve equation (12) as a function of the parameters of the model. Assuming a Cobb-Douglas production function (with both technological parameters equal to 0.5) and a simple linear demand function, this yields the following equation:

$$\left[\frac{p - p^*}{p} \right]_{NTJ} = \frac{\{(\Delta_l - \alpha_t) + [(a + \Delta_k)\theta - (a + \alpha_t)] s\} (bl^c)^2 s}{r^* N(a + \alpha_t)} = A \quad (13)$$

Equation (13) expresses the optimal level of trade protection as a function of an exogenous level of FDI incentives, s , when FDI flows do not respond to trade protection. Furthermore, it is straightforward to show that there is a positive relationship between the optimal level of trade protection derived in equation (13) and the exogenous level of FDI incentives, s , provided that the following condition holds:

$$\frac{\partial A}{\partial s} = \frac{(bl^c)^2}{r^* N(a + \alpha_t)} \{(\Delta_l - \alpha_t) + 2[(\theta - 1)a + \Delta_k\theta - \alpha_t] s\} > 0$$

Although a meaningful interpretation of this result would require a full numerical simulation, under a reasonable set of parameters (which we present in Section 5 below), it would be easy to show that this inequality does not hold. In view of our final results, we can summarize this intermediary result in the following proposition:

Proposition 1 *In the absence of tariff-jumping FDI, a rise in the exogenous level of FDI incentives generally lowers the politically sustainable level of trade protection.*

Let us turn next to the case where FDI responds to higher import tariffs.

4.1.2 In the presence of tariff-jumping FDI

In the presence of tariff-jumping FDI, higher tariff walls attract foreign capital (i.e., $\partial k / \partial p > 0$). This raises workers' wage without altering the factor income of domestic capital owners (respectively, $\partial w / \partial p > 0$ and $\partial r^d / \partial p = 0$).¹⁷ Thus, while trade

¹⁷There are two reasons why, in the presence of tariff-jumping FDI behavior, the domestic capital owners do not benefit from trade protection, namely: (i) because in response to trade protection, foreign capital flows into the country until the net rate of return to capital (i.e., subsidy-inclusive) is equal again to the international rate of capital, such that in the new equilibrium, $\partial r^d / \partial p = 0$; and (ii) because the inflow of foreign capital, which raises the level of domestic production, is accompanied by an equivalent loss in domestic market share for the domestic capital owners (i.e., $r^d \partial k / \partial p + \theta_p r^d k = 0$).

protection benefits unambiguously manufacturing workers, it leaves capital owners' factor income unchanged. Nevertheless, domestic capital owners may still experience a net income loss in the presence of tariff-jumping FDI. This is because, by exacerbating the deadweight loss and by increasing subsidy transfer payments to foreign capital owners, import tariffs reduce the government surplus, which, in turn, reduces the welfare of domestic capital owners.

After adjusting equation (11) to account for the presence of tariff-jumping FDI, the optimal level of trade protection is given by:

$$[p - p^*]_{TJ} = \frac{(a + \Delta_l)l \frac{\partial w}{\partial p} - (a + \alpha_t)sr^d \frac{\partial k}{\partial p}}{-(a + \alpha_t)(Nd' - f_k \frac{\partial k}{\partial p})} \quad (14)$$

Overall, the equilibrium level of trade protection is higher the more organized is the manufacturing labor, the more wages increase following a capital inflow, the more concentrated is the factor ownership, the lower is the FDI subsidy, and the less tariff-jumping FDI occurs. To see this more clearly, we can solve equation (14) as a function of both, an exogenous level of FDI incentives and the other political and economic parameters of the model:

$$\left[\frac{p - p^*}{p} \right]_{TJ} = \frac{[(a + \Delta_l) - (a + \alpha_t)s] b(l^c)^2 s}{(a + \alpha_t) [r^* N + (l^c)^2 b s]} = B \quad (15)$$

It is easy to show that the politically sustainable level of trade protection derived in equation (15) is positively related to the exogenous level of FDI incentives, s , provided that the following inequality holds:

$$\frac{\partial B}{\partial s} = - \frac{b(l^c)^2}{[b(l^c)^2 + r^* N]^2 (a + \alpha_t)} \{ (a + \alpha_t) b(l^c)^2 + (a + 2\alpha_t - \Delta_l) N r^* \} > 0$$

Again, although a meaningful interpretation of this result would require a full numerical simulation, it would be easy to show that, under a reasonable set of parameters (which we discuss in Section 5 below), this inequality does not hold. Let us state this intermediary result in the following proposition:

Proposition 2 *In the presence of tariff-jumping, a rise in the exogenous level of FDI incentives generally lowers the politically sustainable level of trade protection.*

So far, we have determined the way in which economic and political parameters affect the optimal trade policy, assuming an exogenous level of FDI incentives. Let us now turn this problem up-side-down and examine how economic and political factors influence the optimal FDI policy, assuming an exogenous level of trade policy.

4.2 Lobbying for FDI Incentives

According to the basic framework presented in Section 3, we can determine the equilibrium FDI policy (s) by optimizing the government's objective function and by solving it recursively, taking the contribution schedules as given. This implies substituting the lobbyists' respective contribution schedules expressed in equations (6) and (9) into the government's first-order condition given in equation (3). This yields the following equilibrium level of FDI incentives:

$$s = \frac{(a + \Delta_k)\theta r^d k + (a + \Delta_l)l \frac{\partial w}{\partial s}}{(a + \alpha_t)(r^d \frac{\partial k}{\partial s} + k \frac{\partial r^d}{\partial s}) - (a + \Delta_k) \left[\theta(r^d \frac{\partial k}{\partial s} + k \frac{\partial r^d}{\partial s}) + \theta_s r^d k \right]} - \frac{(a + \alpha_t) \left[(p - p^*) f_k \frac{\partial k}{\partial s} \right] - (a + \alpha_t) \left[r^d k - (r^d \frac{\partial k}{\partial s} + k \frac{\partial r^d}{\partial s}) \right]}{(a + \alpha_t)(r^d \frac{\partial k}{\partial s} + k \frac{\partial r^d}{\partial s}) - (a + \Delta_k) \left[\theta(r^d \frac{\partial k}{\partial s} + k \frac{\partial r^d}{\partial s}) + \theta_s r^d k \right]} \quad (16)$$

The intuition behind this result is the following. The first two terms on the numerator represent the income gains captured by the lobbying groups. *Ceteris paribus*, both domestic capital owners and manufacturing labor can benefit from a capital subsidy. While the former benefits if the subsidy increases the returns to capital, the latter benefits if the subsidy induces a capital inflow, which in turn raises their wages. Note that in the context of our model, an FDI subsidy generates an instantaneous inflow of foreign capital up to the point where the net domestic rate of return (i.e., inclusive of the subsidy) equals again the international rate of return (until $sr^d = r^*$). Thus, domestic capital owners do not benefit directly from FDI incentives.

