Opportunistic policies under varying costs of redeployment: evidence from the auto industry*

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Abstract

We model the interaction between host governments and foreign investors in a dynamic setting. Investors aim at obtaining the most favorable investment conditions while minimizing the probability of opportunistic behavior by the host government. The host government's motivation in regulating foreign investment is twofold: raising revenue and redistributing income towards her constituency. In this setup opportunism is increasing in the costs of redeployment faced by investors. We derive the comparative statics with respect to changes in the partisan orientation of the incumbent, and find that the expected distributive pressure exerted by investment of internationally mobile investment could either aggravate or mitigate the commitment problem faced by the government in the host country as mobility costs increase. The commitment problem is mitigated (exacerbated) when inward investment has a positive (negative) effect on the well-being of the incumbents' core constituents. We should, thus, expect that investment in assets with high redeployment costs will follow partisan cycles, as politically motivated governments compensate investors ex-ante to encourage them to enter. Exploring the empirical content of these predictions is fraught with problems since we lack good measures of fixed investment. To overcome this problem we create an original dataset of investment, plant size and activity of auto manufacturers in Latin America using satellite imaging and geocoded firm and plant level data. We find that the timing and choice of capacity by affiliates of MNCs follow partisan cycles as predicted by our model.

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1 Introduction

We model the interaction between host governments and foreign investors in a dynamic setting. Investors aim at obtaining the most favorable investment conditions while minimizing the probability of opportunistic behavior by the host government. This setting, however, leads to a well-known problem in the literature on capital taxation: once investment decisions have been made and capital becomes more inelastic, and should be taxed more heavily. It is ex-post optimal for the host government to choose the highest possible tax rates ex-post even when investors are promised more favorable investment conditions ex-ante, a much cited corollary dubbed the *obsolescing bargain* hypothesis (Kindleberger, 1969; Vernon, 1971). Yet, it is widely acknowledged in the literature on capital taxation that even in the presence of high mobility costs and in the absence of constraints on the government's ability to change policy tax rates are seldom set at confiscatory levels (Chari and Kehoe, 1990; Klein and Ríos-Rull, 2003). Moreover, even as their investment in fixed assets becomes inelastic to taxes in the short-run, foreign firms still maintain part of their bargaining power since they have control over the firms' production plans (Moran, 1978; Kobrin, 1987; Whiting, 1992).

In earlier work (Pinto and Pinto, 2011) we develop a political economy model of foreign direct investment in a dynamic setting where investor and government attributes are variable: foreign investment differs in how costly it is to redeploy their assets and in the technology of production they bring to the host; host governments, on the other hand, differ in terms of their constituency links and the constraints they face. The interaction between investors and host governments occurs under variable degrees of political volatility, which we model as the probability that a government with a specific political orientation will be in office in the next period. The model allows us to capture under a unifying framework the scope conditions for different predictions presented in the extant literature in the political economy of foreign investment, including hypotheses derived from the obsolescing bargain tradition, and those from the literature on capital taxation in macroeconomics.

The model provides the micro-foundations for the emergence of political and par-

tisan business cycles in the regulation of foreign investment. Specifically, we obtain the following comparative statics. First, as costs of redeployment increase host governments will have stronger incentives to tax foreign capital more heavily, holding constant the technological relationship between foreign capital and domestic factors of production. These incentives create the typical hold-up problem on which the obsolescing bargain hypothesis is based. Second, we show that governments have an incentive to tax more heavily foreign capital that is substitute in production to the incumbents' core constituents ceteris paribus. Third, as the probability of government turnover in the second period increases an incumbent with partisan motivations will lower taxes in the first period to attract foreign investment that complements in production the factor owned by the governments' constituents. The size of the tax breaks offered depends on the opportunity costs faced by investors, i.e., the expected returns they could get when investing abroad, and the relative weight placed by domestic actors on government transfers financed with the revenue obtained from taxing capital. Governments are forced to choose whether to cater to their constituents by offering them direct income effects from their participation in the market, or indirect income effects through government transfers (Pinto and Pinto, 2008; Pinto, 2013).

The emergence of the hold-up problem, around which most of the political economy literature is built, depends on the type of investment and the orientation of the incumbent government in the host. When the incumbent government represents owners of factors of production whose relative demand goes up with investment inflows the hold up problem that results from high adjustment costs is likely to be mitigated; the hold up problem is exacerbated when the incumbent represents factors of production that foreign capital substitutes for. These predictions are consistent with earlier findings on the differential sectoral allocation of FDI in OECD countries as the orientation of the incumbent changed, and the positive effect of FDI on wages under the left (Pinto and Pinto, 2008; Jensen et al., 2012).

In this paper we extend this framework to analyze investment decisions where

redeployment costs are high. In our setup, a foreign firm decides the amount of capital to invest in a host country in the expectation that the return to that investment will occur over time. Output is produced employing domestic labor; production is constrained by the capacity level decided in the prior stage. While the capacity level can subsequently be modified, it might be costly to do so. Domestic firms also participate in the production process interacting with both the foreign firm and workers. At the end of the first stage, an election is held at which partisan governments propose different policies intended to benefit their domestic constituents. The policy proposed by the winner of the election is implemented in the second stage of the game. After observing this policy, foreign and domestic firms, and workers choose their optimal responses.

We predict that partisan alignments will have a strong influence on investors' decisions: investors facing high costs of redeployment are more likely to sink their investment in fixed assets when the government represents their complement in production. Higher mobility costs make partisan cycles in foreign investment more pronounced, since politically motivated governments are likely to compensate investors for the expected changes in the regulatory environment offered to them. Exploring the empirical content of these predictions using traditional balance of payments data is problematic since we are not able to assess how much investment is fixed. We thus create an original dataset of fixed investment, plant size and activity of auto manufacturers in Latin America using satellite imaging and geocoded firm and plant level data. We find that both choice of capacity and production by affiliates of MNCs follow partisan cycles as predicted by our model.

2 Related literature

The political economy model of investment presented in this paper extends our earlier work where we argue that the incumbent's partisanship or constituency links–i.e.: her allegiance to labor or capital– may affect foreign investors' decision to enter a host country, form of entry choices, and the consequences of the endogenously determined investment flows on wages, employment, the demand for business services and the potential for spillover

effects in the host country (Pinto, 2004; Pinto and Pinto, 2007, 2008; Pinto, 2013). The intuition behind that model is that pro-labor governments would encourage investment inflows that complement labor in production, hence increasing labor demand. Right-leaning governments, on the other hand, would internalize the interests of domestic businesses encouraging investment inflows that are more likely to complement domestic capital in production, generating positive spillovers effects on domestic businesses, and/or introduce labor saving technologies.[1] Hence, in the static equilibrium we should expect FDI to covary with the host government's partisanship. Consistent with these predictions we unveil a systematic relationship between the host government's partisanship and the pattern of direct investment allocation across countries and over time (Pinto and Pinto, 2008).