The third term on the numerator represents the loss associated with trade distortions. Indeed, under an exogenous level of trade protection, FDI incentives induce an inflow of foreign capital, which raises the domestic production of the manufacturing good and thus, distorts import demand. Note, however, that equation (16) assumes an exogenous level of protection, p . This parameter can range anywhere between one (in the case of free trade) and a positive number larger than one (in the case of trade protection). This exogeneity assumption, however, will be relaxed in the next section, when we allow both, FDI incentives and trade policy to be determined endogenously.

The last term on the numerator represents the inefficiencies that result from FDI incentives. For example, FDI incentives induce subsidy transfer payments to foreign capital owners, cause manufacturing production to be more capital-intensive and reduce the domestic rate of return to capital. The relative cost of these inefficiencies depends on both, the government's relative preferences between social welfare and political contributions and the concentration of factor ownership. Finally, the first term on the denominator represents the way in which FDI incentives affect the government surplus, while the second term illustrates the way in which FDI subsidies affect the factor income of domestic capital owners.

Even at this level of generality, it is already possible to see from equation (16) that the equilibrium of FDI incentives will be higher, the more (less) organized is the labor union (the domestic capital association) (respectively, the higher Δ_l and the lower Δ_k), the more concentrated is the factor ownership (the lower the α 's), the stronger is the wage effect following an inflow of foreign capital and the slower the domestic rental rate of capital adjusts to a capital inflow.

Equation (16) highlights the fact that an equilibrium policy outcome is affected by the way in which the relative benefits and losses associated with this policy are valued and that this valuation, in turn, is determined by the political structure of the economy. Thus, it is of relevance to introduce a political dimension into the economic analysis of domestic policy-making, and in particular when it relates to politically sensitive policy areas.

Again, expression (16) can be solved as a function of the political and economic parameters of the model:

$$s = \frac{(a + \alpha_t)(b - \frac{p-p^*}{p}) + (a + \Delta_l)b}{(a + \alpha_t)} \quad (17)$$

where $\alpha_t = (\alpha_l + \alpha_k)$. As expected, the equilibrium level of FDI incentives is higher when labor is highly organized (high Δ_l), when factor ownership is highly concentrated (low α_t) and when the government does not value contributions very much (low a).

According to equation (17), the equilibrium FDI policy outcome yields a positive subsidy ($s > 1$) when the government attaches a greater weight to the presence of lobbying than to the loss in government surplus that is borne by the politically influential groups (when $\Delta_l > \alpha_t$). In other words, the government imposes an FDI subsidy only if the political edge it gains by implementing this policy is greater than the corresponding economic costs (in terms of lower government surplus).

Intuitively, the idea is that each special interest group lobbies for a given policy if this policy raises its net income (i.e., factor income plus the corresponding share of government surplus). But a policy not only alters the group's factor income; it also introduces a new source of economic distortions, which raises the deadweight loss of the economy and hence, reduces the government surplus. It is because of this reduction that the government finds it more profitable to implement a given policy when the factor ownership of the lobbying groups is highly concentrated. Indeed, the smaller is the share of the burden that the politically influential groups bear as a result of the distortionary policy, the less costly it is for the government to implement this particular policy.

Finally, note that the optimal FDI policy is a capital *tax*, when no lobbying takes place (when $\Delta_l + \Delta_k = 0$). Thus, if the interest groups are not particularly adamant about raising their factor incomes, it is more profitable for the government to implement a capital tax and to redistribute the proceeds in the form of higher government surplus.

More generally, equation (17) states that the equilibrium level of FDI incentives is higher under free trade (i.e., when $p - p^* = 0$) than under a positive level of trade protection. In view of the main question addressed in this paper, namely, whether or not the government can strengthen the political support for trade liberalization by introducing FDI incentives into the lobbying game, this offers an interesting insight. Let us state this intermediary result in the following proposition:

Proposition 3 *For an exogenous level of trade protection, the equilibrium level of FDI incentives is higher under free trade than under a positive level of trade protection.*

4.3 Lobbying for FDI Incentives & Trade Protection

In Section 4.1, we determine the politically sustainable level of trade protection, assuming that the lobby groups can influence only trade policy outcomes. But what happens to this equilibrium level of trade protection, when the government introduces FDI incentives into the political policy-making process?

To answer this question, we need to allow both trade policy and FDI policy to be determined endogenously through lobbying. In other words, we need to solve simultaneously for equations (11) and (16), so as to determine the optimal trade and FDI policy outcomes as a function of the economic and political parameters of the model. Again, and for the sake of completeness, we differentiate between a situation of tariff-jumping and of non-tariff-jumping FDI behavior. Let us turn first to the former case.

4.3.1 In the absence of tariff-jumping FDI

In the absence of tariff-jumping FDI, we can obtain both, the optimal level of trade protection and the optimal level of FDI incentives as a function of the parameters of the model, by solving simultaneously equations (13) and (17). In particular, while the equilibrium level of FDI incentives is given by the solution to the following quadratic expression:

$$\Lambda s^2 + \Pi s + \Sigma = 0 \tag{18}$$

where

$$\begin{aligned} \Lambda &= (bl^c)^2 [(1 - \theta)a + \alpha_t - \Delta_k \theta] \\ \Pi &= - [r^* N(a + \alpha_t) + (\Delta_l - \alpha_t)(bl^c)^2] \\ \Sigma &= r^* Nb(2a + \alpha_t + \Delta_l) \end{aligned}$$

the equilibrium level of trade protection is then determined by plugging the equilibrium level of FDI incentives derived in equation (18) back into equation (13). Given

the algebraic messiness of this expression, we do not present its final solution here. Nevertheless, we will use it later to perform a numerical simulation exercise, which results are presented in Section 5 below.

4.3.2 In the presence of tariff-jumping FDI

Similarly in the case of tariff-jumping FDI behavior, we can derive both, the optimal level of trade protection and the optimal level of FDI incentives as a function of the parameters of the model, by solving simultaneously equations (17) and (15). In particular, the equilibrium levels of trade protection and of FDI incentives are given, respectively, in equations (19) and (20) below:

$$\left[\frac{p - p^*}{p} \right]^{TJ} = \frac{[(a + \alpha_t)(\Delta_l - \alpha_t)bNr^* - (a + \Delta_l)(\alpha_t - \Delta_l)(bl^c)^2] (2a + \alpha_t + \Delta_l)(bl^c)^2}{(a + \alpha_t)r^*N [(a + \alpha_t)r^*N + 2(a + \Delta_l)(l^c)^2bs]} \quad (19)$$

$$s^{TJ} = \frac{[(a + \Delta_l) + (a + \alpha_t)] bNr^*}{(a + \alpha_t)Nr^* - (\alpha_t - \Delta_l)(bl^c)^2} \quad (20)$$

For given parameter values, we have the tools now to examine the endogenous relationship between import tariffs and FDI incentives. However, it would not be fully satisfactory to end our analysis here. Indeed, from a social point of view, it would be useful to shed light not only on how FDI incentives influence the *level* of trade protection, but also on how FDI incentives affect social welfare. Hence, we extend our analysis to analyze the welfare consequences associated with allowing interest groups to lobby solely over trade policy, as opposed to allowing them to lobby simultaneously over trade policy and FDI policy.

5 Welfare Effects

This section analyzes how various economic and political factors affect policy outcomes and highlights their welfare implications. To do this, we perform a numerical analysis and examine which political characteristics are likely to make a country more sympathetic towards trade liberalization. In the context of our model, we focus on four parameters, namely, the weight that the government places on social welfare relative to political contributions (a), the fraction of the population that is politically influential (α_t) and the presence of lobbying by, respectively, the labor union (Δ_l) and the capitalist association (Δ_k). For each of these parameters, we consider different ranges, as indicated in Table 1 below.

The first column in Table 1 represents a , the weight that the government places on social welfare relative to political contributions. We allow this parameter to vary

between one and one hundred. If $a = 1$, the government applies an equal weight to social welfare than to political contributions. As a becomes larger, the government places a higher weight on the well-being of voters relative to political contributions. When $a = 100$, the government values social welfare one hundred times more than it values political contributions.

The second column represents α_t , the fraction of the population that is politically influential. Although theoretically we differentiate between α_k (the size of the capitalist association) and α_l (the size of the labor union), the derivations presented above show that only the aggregate size of the politically influential groups matters. We assume that this parameter ranges between 0 and 0.8. If $\alpha_t = 0.5$, one half of the population participates in the lobbying process.

The last two columns indicate whether or not the factor owners are politically organized. For example, if Δ_l is equal to one, every manufacturing worker belongs to the labor union. Similarly, if Δ_k is equal to zero, none of the capital owners are members of the capitalist association and hence, the owners of capital do not lobby.

Table 1:
Parameter Range

a	α_t	Δ_l	Δ_k
1	0.1	0	0
2	0.3	1	1
10	0.5	-	-
100	0.8	-	-

In Section 5 above, we derive the optimal level of trade protection both, when interest groups influence only trade policy (p_{ns}) and when they influence simultaneously trade policy and investment policy (p_s, s). Next, we want to focus on two set of questions, namely: (i) whether the government can mitigate the political opposition to trade liberalization by introducing FDI incentives, and (ii) what the welfare consequences of doing so are. To answer the first question, we need to compare the equilibrium level of trade protection in the absence of FDI incentives (p_{ns}) with that in the presence of FDI incentives (p_s). In particular, inward FDI incentives soften the political constraints associated with trade liberalization if $p_{ns} > p_s$. For the second question, we want to compare the social welfare when trade protection is the government's unique policy instrument, $W(p_{ns})$, with that when the government uses both trade and investment policy instruments, $W(p_s, s)$. Introducing FDI incentives is welfare-enhancing if $WE = W(p_s, s) - W(p_{ns}) > 0$.

To quantify the welfare effects, a certain number of assumptions need to be made concerning the fixed parameter values of the model. For instance, while the size of the population is normalized to one hundred, the manufacturing sector is assumed to

employ fifty percent of the total population.¹⁸ The stock of domestic capital (k^d) is fixed to one hundred. The international rate of return is set so as to equal the domestic rate of return in a closed capital market framework. Thus, in the absence of both FDI incentives and capital flows, the domestic rate of return equals the international rate of return and the domestic economy produces the manufacturing good only with its fixed stock of domestically-owned capital. Given the assumptions of our model, $r^* = 0.35$. Finally, the international product price, p^* , is assumed to be one.

In accordance with our theoretical model, we differentiate between the case where trade barriers do not induce higher FDI and the case where FDI is used as a means to overcome high tariff walls. Let us turn now to the former case, where FDI does not respond to trade barriers.

5.1 In the Absence of Tariff-Jumping FDI

In this section, we present the numerical simulation results for the case when FDI does not respond to higher import tariffs, which are given in Tables 2-4 below.¹⁹ While Table 2 tabulates the results when the capitalist association is the only politically active lobby group, Table 3 reverses the situation and assumes that only the labor union is lobbying. Finally, Table 4 allows for both the capitalist association and the labor union to influence the domestic policy-decision making process.

In each of these Tables, column (1) presents the optimal level of trade protection in the absence of FDI incentives (p_{ns}), which is derived in equation (13). The optimal level of FDI incentives under free trade (s_{ft}), which is derived in equation (17) under the assumption that $(p - p^*) = 0$, is tabulated in column (2). The next two columns introduce joint lobbying over trade protection and FDI policy. While column (3) presents the optimal FDI subsidy under trade protection (s_{tp}), which is derived in equation (18), column (4) presents its associated optimal level of import tariffs (p_s). The last column represents WE , the welfare differential between a regime where lobbying takes place over both FDI and trade policy and a regime where lobbying takes place only over trade policy (i.e., $WE = W(p_s, s) - W(p_{ns})$).

Our numerical simulation highlight three key findings regarding the way in which economic and political factors affect the process of trade liberalization. While the first finding concerns the conditions under which FDI incentives soften the political constraints associated with trade liberalization, the second finding deals with the welfare consequences of liberalizing trade in the presence of FDI incentives and the third finding focuses on how the political parameters of the model affect the government's objective function and thereby its optimal policy design.

¹⁸In the case of tariff-jumping FDI behavior, we restrict the manufacturing labor force to five percent of the population. Although this restriction does not alter the content of our conclusions, it allows to minimize the number of indeterminate solutions in our numerical simulations.