Jensen et al. (2012) show that the relationship between left-leaning governments and foreign investment inflows is strongest in manufacturing, where foreign capital and labor are more likely to be complements in production, and weakest in the primary sector, where foreign capital is less likely to be a complement of labor, and costs of redeployment tend to be higher. The differential pattern of FDI inflows under left-leaning governments is associated with higher wages, but not under center or right-leaning incumbents, findings that are consistent with the assumptions under which our model is built and supportive of the predictions from the static model (Pinto and Pinto, 2008).

The static setting in our earlier allowed us to identify long run equilibria in investor-government interactions in a political model of investment regulation; yet direct investment is usually associated with economic activities whose profitability is likely to materialize over longer time spans. In the dynamic model of investment presented in section 3 we allow the technology of production and mobility costs faced by investors to vary. On the political side we model governments as having varying partisan motivations, and add uncertainty about the orientation of the incumbent government in the second period. In the more general version of the model we are able to capture under a common framework the predictions from the most prevalent models on the political economy of foreign investment, ranging from

[1]Moreover, we argued that domestic business interests would strictly prefer technology transfer agreements to investment capital inflows, especially if those flows create competitive pressure in product or factor markets. See Pinto (2013).

the traditional obsolescing bargain hypothesis, to more recent accounts of how institutional constraints make host countries more desirable to foreign investors. In this paper we focus on one particular feature: whether partisan alignments affect the amount of investment in fixed assets at varying degrees of uncertainty about the orientation of host country governments.

Adding a dynamic dimension to the political economy investor-government interaction leads to a well-known problem in the literature on capital taxation: governments have an incentive to tax capital more heavily once investment decisions have been made, given that the elasticity of capital to taxation becomes zero. This problem is at the core of the *obsolescing bargain* proposition: when the return from an investment occurs over time, the *ex-ante* bargaining leverage vis-à-vis the host government enjoyed by an investor gradually obsolesces as the investment sinks it. It becomes optimal for the host government to choose *ex-post* the highest possible tax rates on that investment. This incentive to act opportunistically is present even for governments that had promised to maintain tax rates at the ex-ante optimal levels (Kindleberger, 1969; Vernon, 1971). The proposition is sensible, yet our modeling exercise suggests that as originally formulated the obsolescing bargain hypothesis is incomplete. In equilibrium the model would predict that barring any form of ex-ante compensation we should not observe opportunistic behavior by host governments. The logic is simple: investors who face an exit cost should anticipate the government's behavior, and will likely decide not to enter, resulting in missed investment opportunities and suboptimal policy. In the dynamic setup of our model the compensatory mechanism arises endogenously in equilibrium. This compensatory mechanism qualifies the scope conditions under which we would observe opportunistic behavior by the host when investors face high costs of redeploying their assets. We show that the expected distributive pressure exerted by inflows and outflows of internationally mobile capital on the wellbeing of the incumbent's core constituents are likely to mitigate the commitment problem presented in the literature. This mitigating effect occurs when the foreign investment complements in production the factors owned by the government's core constituent at the time of entry. We thus qualify the predictions from the obsolescing bargain model,

which arises only as a special case of our broader partisan model of investment. The bottom line is that when dealing with forward looking foreign investors governments in the host country, even myopic ones, are likely to internalize the future consequences of their current choices. As the probability of facing an incumbent who is likely to tax their return more heavily rises, investors will receive more generous concessions from host governments representing a coalition of actors that benefit from the specific type of investment flows. The incentives to act opportunistically depend on the orientation of current and future coalitions. Increasing mobility costs would, thus, exacerbate partisan business cycles in investment.

A related strand in the political economy literature of FDI focuses on institutional constraints as the solution to this commitment problem. When the hands of government are tied, or when the incumbent's ability to move the status quo is subject to delays by institutions constraints, promises made ex-ante are more likely to be honored (North and Thomas, 1973; North and Weingast, 1989; Henisz, 2000, 2002). Yet, tying the government's hands is equivalent to adopting an inflexible policy; and inflexible policy is a departure from the first-best/optimal practices, i.e., those policies that would have been chosen in a complete contract environment, or adopted by a welfare maximizing social planner (Spiller and Tommasi, 2003). Moreover, the argument assumes away the distributive consequences of inward FDI flows, which could either exacerbate or mitigate the commitment problem faced by host governments. Additionally, the literature on capital taxation has persuasively shown that even in the absence of institutional constraints capital tax rates are not set at confiscatory levels (Chari and Kehoe, 1990; Klein and Ríos-Rull, 2003). We present these propositions in more depth in the ensuing sections.

In its stylized form the logic of the partisan investment hypothesis is quite simple. Governments have an incentive to discriminate in favor of internationally mobile investment that complements the factor of production owned by their core constituents, and restrict the type of investment that substitutes for the services supplied by those constituents (Pinto and Pinto, 2008; Pinto, 2013). Yet the interaction between host governments and

investors is usually not a one-shot game. Some types of investment, but particularly most of foreign direct investment are likely to generate returns throughout several periods, possibly even beyond multiple elections and incumbents' tenure in office. When making investment decisions investors should consider not only the leanings of the current government, but also the potential orientation of future governments. Investors' internalization of future political conditions, in turn, affects the incentive structure faced by incumbent governments when deciding how to regulate foreign investment in the current period. Modeling the interaction between foreign investors and host governments in a dynamic setting allows us to capture these calculations.

The design of the tax system in the economy is also driven by efficiency considerations which dictate that rates should be set at levels that minimize the distortions generated by the tax structure. Efficiency concerns dictate that more inelastic tax bases should be taxed more heavily: There is always an incentive to raise taxes on capital once investment decisions have been made, the tax base becomes more inelastic. Under these conditions it is optimal *ex-post* to choose the highest possible capital tax rates; promises to maintain tax rates at their *ex-ante* optimal levels are bond to be broken. The problem is rooted in the time-inconsistency property of sequential policy.[2] The incentives to act opportunistically are particularly acute for the type of investments that require higher upfront fixed costs. This is the intuition behind the obsolescing bargain model on which much of the research on political risk is built.[3] Current governments are allegedly unable to commit credibly to policies that will have an effect in the future.

In the case of capital taxation, given that tax rates can be changed at any time, governments have an incentive to act opportunistically as the elasticity of the tax base decreases. Investors will anticipate the host government's behavior, and decide not to enter the host if the expected return is below what the investor could obtain elsewhere, an out-

[2]On time consistency see the pioneering work of Kydland and Prescott (1977); Calvo (1978); Drazen (2000).