¹⁹The numerical simulations presented in this paper are run with a standard mathematical software program, namely, *Maple V Release 4* and hence, are easily reproducible with this particular program or with any other comparable software programs.

Our first finding suggests that lobbying over FDI incentives reduces the politically sustainable level of trade protection when capital-owners are politically organized, while it exacerbates the process of trade liberalization when labor represents the main influential political force. Intuitively, this result is easy to interpret. While both the capitalist and the labor interest groups benefit from trade protection, domestic capital owners do not benefit directly from a capital subsidy, although they pay for this policy indirectly by enjoying a lower government surplus. Thus, the capitalist association is willing to accept a lower equilibrium level of trade protection in return for a reduction in the existing FDI subsidy (or for an FDI tax). If, however, labor is the most influential lobby group opposing trade liberalization, introducing FDI incentives into the political arena does not soften the political constraints associated with trade liberalization. This is because while labor benefits from both, an FDI subsidy and trade protection, the positive income effects derived from trade protection exceed those derived from an FDI subsidy. Thus, labor prefers to lobby for a higher level of trade protection and the presence of FDI incentives does not mitigate the political opposition against trade liberalization.

These results are shown in Tables 2-4 below. First, let us examine Table 2, where the capitalist association is the only interest group participating in the policy decision-making process ($\Delta_l = 0$ and $\Delta_k = 1$). If trade policy is the only policy instrument available, the optimal policy outcome yields a trade tax, provided that the capitalist association represent less than fifty percent of the population ($\alpha_t < 0.5$). This is shown in column (1) and supports the view that, in the absence of tariff-jumping FDI, the domestic capital owners benefit from trade protection and hence, lobby for it. But the government only yields to their demands if the deadweight loss associated with trade protection is borne by a small fraction of the population (i.e., if $\alpha_t < 0.5$).

If, however, the capitalist association were not allowed to lobby over trade protection but could lobby only over FDI incentives, the optimal FDI policy would yield an FDI *tax*. This is shown in column (2). At first, this result may seem counter-intuitive. We know that domestic capital owners do not benefit directly from an FDI subsidy/tax, because foreign capital flows into the economy until the net (subsidy-inclusive) domestic capital rate of return equals again the international rate of return. Hence, we might have expected the capitalist association to be indifferent to an FDI policy. Clearly, other forces are at work.²⁰ Indeed, although the domestic capital owners always earn the international capital rental rate of return, they contribute to the payment of a subsidy in the case of an FDI subsidy, while they are handed back a portion of the tax revenues in the case of an FDI tax.²¹ Thus, domestic capital

²⁰Note that the highest equilibrium FDI tax levels occur when the government places a heavy weight on political contributions and when factor ownership is relatively dispersed (respectively, when $a = 1$ and $\alpha_t = 0.8$). Indeed, it is politically easier for the government to tax a specific factor (capital) if the proceeds from this tax are redistributed largely to the politically influential members of society (i.e., if α_t is large).

²¹In the absence of a capital subsidy, the domestic capital owners receive the domestic capital rate of return, which is equal to the international capital rate of return to capital (i.e., $r^d = r^*$). After

owners always lobby for an FDI tax.

Table 2:
When Only the Capitalist Association is Lobbying
In the Absence of Tariff-Jumping FDI

		$\Delta_k = 1 \ \& \ \Delta_l = 0$				
		p_{ns}	s_{ft}	s_{tp}	p_s	WE
a	α_t	(1)	(2)	(3)	(4)	(5)
1	0.1	1.35	0.96	0.80	1.19	-1359.50
	0.3	1.12	0.89	0.82	1.07	-658.80
	0.5	1.00	0.83	0.85	0.99	-368.31
	0.8	0.89	0.78	0.89	0.90	-170.33
2	0.1	1.16	0.97	0.87	1.11	-510.90
	0.3	1.07	0.94	0.89	1.05	-330.16
	0.5	1.00	0.90	0.91	0.99	-218.96
	0.8	0.93	0.86	0.93	0.93	-118.42
10	0.1	1.03	1.00	0.97	1.03	-77.06
	0.3	1.01	0.99	0.97	1.01	-63.15
	0.5	1.00	0.98	0.98	1.00	-50.75
	0.8	0.98	0.96	0.98	0.98	-34.57
100	0.1	1.00	1.00	1.00	1.00	-7.13
	0.3	1.00	1.00	1.00	1.00	-6.18
	0.5	1.00	1.00	1.00	1.00	-5.24
	0.8	1.00	1.00	1.00	1.00	-3.86

Once the capitalist association is allowed to lobby jointly over trade and investment policy, the optimal policy mix yields a higher FDI tax, combined with a lower level of trade protection.²² According to our results, the capitalist association is willing to accept a lower equilibrium level of trade protection, in return for a higher FDI tax.²³ This can be seen by comparing, respectively, the optimal level of trade protection given in column (1) with that given in column (4) and the optimal FDI tax given in column (2) with that given in column (3). Thus, when the capitalist association is the main political force, the government can use FDI incentives to lower the equilibrium level of trade protection.

the capital subsidy, the domestic capital owners receive the net (subsidy-inclusive) domestic rate of return, which, following the instantaneous foreign capital inflow, is equal again to the international rate of return, or, $r^n = r^*$.

²²Again, the optimal policy is a trade tax provided that the politically influential groups represent less than fifty percent of the population ($\alpha_t < 0.5$). Otherwise, the optimal trade policy turns into a subsidy.

²³In this context, it is easier for the government to yield to the demands of the capitalist association if it values political contributions highly and if the cost associated with these policies (in terms of lower government surplus) is not borne primarily by the politically influential members of society (i.e., if $a = 1$, $\alpha_t = 0.1$).

What happens now if the labor union is the only interest group participating in the political arena (i.e., $\Delta_l = 1$ and $\Delta_k = 0$)? The results are given in Table 3 below. In particular, if trade policy is the only policy over which the labor union can exert political pressure, the optimal policy outcome yields a positive level of trade protection, provided that the labor union represents less than fifty percent of the population ($\alpha_t < 0.5$). This is shown in column (1). If, however, the labor union can only influence the level of FDI incentives, the optimal investment policy yields an FDI subsidy.²⁴ These results imply that labor benefits from both, trade protection (through the price effect) and FDI subsidies (through the capital inflow effect).

Table 3:
When Only the Labor Union is Lobbying
In the Absence of Tariff-Jumping

		$\Delta_k = 0 \ \& \ \Delta_l = 1$				
		p_{ns}	s_{ft}	s_{tp}	p_s	WE
a	α_t	(1)	(2)	(3)	(4)	(5)
1	0.1	1.35	1.41	1.12	1.40	738.67
	0.3	1.12	1.27	1.16	1.13	420.85
	0.5	1.00	1.17	1.20	0.97	285.52
	0.8	0.89	1.06	1.26	0.83	181.02
2	0.1	1.16	1.21	1.07	1.17	244.00
	0.3	1.07	1.15	1.09	1.07	215.07
	0.5	1.00	1.10	1.11	0.99	191.81
	0.8	0.93	1.04	1.14	0.91	163.95
10	0.1	1.03	1.05	1.07	1.03	36.81
	0.3	1.02	1.03	1.02	1.01	43.49
	0.5	1.00	1.02	1.02	1.00	49.29
	0.8	0.98	1.01	1.03	0.98	56.59
100	0.1	1.00	1.01	1.00	1.00	3.48
	0.3	1.00	1.00	1.00	1.00	4.36
	0.5	1.00	1.00	1.00	1.00	5.22
	0.8	1.00	1.00	1.00	1.00	6.51

When the labor union can lobby jointly over trade and investment policies, it is able to extract a relatively higher level of trade protection and a relatively lower level of FDI subsidies. While labor benefits from both policies, this result suggests that it benefits more from trade protection than from FDI subsidies. Note, however, that

²⁴Note that it is less costly for the government to implement either of these policies if the burden associated with it is borne by a relatively small percentage of the politically influential members of society. Indeed, the highest levels of intervention occur when the government values political contributions and when factor ownership is relatively concentrated (respectively, when $a = 1$ and $\alpha_t = 0.1$).

the labor union succeeds to persuade the government to implement trade protection only if the deadweight loss associated with trade protection (in terms of lower government surplus) is not borne by a large percentage of politically influential groups (i.e., provided that the politically influential groups represent less than fifty percent of the population ($\alpha_t < 0.5$)). This result shows that the government cannot use FDI incentives to mitigate political opposition towards trade liberalization, when the labor union is the most politically influential interest group. On the contrary, when the labor union is allowed to lobby over both, trade policy and FDI incentives, the equilibrium outcome yields a *higher* level of trade protection relative to the case when it lobbies solely over trade protection.

Finally, let's consider the case when both, the labor union and the capitalist association participate actively in the political arena ($\Delta_l = 1$ and $\Delta_k = 1$). The corresponding results are shown in Table 4. Since both interest groups benefit from trade protection, together they are able to extract a higher level of trade protection in equilibrium. This can be seen by comparing column (1) of Table 4 with, respectively, column (1) of Table 2 and column (1) of Table 3.

If, however, both policy instruments are available to the interest groups, we have seen above that the labor union is willing to reduce the level of FDI incentives, in return for a higher trade protection. The capitalist association, on the other hand, is willing to receive a lower level of trade protection in exchange for an FDI tax. In equilibrium, the optimal policy mix combines a (small) FDI tax with a high level of trade protection. This is illustrated in columns (3) and (4) of Table 4. Note that this FDI tax is smaller than the one the capitalist association would have achieved in the absence of the labor union. Similarly, the level of trade protection is lower than the one the labor union would have achieved in the absence of FDI incentives. This shows that a lobby group can be forced to make trade-offs when its interests clash with those of another lobby group, while it is made more powerful when its interests collide with those of the other lobby group.²⁵

Regarding our second finding, our numerical simulations indicate that the presence or absence of lobby groups greatly influences the welfare effects associated with allowing interest groups to lobby over two policy instruments (trade and investment) rather than over a single one (trade protection). In the presence of trade protection, and if both the capitalist association and the labor union participate in the political game ($\Delta_k = \Delta_l = 1$), the government achieves a higher level of social welfare in the absence of FDI incentives than in their presence. Thus, according to our model, provided that all lobby groups participate in the political process, the government does not achieve a higher level of social welfare by adding FDI incentives as a second policy instrument. The losses associated with FDI incentives are highest when the government places a heavy weight on political contributions and when factor ownership is

²⁵Note that the government is more likely to yield a higher level of trade protection when factor income is highly concentrated and a higher level of FDI incentives when factor income is highly dispersed.

highly concentrated (respectively, when $a = 1$ and $\alpha_t = 0.1$).

Table 4:
Assuming Joint Lobbying by Labor Union and Capitalist Association
In the Absence of Tariff-Jumping

		$\Delta_k = 1 \ \& \ \Delta_k = 1$				
		p_{ns}	s_{ft}	s_{tp}	p_s	WE
a	α_t	(1)	(2)	(3)	(4)	(5)
1	0.1	2.41	1.41	0.91	2.02	-3807.91
	0.3	1.63	1.27	0.93	1.52	-927.69
	0.5	1.31	1.17	0.95	1.28	-325.73
	0.8	1.09	1.06	0.98	1.08	-64.01
2	0.1	1.44	1.21	0.94	1.38	-538.38
	0.3	1.28	1.15	0.95	1.25	-276.47
	0.5	1.17	1.10	0.97	1.16	-141.23
	0.8	1.05	1.04	0.99	1.05	-37.66
10	0.1	1.07	1.04	0.98	1.07	-48.87
	0.3	1.05	1.03	0.99	1.05	-35.56
	0.5	1.04	1.02	0.99	1.04	-28.82
	0.8	1.01	1.01	1.00	1.01	-8.68
100	0.1	1.01	1.00	1.00	1.01	-4.13
	0.3	1.01	1.00	1.00	1.00	-3.19
	0.5	1.00	1.00	1.00	1.00	-2.27
	0.8	1.00	1.00	1.00	1.00	-0.90

If, however, only one of the lobby groups is politically active, the government can either raise or reduce social welfare by introducing FDI incentives as a second policy instrument, depending on which interest group is politically active. If labor is the only politically active lobby group, the government *raises* social welfare by introducing FDI incentives as a second policy instrument. These welfare effects are particularly large when the government places a high value on political contributions and when factor ownership is relatively concentrated (respectively, when a is low and when α_t is low). This is because, although labor is able to lobby for a higher level of trade protection (which is bad for the economy), it is able to lobby for a positive level of FDI incentives, which induces an inflow of foreign capital, and which, in turn, benefits the economy as a whole.