[3]Political risk takes different form, including convertibility, violence, expropriation and regulatory change. Though expropriation has usually dominated the dollar amount of the payments made insurers of political risk its prevalence varies dramatically over time. See the contributions in Moran and West (2005) for a discussion on political risk insurance.

come that is suboptimal for investors and governments alike. However, we observe that tax rates on capital are seldom set at confiscatory levels. Applications in the political economy literature explore another rare event: expropriations and opportunistic seizure of foreign owned assets (Tomz and Wright, 2010; Jensen et al., 2012). Yet expropriation requires the existence of some surprise element that was not or could not be priced at the time of making the decision to invest. In order to account for the exceptionality of confiscatory tax rates the literature in macroeconomics has formulated different explanations, including the existence of partial commitment technologies, institutional constraints and repeated interactions as discussed in the next paragraphs.

Klein and Ríos-Rull (2003), for example, consider a dynamic setup where governments can only commit to tax rates one period in advance due to exogenous restrictions which prevent incumbents from immediately revising the status quo. Owners of internationally mobile capital understand these constraints and make their investment decisions accordingly. By preventing or delaying policy changes, political institutions act as one such commitment devices. The institutional environment, namely the rules of the political game, would act as a solution to the commitment problem that incumbents face in their interaction with foreign investors.[4] The delay would push the policy change into a distant future that does not enter the investors' time horizon. This partially inflexible policy has similar properties to those discussed by Spiller and Tommasi (2003).

Chari and Kehoe (1990), on the other hand, claim that reputation may substitute for other forms of commitment mechanisms: ex-ante optimal tax rates can be sustained in equilibrium when there is a repeated interaction between governments and capital owners. This idea of commitment by reputation can be linked to the predictions on the role of partisanship in earlier work. The predictions from the static partisan model of FDI developed by Pinto and Pinto (2008) would also hold in a dynamic framework when foreign investment adjusts perfectly to the new desired level once governments change capital tax rates, or, alternatively, if foreign capital completely depreciates before tax rates are

[4]See, among others, North and Thomas (1973); North and Weingast (1989); Henisz (2000). Stasavage (2003); Haber et al. (2002, 2004), introduce alternative commitment mechanisms.

changed.[5] The speed at which this reaction takes place, i.e., whether it is immediate or not, depends on the capital adjustment costs that are likely to vary by type of investment. In this paper we explore how the dynamic solution to the capital taxation problem differs from the long-run solution derived from the partisan investment model at varying levels of adjustment costs and different technologies of production which characterize different types of foreign investment.

3 A Model of Investment Cycles Under Imperfect Mobility

In this section, we describe the general theoretical framework. Pinto and Pinto (2011) contains a detailed explanation of the model and several extensions. Consider a dynamic three-factor, two-sector, small-open economy.[6] Decisions are made at two consecutive time periods. Unprimed variables refer to values in the first period, and primed variables denote values in the second period.

3.1 Economic agents

The affiliate of an MNC with headquarters in a foreign country operates in sector $i = 1, 2$ of a host country. The MNC produces good i in the host country using domestic labor, domestic capital, and foreign capital supplied by the MNC, and a given technology that determines how it combines with local factors of production. There are two domestic political groups: workers (who only own labor), denoted with a $\mathcal{L}$, and domestic capitalists (who only own domestic capital), denoted with a $\mathcal{K}$. The total number of domestic workers and domestic capitalists are denoted $\bar{L}$ and $\bar{K}$, respectively. In each period consumers derive utility from income and from a government in-kind transfer. The utility of individual h in the current period is $U^h = y^h + v(g^h)$, for $h = \mathcal{L}, \mathcal{K}$, where y^h is the income of a representative agent in group h, g^h is the transfer that each member of group h receives

[5] On the determination of capital tax rates in dynamic settings under different degrees of capital mobility, see Wildasin (2003), among others. These models consider that capital stocks can react to changes in capital taxation.

[6] The basic setup of the model is a two-period extension of the model introduced in Pinto and Pinto (2008).

from the government, and $v_g > 0, v_{gg} \leq 0$. Income received by domestic political groups is given by the returns to the factors of production they own: for workers, the wage w_i, and for domestic capitalists the marginal productivity of domestic capital, denoted with $\bar{r}_i$.

The government in the host country collects each period a tax on corporate income. The tax revenue finances the government in-kind transfers.[7] It is assumed that through different fiscal incentives, governments are capable of imposing different effective tax rates on corporations operating in different sectors.[8] They can commit to these tax rates only for the period under which that particular government is in power. We denote with τ_i the effective corporate income tax rate faced by the MNC in sector i.

3.2 Production

The MNC produces good i using domestic labor, domestic capital, and foreign capital. The production function is represented by $q_i = f_i(K_i, k_i, L_i)$, where K_i denotes domestic capital, k_i foreign capital, and L_i labor in sector $i = 1, 2$. The production function f_i exhibits constant returns to scale. The price of each good i is internationally given and assumed to be equal to one. Domestic capital is sector specific and constant over time. The amount of domestic capital in each sector is normalized to unity, and hence the total amount of capital in the economy is $\bar{K} = 2$.[9] Total domestic labor is assumed fixed in supply in both periods, i.e., $\bar{L} = L_1 + L_2 = L'_1 + L'_2$, mobile across sectors within the country, but internationally immobile. Factors of production are paid their respective marginal productivity. Free mobility of labor across sectors assures that the wages are

[7]For simplicity the model assumes that the host government controls only one tax instrument: the effective tax rate on corporate income. To simplify the analysis we also assume that domestic capital is inelastic to taxes and that the tax is only raised on foreign investment.

[8]Many countries rely on different tax incentive schemes to selectively attract or deter foreign capital flows (see Pinto, forthcoming). The tax schemes include numerous policy instruments, such as screening and approval procedures, limits on the share that non-residents are allowed to hold, differential tax schedules, regulatory regimes on sectoral activity and market structure, trade policy, local procurement rules, differential exchange rate regimes. All these instruments and regulations either affect the cost of doing business or the price that firms can charge for their goods and services, and are hence reflected in the firms' bottom line. We assume that these restrictions would affect government's revenue, which is partly used to finance the government supplied transfer g^h. Thus, when assessing the impact of the previous policies, partisan governments are forced evaluate the extent to which the flows of foreign capital affect the returns of domestic factors of production(y^h), and the level of the government transfers (g^h).

[9]For notational simplicity, we exclude K_i as an argument of the production function.

equalized across sectors for every time period, i.e., $w = w_1 = w_2$ and $w' = w'_1 = w'_2$.[10]

The MNC operating in sector i decides how much capital to allocate to the production of good i in the host country. Alternatively, capital can be invested elsewhere and receive a return r_i, which is assumed fixed, constant over time, and sector specific.[11] When the MNC produces in sector i of the host country, it earns profits, which are subject to taxation by the host government.