Alternatively, when capital-owners are the main political force, the government *reduces* social welfare by adding FDI incentives as a second policy instrument. This is because, although the government succeeds in reducing the level of trade protection (which raises welfare), it also imposes an FDI tax, which induces an outflow of capital and which, in turn, reduce social welfare. Finally, if no lobbying takes place, our model predicts that the government can raise social welfare by adding FDI incentives

as a second policy instrument, and particularly, when factor ownership is relatively dispersed (when α_t is high).

Third, our model supports the view that distortionary policies are a by-product of the government's sensitivity to political influences. Indeed, if the government were to maximize solely the well-being of the economy rather than a weighted average of social welfare and of political contributions, the equilibrium level of trade protection converges towards free trade and trade policy would become redundant.²⁶ More generally, our model suggests that it is in the government's best interest to liberalize international trade when special interest groups participate in the lobbying process, when the politically influential groups represent a relatively small fraction of the population and when the government places a relatively large weight on political contributions.

Finally, note the crucial role of factor ownership concentration in determining the magnitude of equilibrium policy outcomes. Since a subsidy reduces government surplus, the government is willing to impose such a policy only if the burden (in terms of lower government surplus) is borne by a relatively small percentage of the politically influential members of society (if α_t is small). In other words, it is more profitable for the government to yield to the demands of special interest groups if the politically influential groups represent a relatively small percentage of the population and hence, bear a limited share of the deadweight loss associated with the distortionary policy. Alternatively, since a tax raises government surplus, the government is willing to impose such a policy if the benefits (in terms of higher government surplus) are shared by a relatively large percentage of the politically influential members of society (if α_t is large).

This section has illustrated the economic and political factors that determine the equilibrium level of trade protection, both in the absence and in the presence of FDI incentives under the assumption that tariff-jumping FDI does not occur. Let us examine next how the presence of tariff-jumping FDI alters these results.

5.2 In the Presence of Tariff-Jumping FDI

In this section, we show that the presence of tariff-jumping FDI behavior does not alter significantly the results derived in the absence of tariff jumping FDI. Ultimately, however, the presence of tariff-jumping FDI may be a less interesting case for the purpose of our paper. This is because, as suggested by our theoretical results presented above, the presence of tariff-jumping FDI annihilates the motivations of the capitalist association to lobby. Indeed, in the presence of tariff-jumping FDI, the capitalist association plays no role in the political decision-making process and only

²⁶Note, however, that according to our model, the absence of political lobbying is not a sufficient condition for achieving non-distortionary equilibria. For this, it is essential that the government targets social welfare rather than the well-being of the politically influential members of society.

the activities of the labor union influence the equilibrium policy outcomes.²⁷ As a result, when FDI is used to overcome high trade barriers, the capitalist association loses its political clout and enters the government's maximization only indirectly as a recipient of government surplus. The numerical simulation results for the case of tariff-jumping FDI behavior are given in Table 5 below.

Table 5:
When the Labor Union is Lobbying
In the Presence of Tariff-Jumping FDI

		$\Delta_t = 1$				
		p_{ns}	s_{ft}	s_{tp}	p_s	WE
a	α_t	(1)	(2)	(3)	(4)	(5)
1	0.1	1.06	1.41	1.37	-	-
	0.3	1.04	1.27	1.25	-	-
	0.5	1.02	1.17	1.15	3.69	170.92
	0.8	1.01	1.06	1.05	1.36	53.19
2	0.1	1.03	1.21	1.20	-	-
	0.3	1.02	1.15	1.14	-	-
	0.5	1.01	1.10	1.09	3.20	158.32
	0.8	1.01	1.04	1.03	1.35	49.31
10	0.1	1.01	1.04	1.04	-	-
	0.3	1.00	1.03	1.03	10.50	-2147.00
	0.5	1.00	1.02	1.02	2.78	133.44
	0.8	1.00	1.01	1.01	1.34	44.20
100	0.1	1.00	1.00	1.00	-	-
	0.3	1.00	1.00	1.00	8.20	-1021.36
	0.5	1.00	1.00	1.00	2.68	125.74
	0.8	1.00	1.00	1.00	1.33	42.62

As in the previous section, the optimal level of trade protection in the absence of FDI incentives (p_{ns}) is presented in column (1), while column (2) presents the optimal level of FDI incentives under free trade (s_{ft}). Joint lobbying over trade protection and FDI policy is introduced in columns (3)-(4). While column (3) presents the optimal FDI subsidy under trade protection (s_{tp}), column (4) presents its associated optimal level of import tariffs (p_s). The last column depicts WE , the welfare differential between a regime where lobbying takes place over two policy instruments (trade and investment policies) and a regime where lobbying takes place over a single policy instrument (trade policy). Finally, note also that the equilibrium policy outcomes

²⁷This is illustrated in equation (15) below, where the absence of the term Δ_k implies that a capitalist association does not influence the equilibrium trade policy. Similarly, the capitalist association does not influence the optimal FDI subsidy equation (see equation (17)).

under trade protection and their corresponding welfare implications are not defined over certain parameter values. These cases are depicted by a dash.

First, let us consider the case where the labor union lobbies solely over trade protection. Contrary to the results discussed in the previous section, in the presence of tariff-jumping FDI, the labor union is *always* able to extract a positive level of trade protection, regardless of the dispersion of factor ownership. This is shown in column (1) of Table 5.²⁸ A positive level of trade protection raises labor income not only through the standard price effect but also through the capital inflow effect. Thus, in the context of our model, the government finds it always profitable to implement a positive level of trade protection, even if the costs (in terms of lower government surplus) is borne by a relatively large percentage of the politically influential members of society (i.e., if α_t is large).

If, however, the labor union lobbies jointly over trade and investment policies, the optimal policy outcomes under tariff-jumping FDI are similar to those derived under non-tariff jumping FDI, except that they are larger in absolute value. In particular, the labor union still prefers to receive a relatively lower FDI subsidy in return for a relatively higher level of trade protection. This can be seen by comparing, respectively, the optimal FDI subsidy given in column (3) with that given in column (2) and the optimal level of trade protection given in column (4) with that given in column (1). As in the case of non-tariff-jumping FDI, the government is willing to introduce trade protection, since this policy not only protects labor income in the manufacturing sector but also induces an inflow of foreign capital. But in the presence of tariff-jumping FDI, the government finds it always politically and economically beneficial to impose a positive level of trade protection, even when the government does not value political contributions (i.e., if $a = 100$). This is illustrated in the last quadrant at the bottom of column (4).