Following Wildasin (2003), our model assumes that it may take some time for the MNC to adjust the level of foreign capital to its desired amount in the host country. Whether the reaction is immediate or not depends on a capital adjustment-cost function. With perfect capital mobility, capital adjustment costs are negligible and the adjustment of foreign capital stock is immediate, i.e., it fully amortizes in the current period. When it is costly to change the stock of capital, only partial adjustment would take place. Let $C_i(k_i, k'_i)$ represent the capital adjustment cost function in sector i, with $C_{k'_i,i} > 0$, and $C_{k'_i k'_i,i} \leq 0$. A convex adjustment cost function implies that capital stocks do not jump immediately to its new level when the host government changes the tax rate (see, for example, Barro, Mankiw and Sala-i-Martin (1995)). Specifically, we assume the following functional form:

$$C_i(k_i, k'_i) \equiv \frac{\phi_i}{2} \left(\frac{k'_i - k_i}{k_i} \right)^2 k_i. \tag{1}$$

When ϕ_i tends to infinity, foreign capital stocks become fixed. The extreme case of immediate adjustment results when $\phi_i = 0$.[12] From the viewpoint of the MNC's taxable

[10] A similar analysis can be done assuming that labor is sector specific, and domestic capital mobile across sectors.

[11] In this version of the model, and to simplify the analysis, we ignore investment decisions made by the MNC. Our stylized model intends to capture the following conditions. First, different types of foreign capital are available in infinite supply and ready to enter the country as either a complement or substitute of labor (or domestic capital). The amount of domestic capital is, on the other hand, limited. Second, we emphasize the idea that, within the country, the cost of moving across sectors is higher for domestic capital than for labor. The assumptions we make here are somewhat extreme. The predictions from our model would be substantively similar if domestic capital is assumed mobile while labor is sector specific. When both labor and domestic capital are perfectly mobile across sectors, governments would not be able to implement sector-specific policies. Essentially, for the conclusions of our model to hold we require one of the domestic factors to be relatively more specific than the other (see Pinto and Pinto 2008).

[12] Note that we assume that the adjustment cost is symmetric around k_i.

income, capital adjustment costs may not be fully tax deductible. The model assumes that a proportion $x_i \geq 0$ of $C_i(k_i, k_i')$ can be deducted from the MNC's taxable income.[13]

The MNC sequentially decides the level of capital in the first and second periods. In the second period, the amount of capital k_i' is chosen after observing the tax policy implemented at the beginning of that period by the government. However, when deciding the amount of capital to invest in the first period k_i, the MNC is uncertain about the type of government that will be in power in the next period. The expected present value of profits of a MNC that operates in sector i is $V_i = \pi_i + \delta\, E[\pi_i']$, where

$$\pi_i = [f_i(k_i, L_i) - wL_i - \bar{r}_i]\,(1 - \tau_i) - r_i k_i, \quad \text{and} \tag{2}$$

$$\pi_i' = \left[f_i(k_i', L_i') - w' L_i' - \bar{r}_i'\right](1 - \tau_i') - (1 - \tau_i' x_i) C_i(k_i, k_i') - r_i k_i', \tag{3}$$

and $0 < \delta < 1$ is the discount factor. Note that if $x_i = 0$, capital adjustment costs cannot be deducted from taxable income, if $x_i = 1$, capital adjustment costs are fully deductible, and if $x_i > 1$, capital adjustment costs are subsidized.

3.3 Partisan Government

Governments are characterized by their partisan orientation, or allegiance to specific groups in the polity. For simplicity, we assume that governments can either be pro-domestic labor or pro-domestic capital. A government decides the optimal values of taxes and transfers $\{\tau_1, \tau_2, g^{\mathcal{L}}, g^{\mathcal{K}}\}$ for the period during which the incumbent will remain in power. The specific content of these choices depends on the incumbent's partisan orientation. The partisan government's objective function is, thus:

$$\Omega = I^{\mathcal{L}}(L_1 U_1^{\mathcal{L}} + L_2 U_2^{\mathcal{L}}) + (1 - I^{\mathcal{L}})(U_1^{\mathcal{K}} + U_2^{\mathcal{K}}), \tag{4}$$

[13] An extension of the model would allow governments to choose the amount of the capital adjustment costs that can be deducted from taxable income. In the numerical example below, x_i will be assumed fixed and equal to 0.

subject to budget constraint

$$I^{\mathcal{L}}\bar{L}g^{\mathcal{L}} + (1 - I^{\mathcal{L}})\bar{K}g^{\mathcal{K}} = T, \tag{5}$$

where $U_i^{\mathcal{L}} = w_i + v(g^{\mathcal{L}})$, $U_i^{\mathcal{K}} = \bar{r}_i + v(g^{\mathcal{K}})$, for $i = 1, 2$, T denotes corporate income taxes collected by the government, and $I^{\mathcal{L}}$ is an indicator function which is equal to 1 if the government is pro-labor, and 0 if it is pro-capital.[14] Hence, a pro-labor (pro-capital) government maximizes the utility of domestic workers (domestic capitalists), and not simply their income.[15]

At the beginning of the first period, a partisan government chooses taxes and transfers $\{\tau_1, \tau_2, g^{\mathcal{L}}, g^{\mathcal{K}}\}$ for the period that it will be in power. In the next period, a government with a different political orientation could be in power. This government chooses, at the beginning of the second period, the values of $\{\tau_1', \tau_2', g^{\mathcal{L}\prime}, g^{\mathcal{K}\prime}\}$ that maximize Ω' conditional on the incumbent's type. When agents make decisions in the first period, they know that with probability β' a pro-labor government will be in power in the next period, and with probability $(1 - \beta')$ the government will be pro-capital.

Due to the imperfect deductibility of capital adjustment costs, the corporate income tax base differs across periods. As a result, taxes collected in the first and second periods are respectively

$$T = \sum_{j=1}^{2} \tau_j \left[f_j(k_j, L_j) - wL_j - \bar{r}_j \right], \quad \text{and} \tag{6}$$

$$T' = \sum_{j=1}^{2} \tau_j' \left[f_j(k_j', L_j') - w'L_j' - \bar{r}_j' - x_j C_j(k_j, k_j') \right]. \tag{7}$$

3.4 Timing of events

The model assumes that, at each time period, decisions are made sequentially as follows:

[14] Alternatively we could model the partisan orientation as a continuous variable $\gamma \in [0, 1]$ representing the weight that the government places on the well-being of workers and capitalists, ranging from 0, when the incumbent pro-capitalist and 1 when she is pro-labor.