In conclusion, the results derived in the presence of tariff-jumping FDI behavior do not differ significantly from those derived in the absence of tariff jumping FDI and hence, support our earlier finding: when labor is the main political force, the government cannot use FDI incentives to mitigate the political constraints associated with trade liberalization. While we have shown above that this argument holds under non-tariff FDI behavior, this section shows that it is even more relevant under tariff-jumping FDI behavior, because trade protection plays the dual role of raising prices and of attracting foreign capital flows.

²⁸Compare this result with column (1) of Table 3, where the equilibrium trade policy is a tax, provided that the politically influential groups represent less than fifty percent of the population ($\alpha_t < 0.5$).

6 Conclusion

It is well known that there are certain conditions under which it is easier for the government to implement trade liberalization. This paper examines whether FDI incentives can soften the economic and political constraints associated with trade liberalization. FDI incentive packages have become common practice as a means to attract foreign capital. But depending on how these FDI incentives affect the interests of the politically influential interest groups, their presence can either raise or reduce the political support for trade liberalization. So far, however, the literature sheds little light on whether the presence of FDI incentives is likely to facilitate or hamper further trade liberalization. In fact, to our knowledge no paper has traced directly the effects of FDI incentives on the politically sustainable equilibrium level of trade protection.

One of the major contributions of this paper is to introduce the role of capital inflows into the political economy of trade framework pioneered by Grossman and Helpman (1994, 1995 and 1996). While we borrow their maximization technique, we modify it to analyze the interactions between the equilibrium levels of FDI incentives and of trade protection. In particular, we highlight how the presence of one policy instrument (FDI incentives) influences the equilibrium level of another policy (trade protection).

According to our model, FDI incentives reduce the politically sustainable level of trade protection when capital-owners are politically organized, while they exacerbate the process of trade liberalization when labor is the main influential political force. This dichotomy, which arises from the conflicting interests pursued by the lobby groups, highlights how important it is for the government to understand the economic and political motivations of the lobby groups if it want to promote an environment conducive to free trade. In particular, our results suggest that the domestic capital owners favor an FDI tax, while the labor union always lobbies for a higher level of trade protection. In equilibrium, when the two interest groups lobby over both policies, the government is in a better position to implement trade liberalization. If, however, one of the interest groups (say, the labor union) is particularly prominent on the political stage, it may be harder for the government to override its lobbying efforts and hence, to liberalize trade.

Finally, our model suggests that the highest levels of policy intervention occur when special interest groups participate in the lobbying process, when these groups represent a relatively small fraction of the population and when the government places a relatively large weight on political contributions. This suggests that if a country's political framework does not restrain the government from pursuing mostly political rather than economic objectives, it would be socially optimal to substitute the government's discretionary powers over trade policy with a commitment to free trade.

References

- [1] Austen-Smith D., 1991, "Rational Consumers and Irrational Voters", *Economics & Politics*, 3(1):73-92, January.
- [2] Bernheim, B. Douglas and Michael D. Whinston, 1986, "Menu Auctions, Resource Allocation, and Economic Influence", *Quarterly Journal of Economics*, 101(1):1-31, February.
- [3] Bhagwati, Jagdish N., Elias Dinopoulos and Kar-Yiu Wong, 1992, "Quid Pro Quo Foreign Direct Investment", *American Economic Review*, 82(2):186-190, May.
- [4] Blonigen, Bruce A. and David N. Figlio, 1998, "Voting for Protection: Does Foreign Direct Investment Influence Legislator Behavior?", *American Economic Review*, 88(4):1002-1014, September.
- [5] Blonigen, Bruce A. and Yuka Ohno, 1998, "Endogenous Protection, Foreign Direct Investment and Protection-Building Trade", *Journal of International Economics*, 46(2):205-227, December.
- [6] Brainard, S. Lael, 1997, "An Empirical Assessment of the Proximity-Concentration Trade-off Between Multinational Sales and Trade", *American Economic Review*, 87(4):520-45, September.
- [7] Caves, Richard E., 1996, *Multinational Enterprises and Economic Analysis*, New York: Cambridge University Press.
- [8] Devereux, Michael P. and Rachel Griffith, 1998, "Taxes and the Location of Production: Evidence from a Panel of US Multinationals", *Journal of Public Economics*, 68(3):335-367, June
- [9] Devereux, Michael P. and Harold Freeman, 1995, "The Impact of Tax on Foreign Direct Investment: Empirical Evidence and the Implications for Tax Integration Schemes", *International Tax and Public Finance*, 2(1):85-106, May.
- [10] Dixit, Avinash, Gene M. Grossman and Elhanan Helpman, 1997, "Common Agency and Coordination: General Theory and Application to Government Policy-Making", *Journal of Political Economy*, 105(4):752-769, August.
- [11] Dunning J.H. and R. Narula, eds., 1996, *Foreign Direct Investment and Governments: Catalysts for Economic Restructuring*, London: Routledge.
- [12] Ellingsen Tore and Karl Wärneryd, 1999, "Foreign Direct Investment and the Political Economy of Trade", *International Economic Review*, 40(2):357-379, May.

- [13] Ethier, Wilfred J., 1986, "The Multinational Firm", *Quarterly Journal of Economics*, 101(4):805-833, November.
- [14] Ethier, Wilfred J. and James R. Markusen, 1996, "Multinational Firms, Technology and Trade", *Journal of International Economics*, 41(1-2):1-28, August.
- [15] Findlay, Ronald and Stanislaw Wellisz, 1982, "Endogenous Tariffs, the Political Economy of Trade Restrictions, and Welfare", in *Import Competition and Response*, edited by Jagdish N. Bhagwati, Chicago: University of Chicago Press.
- [16] Goldberg, Pinelopi K. and Giovanni Maggi, 1999, "Protection for Sale: An Empirical Investigation", *American Economic Review*, 89(5):1134-1155, December.
- [17] Grossman Gene M. and Elhanan Helpman, 1996, "Electoral Competition and Special Interest Politics", *Review of Economic Studies*, 63(2):265-286, April.
- [18] Grossman Gene M. and Elhanan Helpman, 1996a, "Foreign Investment with Endogenous Protection", in *The Political Economy of Trade Policy, Papers in Honours of Jagdish Bhagwati*, edited by Feenstra, R.C.; Grossman, G.M., and Irwin D.A., Cambridge: The MIT Press.
- [19] Grossman Gene M. and Elhanan Helpman, 1995, "Trade Wars and Trade Talks", *Journal of Political Economy*, 103(4):675-708, August.
- [20] Grossman Gene M. and Elhanan Helpman, 1994, "Protection for Sale", *American Economic Review*, 84(4):833-850, September.
- [21] Guisinger S.E. and Associates, 1985, *Investment Incentives and Performance Requirements: Patterns of International Trade, Protection and Investment*, New York: Praeger.
- [22] Helpman, Elhanan, 1997, "Politics and Trade Policy" in *Advances in Economics and Econometric: Theory and Applications, Seventh World Congress*, edited by David M. Kreps and Kenneth F. Wallis, Vol.1, 19-45.
- [23] Helpman, Elhanan, 1985, "Multinational Corporations and Trade Structure", *Review of Economic Studies*, 52(3):443-57, July.
- [24] Helpman, Elhanan and Paul Krugman, 1985, *Market Structure and Foreign Trade*, Cambridge: MIT Press.
- [25] Hillman, Arye L., 1982 "Declining Industries and Political-Support Protectionist Motives", *American Economic Review*, 72(5):1180-87, December.
- [26] Hillman, Arye L., 1989, *The Political Economy of Protection*, London: Harwood.