[15] The maximization problem stated in the paper is similar to the problem of optimal indirect taxation when the government has redistributive considerations.

(i) At the beginning of the first period, a partisan government chooses (effective) tax rates in sectors τ_1 and τ_2.

(ii) After observing tax rates, domestic labor and foreign capitalists decide L_i and k_i, $i = 1, 2$.

(iii) At the beginning of the second period, nature chooses a pro-labor government with probability β' and a pro-capital government with probability $(1 - \beta')$.

(iv) Once the state of nature is realized, each government chooses tax rates according to its partisan orientation.

(v) Domestic labor and foreign capitalists (L'_i and k'_i, $i = 1, 2$) adjust to the new environment as in stage (ii).

Figure 1 shows graphically the sequence of events. We solve for the sub-game perfect Nash Equilibrium of the game. Pinto and Pinto (2011) analyzes the theoretical model in more detail. In the following sections, we examine the decisions made by economic agents at each stage of the game. Later, we construct several numerical examples to illustrate the main theoretical results.

4 Second Period

We begin solving the second period problem for a government with a given partisan orientation. Later, we consider the specific problem faced by each type of government.

4.1 The Firm's Problem

At the end of the second period, the sectoral allocation of the factors of production $\{k'_1, k'_2, L'_1, L'_2\}$ is simultaneously determined. Both the political orientation of the partisan government and the levels of the policy choices made by this government are known at this stage.

The MNC corporation in sector i chooses the level of capital k_i' that maximizes V_i taking k_i, the tax policy, and the returns to other factors of production as given. From the first-order condition, we obtain

$$f_{k',i}(k_i', L_i')(1-\tau_i') - (1-\tau_i' x_i) C_{k',i}(k_i, k_i') = r_i, \quad i = 1, 2. \tag{8}$$

Equation (8) states that, given an initial level of k_i', foreign capital flows into (or out of) sector i in the second period up to the point where the net return on capital, given by $f_{k',i}(1-\tau_i')$, and the marginal cost, represented by the sum of the opportunity cost of capital r_i, and the net marginal adjustment cost of capital, given by $(1-\tau_i' x_i) C_{k',i}$, are equalized. Since labor is perfectly mobile across sectors:

$$f_{L',1}(k_1', L_1') = f_{L',2}(k_2', L_2') \equiv w', \tag{9}$$

where $L_1' = \bar{L} - L_2'$. Thus, for a given partisan government, the allocation $\{k_1', k_2', L_1', L_2'\}$ is implicitly determined by equations (8) and (9). The solutions $L_i'(\tau_1', \tau_2', k_1, k_2)$ and $k_i'(\tau_1', \tau_2', k_1, k_2)$ are functions of the predetermined variables $\tau_1', \tau_2', k_1, k_2$, and other exogenous variables implicit in the capital adjustment cost function.[16] Given the allocation of factors of production, the return to domestic capital in sector i becomes $\bar{r}_i' \equiv f_{K',i}(k_i', L_i', K_i')$ evaluated at $K_i' = 1$.

The following comparative static results are obtained by implicitly differentiating the previous equations:

$$\frac{\partial k_i'}{\partial \tau_i'} = < 0, \quad sign \frac{\partial k_j'}{\partial \tau_i'} = sign\{f'_{Lk,i} \times f'_{kL,j}\}, \tag{10}$$

$$sign \frac{\partial L_1'}{\partial \tau_1'} = sign\{f'_{Lk,1}\}, \quad sign \frac{\partial L_1'}{\partial \tau_2'} = -sign\{f'_{Lk,2}\}, \tag{11}$$

$$sign \frac{\partial w'}{\partial \tau_i'} = -sign\{f'_{Lk,i}\}. \tag{12}$$

Except for the sign of $\partial k_i'/\partial \tau_i'$, the results depend on the specific technological relationship

[16] For instance, the parameters ϕ_1 and ϕ_2 in the previous specification of the capital adjustment cost function.

between the factors of production k and L in each sector. For instance, suppose that k and L are complements in both sectors, i.e., $f_{kL,i} > 0, i = 1, 2$. Then, $\partial k_2'/\partial \tau_1' > 0$ and $\partial L_1'/\partial \tau_1' < 0$. The intuition behind these results is straightforward. An increase in τ_1' reduces the amount of foreign capital in sector 1. Given that k_1 and L_1 are complements, the marginal productivity of labor in sector 1 declines. Consequently, labor shifts to sector 2. As k_2 and L_2 are also complements, the marginal productivity of foreign capital increases in that sector, attracting foreign capital to sector 2. Similar conclusions apply for changes in τ_2' and for different technological relationships between inputs. Expression (12) can be explained as follows: a higher level of τ_i' lowers the amount of foreign capital entering sector i (shown by (10)). Hence, if labor and foreign capital are substitutes (i.e., $f_{Lk,i}' < 0$), labor productivity is higher, so wages should increase. If they are complements (i.e., $f_{Lk,i}' > 0$), a smaller amount of k_i' lowers labor productivity in the sector, so wages should decrease.

Due to the assumption of CRS, the return received by domestic capital in sector i is

$$\bar{r}_i' = q_i' - w' L_i' - r_i k_i', \qquad i = 1, 2. \tag{13}$$

In general, the effect of tax rates on $\bar{r}_i'$ and on $(\bar{r}_1' + \bar{r}_2')$ cannot be unambiguously determined. It can be shown, however, that this effect depends not only on the technological relationship between factors of production, which ultimately determines the sign of $\partial w'/\partial \tau_i'$, but also on the magnitude $|\partial w'/\partial \tau_i'|$. We will reexamine this effect later in a numerical example.

4.2 The Government's Problem

At the beginning of the second period, a partisan government (pro-labor or pro-capital) decides the optimal values of $\{\tau_1', \tau_2', g^{\mathcal{L}\prime}, g^{\mathcal{K}\prime}\}$ anticipating the behavior of labor and foreign capital owners, i.e., considering their responses represented by the functions $L_1'(\tau_1', \tau_2', k_1, k_2)$ and $k_i'(\tau_1', \tau_2', k_1, k_2), i = 1, 2$. Specifically, the government maximizes:

$$\Omega' = I^{\mathcal{L}\prime}(L_1' U_1^{\mathcal{L}\prime} + L_2' U_2^{\mathcal{L}\prime}) + (1 - I^{\mathcal{L}\prime})(U_1^{\mathcal{K}\prime} + U_2^{\mathcal{K}\prime}), \tag{14}$$

with respect to $\{\tau_1', \tau_2', g^{\mathcal{L}\prime}, g^{\mathcal{K}\prime}\}$, subject to budget constraint $I^{\mathcal{L}\prime}\bar{L}g^{\mathcal{L}\prime} + (1 - I^{\mathcal{L}\prime})\bar{K}g^{\mathcal{K}\prime} = T'$, considering that $I^{\mathcal{L}\prime} = 1$ if the government is pro-labor and $I^{\mathcal{L}\prime} = 0$ if pro-capital. Additionally, as explained in the previous section, in equilibrium $w_1' = w_2' = w'$ because labor is mobile across sectors, but $\bar{r}_1'$ and $\bar{r}_2'$ are not necessarily equalized given that K_1 and K_2 are fixed factors.[17] Denoting with λ' the Lagrange multiplier associated with the budget constraint, the first-order conditions are:

$$\tau_1': \quad I^{\mathcal{L}\prime}\frac{\partial w'}{\partial \tau_1'}\bar{L} + (1 - I^{\mathcal{L}\prime})\left(\frac{\partial \bar{r}_1'}{\partial \tau_1'} + \frac{\partial \bar{r}_2'}{\partial \tau_1'}\right) + \lambda'\frac{\partial T'}{\partial \tau_1'} = 0, \tag{15}$$

$$\tau_2': \quad I^{\mathcal{L}\prime}\frac{\partial w'}{\partial \tau_2'}\bar{L} + (1 - I^{\mathcal{L}\prime})\left(\frac{\partial \bar{r}_1'}{\partial \tau_2'} + \frac{\partial \bar{r}_2'}{\partial \tau_2'}\right) + \lambda'\frac{\partial T'}{\partial \tau_2'} = 0, \tag{16}$$

$$g^{\mathcal{L}\prime}: \quad v'(g^{\mathcal{L}\prime}) - \lambda' = 0, \quad \text{if } I^{\mathcal{L}\prime} = 1, \tag{17}$$

$$g^{\mathcal{K}\prime}: \quad \bar{K}v'(g^{\mathcal{K}\prime}) - \lambda' = 0, \quad \text{if } I^{\mathcal{L}\prime} = 0, \tag{18}$$

$$\lambda': \quad T' - I^{\mathcal{L}\prime}\bar{L}g^{\mathcal{L}\prime} - (1 - I^{\mathcal{L}\prime})\bar{K}g^{\mathcal{K}\prime} = 0. \tag{19}$$

where $\partial T'/\partial \tau_i'$ is the change in tax revenue due to a change in τ_i'.[18] The system of equations (15) - (19) determine the optimal values $\{\tau_1'^*, \tau_2'^*, g^{\mathcal{L}\prime *}, g^{\mathcal{K}\prime *}, \lambda'^*\}$ as a function of the exogenous parameters, specifically, k_1, k_2, and $I^{\mathcal{L}\prime}$. As a result, the equilibrium allocation of factors of production $L_1'^*$ and $k_i'^*, i = 1, 2$ ultimately depends on prior levels of investment k_1 and k_2, and the government's choice of taxes on capital for each sector $\tau_1'^*$, and $\tau_2'^*$. Equations (17) and (18) simply establish the level of the in-kind transfer targeted to the corresponding political group: $g^{\mathcal{L}\prime}$ (or $g^{\mathcal{K}\prime}$) is such that $v_g(g^{\mathcal{L}\prime}) = \lambda'$ (or $\bar{K}v_g(g^{\mathcal{K}\prime}) = \lambda'$).[19]

Consider, in first place, a pro-labor government, i.e. $I^{\mathcal{L}\prime} = 1$, and suppose that T'

[17] We do not restrict tax rates to be non-negative. However, it is clear that they cannot be negative or zero in both sectors at the same time.

[18] We assume that the welfare weights attached to $\mathcal{L}$ and $\mathcal{K}$ are the same across sectors. It can also be assumed that governments are identified with workers or domestic capitalists operating in specific sectors, which would require using different welfare weights for each group in each sector. As labor is mobile and wages are equalized across sectors, the latter is irrelevant for $\mathcal{L}$. It would still seem reasonable, though, to consider different weights for the fixed factors K_1 and K_2. For simplicity, we assume that domestic capitalists are treated identically regardless of the sector where they operate.

[19] It should be clear that the Lagrange multipliers are not necessarily equal in the two cases.

is strictly concave in τ_i'.[20] In this case,

$$\frac{\partial w'}{\partial \tau_i'}\bar{L} = -\lambda' \frac{\partial T'}{\partial \tau_i'}. \tag{20}$$

Hence, since $\lambda' > 0$, the expressions $\partial w'/\partial \tau_i'$ and $\partial T'/\partial \tau_i'$ have opposite signs. In this way, when domestic labor and foreign capital are substitutes, i.e. $\partial w'/\partial \tau_i' > 0$, then τ_i' is set at an excessively high level. In other words, the level of τ_i' chosen by a pro-labor government under the previous conditions is higher than the level of τ_i' that would maximize T' (or the in-kind transfer received by the government). When foreign investment and labor are complements in production, i.e. $\partial w'/\partial \tau_i' < 0$, then $\partial T'/\partial \tau_i' > 0$. In this situation, a decline in τ_i' increases the wages received by labor, but, at the same time, it decreases the in-kind transfer received by this group. Thus, a pro-labor government chooses the level of τ_i' that balances these two effects.[21]

When a pro-capital government is in power in the second period, i.e. $I^{\mathcal{L}\,\prime} = 0$, then

$$\frac{\partial \left(\bar{r}_1' + \bar{r}_2'\right)}{\partial \tau_i'} = -\lambda' \frac{\partial T'}{\partial \tau_i'}. \tag{21}$$

Since the expression on the LHS of (21) cannot be unambiguously signed, then it is not possible, without making further assumptions, to establish definite conclusions in terms of the level of τ_i' chosen by a pro-capital government. We will later explore this effect in more detail in a numerical example where we add more structure to the production and utility functions.

Additionally, tax rates determined in the second period also depend on the amount of foreign capital operating in each sector in the previous period, which, in turn, depend on the tax rates decided by the partisan government at the beginning of that period. The next section addresses this case.

[20] In other words, $\partial T'/\partial \tau_i'$ is positive for low values of τ_i' and negative for large values of τ_i'. The latter is always true in the cases that we consider later in our numerical examples.

[21] If we assume that the transfer received by the political group is an in-cash transfer and that τ_i' can also be negative, then a pro-labor government may even end up subsidizing foreign capital under the conditions established before.

4.3 First Period

Economic agents make decisions in the first period assuming that a pro-labor (pro-capital) government will be in power with probability β' $[(1-\beta')]$ next period, and that this government, when determining the level of the policy variables, will maximize the utility of their constituents, as studied earlier.