- [27] Horstmann, Ignatius, J. and James R. Markusen, 1992, "Endogenous Market Structures in International Trade", *Journal of International Economics*, 32(1-2):109-129, February.
- [28] Konishi, Hideo, Kamal Shaggi and Shlomo Weber, 1999, "Endogenous Trade Policy Under Foreign Direct Investment", *Journal of International Economics*, 49(2):289-308, December.
- [29] Lipsey, Robert A., 1999, "The Role of Foreign Direct Investment in International Capital Flows", *NBER Working Paper Series*, WP 7094, April.
- [30] Lipsey, Richard G. and Merle Yahr Weiss, 1984, "Foreign Production and Exports in Manufacturing Industries", *Review of Economics and Statistics*, 66(2):304-308, May.
- [31] Lipsey, Robert E. and Merle Yahr Weiss, 1981, "Foreign Production and Exports of Individual Firms", *Review of Economics and Statistics*, 63(4):488-94, November.
- [32] Long, Ngo Van and Neil Vousden, 1991, "Protectionist Responses and Declining Industries", *Journal of International Economics*, 30(1-2):87-103, February.
- [33] Magee, Chris, 1998, "Endogenous Tariffs and Trade Adjustment Assistance", mimeo, Michigan State University.
- [34] Magee, Stephen P., William A. Brock and Leslie Young, 1989, *Black Hole Tariffs and Endogenous Trade Policy: Political Economy in General Equilibrium*, Cambridge: Cambridge University Press.
- [35] Magelby, David B. and Candice J. Nelson, 1990, *The Money Chase: Congressional Campaign Finance Reform*. Washington D.C.: Brookings Institution.
- [36] Markusen, James R., 1997, "Trade versus Investment Liberalization", *NBER Working Paper Series*, WP 6231, October.
- [37] Markusen, James R., 1995, "The Boundaries of Multinational Enterprises and the Theory of International Trade", *Journal of Economic Perspectives*, 9(2):169-189, Spring.
- [38] Markusen, James R., Thomas F. Rutherford, and Linda Hunter, 1995, "Trade Liberalization in a Multinational-Dominated Industry", *Journal of International Economics*, 38(1-2):95-117, February.
- [39] Markusen James R. and A.J. Venables, 1996, "The Increased Importance of Direct Foreign Investment in North Atlantic Economic Relationships: A Convergence Hypothesis", in Mathews B. Canzoneri, Wilfred J Ethier and V. Grilli, eds., *The New Transatlantic Economy*, Cambridge: Cambridge University Press.

- [40] Mayer, Wolfgang, 1984, "Endogenous Tariff Formation", *American Economic Review*, 74(5):970-985, December.
- [41] Mayer, Wolfgang and Jun Li, 1994, "Interest Groups, Electoral Competition and Probabilistic Voting for Trade Policies", *Economics & Politics* 6(1):59-77, January.
- [42] Mintz, J. M., 1990, "Corporate Tax Holidays and Investment", *World Bank Economic Review*, 4(1):81-103, January.
- [43] Motta, Massimo, 1992, "Multinational Firms and The Tariff-Jumping Argument", *European Economic Review*, 36(8):1557-1571, December.
- [44] Motta, Massimo and George Norman, 1996, "Does Economic Integration Cause Foreign Direct Investment?", *International Economic Review*, 37(4):757-783, November.
- [45] Olsen, Mancur, 1965, *The Logic of Collective Action*, Cambridge, MA: Harvard University Press.
- [46] Pigou, A., 1929, *The Economics of Welfare*, London: McMillan.
- [47] Raff, Horst and Krishna Srinivasan, 1997, "Tax Incentives for Import-Substituting Foreign Investment: Does Signaling Play a Role?", *Journal of Public Economics*, 67(2):167-193, February.
- [48] Rama, Martin and Guido Tabellini, 1998, "Lobbying by Capital and Labor Over Trade and Labor Market Policies", *European Economic Review*, 42(7):1295-1316, July.
- [49] Ray, E. John, 1989, "The Determinants of Foreign Direct Investment in the United States, 1979-85", in Robert E. Feenstra, ed., *Trade Policies for International Competitiveness*, Chicago: University of Chicago Press, 53-77.
- [50] Reuber G.L., H. Crookell, M. Emerson, and G. Gallais-Hamonno, 1973, *Private Foreign Investment in Development*, Oxford: Clarendon Press.
- [51] Rodrik, Dani, 1995, "Political Economy of Trade Policy", in *Handbook of International Economics*, edited by Gene M. Grossman and Kenneth Rogoff, Amsterdam: North-Holland, Vol. III, pp. 1457-1495.
- [52] Toye, J.F., 1978, *Taxation and Economic Development*, London: Frank Cass.
- [53] UNCTAD, 1996a, *Incentives and Foreign Direct Investment*, Geneva: United Nations.
- [54] UNCTAD, 1996b, *World Investment Report 1996*, Geneva: United Nations.

- [55] Wong, Kar-Yiu, 1995, *International Trade in Goods and Factor Mobility*, Cambridge: MIT Press.
- [56] Woodward, D.P. and R.J. Rolfe, 1993, "The Location of Export-Oriented Foreign Direct Investment in the Caribbean Countries", *Journal of International Business Studies*, 42:121-144, First Quarter.
- [57] World Trade Organization, 1996, *Annual Report 1996*, Geneva: World Trade Organization.