4.3.1 First Period: The Firm's Problem

At the end of the first period (i.e., after observing the tax rates decided by a partisan government and anticipating -in expected terms- the tax policy of the second period), the allocation of factors of production across sectors $\{k_1, k_2, L_1, L_2\}$ is determined. The following system of equations define the equilibrium values of these variables:

$$f_{k,1}(k_1, L_1)(1-\tau_1) + \delta E\left[\partial \pi^{1\prime}/\partial k_1\right] - r_1 = 0, \quad (22)$$

$$f_{k,2}(k_2, L_2)(1-\tau_2) + \delta E\left[\partial \pi^{2\prime}/\partial k_2\right] - r_2 = 0, \quad (23)$$

$$f_{L,1}(k_1, L_1) - f_{L,2}(k_2, L_2) = 0, \quad (24)$$

where δ is the discount factor, $L_2 = \bar{L} - L_1$, and

$$\frac{\partial \pi^{i\prime}}{\partial k_i} = -\left[(1-\tau_i')\left(\frac{\partial w'}{\partial k_i} + \frac{\partial \bar{r}_i'}{\partial k_i}\right) + (1-\tau_i' x_i)C_{k,i} + \left(f_i' - w' L_i' - \bar{r}_i' - x_i C_i\right)\frac{\partial \tau_i'}{\partial k_i}\right]. \quad (25)$$

Equations (22) and (23) determine the levels of k_i' that maximize the MNC's expected present value of profits, i.e., $\partial V_i/\partial k_i = 0, i = 1, 2$. When the MNC decides the amount of foreign capital that it will employ in sector i, it considers both the effect of a change in k_i on profits in the first period, represented $f_{k,i}(k_i, L_i)(1-\tau_i) - r_i$, and the expected impact of a change in k_i on the MNC's second-period profits, given by $E\left[\partial \pi^{i\prime}/\partial k_i\right]$. Since domestic labor is completely mobile across sectors, wages should also be equalized in equilibrium, as studied earlier. Overall, the system of equations (22-24) implicitly determine the solutions $k_i(\tau_1, \tau_2)$ and $L_i(\tau_1, \tau_2)$, $i = 1, 2$.

4.4 First Period: The Government's Problem

At the beginning of the first period, the government chooses tax policy. The problem is similar to the one explained in Section 4.2: a partisan government (pro-labor or pro-capital) must decide the optimal policy for that period, represented by taxes and transfers $\{\tau_1, \tau_2, g^{\mathcal{L}}, g^{\mathcal{K}}\}$, in anticipation of the sectoral allocation choices made by workers and foreign investors $\{k_1, k_2, L_1, L_2\}$ derived earlier. Note that even though governments are only concerned about the current well-being of their political base, their decisions will definitely have implications for future governments. The government problem becomes

$$\max_{\{\tau_1,\tau_2,g^{\mathcal{L}},g^{\mathcal{K}}\}} \Omega = I^{\mathcal{L}}(L_1 U_1^{\mathcal{L}} + L_2 U_2^{\mathcal{L}}) + (1 - I^{\mathcal{L}})(U_1^{\mathcal{K}} + U_2^{\mathcal{K}}), \tag{26}$$

subject to $I^{\mathcal{L}} \bar{L} g^{\mathcal{L}} + (1 - I^{\mathcal{L}}) \bar{K} g^{\mathcal{K}} = T$, with

$$T = \sum_{i=1}^{2} \tau_i \left[f_i(k_i, L_i) - w L_i - \bar{r}_i \right] \tag{27}$$

The first-order conditions and the conclusions are similar to the ones established earlier. The only difference with the previous analysis is that the tax revenue T is not affected by the deductability of capital adjustment costs.

5 Numerical Example

To illustrate the implications of the theoretical model introduced earlier, we perform a series of simulations with numerical examples where we use specific functional forms for production and utility functions of the actors involved. In particular, our objective is to examine how different effective corporate tax rates across sectors implemented by pro-labor governments differ from those chosen by pro-capital governments, and how these choices depend on adjustment/capital mobility costs faced by foreign investors, and on the degree of complementarity and substitutability between foreign capital and labor.

5.1 Description of the numerical example

In the examples, we use the following functional specifications. First, the utility function is defined by $U_h = y_h + b\,(g_h)^\theta$, for $h = \mathcal{L}, \mathcal{K}$, with $b > 0$ and $0 < \theta < 1$. Second, the production technology is represented by the following production function:

$$q = AK^\alpha [L^\sigma + ak^\sigma]^{(1-\alpha)/\sigma} \tag{28}$$

where $\alpha \in (0,1)$, $\sigma \in (-\infty, 1)$, and $a > 0$. The production function has the following characteristics. The parameter a is the effectiveness of foreign capital relative to domestic labor. The production function is a CRS Cobb-Douglas function in the inputs K and the composite term $[L^\sigma + ak^\sigma]^{1/\sigma}$.[22] The production function in (28) allows for different substitution possibilities between foreign capital and labor, determined by the parameter σ. In fact, the elasticity of substitution between domestic labor and foreign capital is $1/(1-\sigma)$.[23] As in Pinto and Pinto (2008) we define complementarity and substitutability between domestic labor and foreign capital in terms of the sign of f_{Lk}. If $f_{Lk} > 0$, foreign capital is a complement of labor in production are complements, and if $f_{Lk} < 0$, they are substitutes. When the production function is specified as in (28), the following relationship between σ, α and f_{Lk} holds:

$$f_{Lk} = \frac{(1-\alpha-\sigma)}{(1-\alpha)} \frac{f_L f_k}{q}. \tag{29}$$

[22] We use a similar specification as the one employed by Katz and Murphy (1992), Krussel et al (2000), and Ciccone and Peri (2003). The functional form is the same for each sector, but the parameters may differ. In fact, the numerical examples will consider the effect on the policy variables when σ differs across sectors. An alternative scenario where domestic and foreign capital are complement or substitute to each other, and they are both jointly complements to labor: $q = AL^\alpha [K^\sigma + ak^\sigma]^{(1-\alpha)/\sigma}$. Substantively the predictions would be the same than those presented here. The only difference is that it would be workers rather than capital owners who would be more inclined to lure foreign capital in. This functional form is implicit in the model developed by Pinto, forthcoming. We chose the functional form in (28) to follow the extant literature in economics.

[23] σ also indirectly affects the elasticities of substitution between domestic capital and labor and between domestic capital and foreign capital. These elasticities are not constant and are given, respectively, by

$$\varepsilon_{KL} = \frac{\alpha L^\sigma + ak^\sigma}{\alpha L^\sigma (1-\sigma) + ak^\sigma} \quad \text{and} \quad \varepsilon_{Kk} = \frac{L^\sigma + \alpha ak^\sigma}{L^\sigma + \alpha ak^\sigma (1-\sigma)}.$$

Considering this last expression, we examine in our numerical example three possible cases, depending on the relationship between α and σ. On one hand, if $0 < (1-\alpha) < \sigma$, then k and L are necessarily substitutes. On the other hand, when $\sigma < (1-\alpha)$, k and L are complements. However, in this latter case, it will be relevant to differentiate the following two subcases : $0 < \sigma < (1-\alpha)$, or k and L are weak complements; and $\sigma < 0 < (1-\alpha)$, or k and L are strong complements.

In the simulations, we consider the decisions made by a pro-labor government ($I^{\mathcal{L}} = 1$) and a pro-capitalist government ($I^{\mathcal{L}} = 0$) in the first period under different possible second-period scenarios. In particular, we study how the tax rates decided in the first period depend on the probability that a pro-labor government is in power in the second period, β'. We focus on $\beta' = \{0, 1\}$. Tables 1, 2, and 3 summarize the results obtained in different numerical simulations for different assumptions regarding the technological relationship of complementarity and substitutability between foreign capital and labor in the host country, and varying costs of redeployment of foreign capital. Initially, we assume that sectors 1 and 2 are completely identical. The parameter values are listed at the bottom of the tables. The following section presents the conclusions of the numerical exercises.

5.2 Results

5.2.1 Foreign investment and labor as substitutes: $\sigma > (1-\alpha) > 0$

First, Table 1 shows the results when domestic labor and foreign capital are substitutes. We discuss below the results obtained under perfect and imperfect mobility.

1. *Perfect mobility.* When capital adjustment is costless, i.e., $\phi_1 = \phi_2 = 0$, foreign capital adjusts to its desired level at each stage. In other words, the decisions made at each stage are independent of one another. Under these conditions we obtain the following results:

   (a) Higher tax rates affect wages and the return to domestic capital in opposite directions. Lower capital inflows resulting from higher taxes would increase

wages and decrease the returns to domestic capital owners.

(b) Pro-labor governments tend to choose higher tax rates, while pro-capital governments choose lower tax rates.

2. *Imperfect mobility.* Assuming, as in the obsolescing bargain literature, that it is costly to change the level of investment in the second period, specifically in the example if $\phi_1 = \phi_2 = 0.03$, then decisions made in the first period also affect the equilibrium levels of foreign capital, returns to all factors of production, and government tax revenue in the second period.

   (a) Tax rates are systematically higher in the second period regardless of the government's political orientation. The latter is consistent with the idea that in the presence of capital adjustment costs, capital becomes more inelastic in the second period and, consequently, it is taxed more. This is a typical hold-up problem identified in the literature.

   (b) All types of governments irrespective of their orientation will choose lower tax rates in the first period when β' is higher. In other words, as it is more likely to observe a pro-labor government in the second period, first period tax rates decrease. The reason is that since domestic labor and foreign capital are substitutes in this case, it is expected that a pro-labor government will implement a relatively higher tax rate in the next period than the pro-capital government. As a result, it is harder to attract capital since investors expect higher taxes in the future; so it takes a lower tax rates in the first period to attract the same amount of capital than when there are no capital adjustment costs. In other words, for the predictions of the obsolescing bargain to attain investors have to be compensated in the first period to lure them in, otherwise they would stay out altogether. Moreover, it should be noted that this result is conditional on the government's type:

      i. The tax rate chosen in the first-period by a pro-capital government who is followed with certainty by a pro-labor government, i.e., when $\{I^{\mathcal{L}} =$

$0, \beta' = 1\}$, is lower than the tax rate chosen by the same type of first period government when there is perfect capital mobility.

ii. In the second period, pro-capital and pro-labor governments choose lower tax rates when they are preceded by a pro-capital government.

iii. Tax rates in the second period will always be higher than the respective tax rates in the first period, with the exception of the case when a pro-capital government follows a pro-labor government. This is consistent with the partisan business cycles identified by Vaaler (2008) using data on project finance announcements and investment.

5.2.2 Foreign investment and labor as weak complements: $(1 - \alpha) > \sigma > 0$

Second, Tables 2 and 3 present two cases where foreign capital and labor are complements in production, and both are jointly a complement to domestic capital. Consider first the results in Table 2, where foreign capital and labor are weak complements ($\sigma_1 = \sigma_2 = 0.4$; and $\alpha_1 = \alpha_2 = 0.5$).

1. *Perfect mobility.*

   (a) Pro-labor governments choose higher tax rates than pro-capital governments.

   (b) Higher tax rates are associated with lower levels of foreign capital, and as a result, lower returns to both domestic inputs.

   (c) Tax rates chosen by governments when foreign capital and domestic labor are complements are higher than the respective tax rates when foreign capital and labor are substitutes. This results from the differential effects of foreign capital inflows on factor markets and on government revenue. Still, the amount of foreign capital entering the country and the returns to domestic factors of production are higher in the former case (complements) than in the latter case (substitutes) since domestic capital is a complement to composite of foreign capital and labor.

2. *Imperfect mobility.*

   (a) For both pro-labor ($I^{\mathcal{L}} = 1$) and pro-capital ($I^{\mathcal{L}} = o$) governments tax rates chosen in the first period are systematically lower when redeployment costs are positive relative to the case of perfect mobility. This is natural since in the presence of positive adjustment costs investors have to be compensated for the expected increase in tax rates in the second period to enter the host country in the first period.

   (b) In the first period, pro-capital governments choose higher tax rates when β' is higher, while the opposite is true when pro-labor governments are in power in the first period. This suggests that the incentives to act opportunistically are different for incumbents of different orientation. These incentives can be augmented or mitigated depending on the distributive consequences of foreign investment. This is, we believe, a novel result.

5.2.3 Foreign investment and labor as strong complements: $(1 - \alpha) > 0 > \sigma$

Finally, Table 3 analyzes the case where foreign capital is a strong complement of labor ($\sigma_1 = \sigma_2 = -1.2$; and $\alpha_1 = \alpha_2 = 0.1$). The results from this exercise can be summarized as follows:

1. *Perfect mobility.*

   (a) In the absence of redeployment costs, tax rates chosen by pro-capital governments are higher than tax rates chosen by pro-labor governments when foreign capital is a strong complement of labor.

   (b) Wages and returns to domestic capital are higher and tax revenue is lower when pro-labor governments are in power. Since labor is in this case a strong complement of foreign capital, the factor market effect of capital inflows on wages dominates tax revenue motivations in the worker's utility.

(c) While a higher tax rate increases tax revenue and, consequently, government transfers to the political group that is represented by the incumbent, it also decreases returns to domestic factors of production since higher tax rates reduce foreign capital inflows which affect negatively both w and $\bar{r}$, given that in this case foreign capital is a complement in production to both domestic capital and domestic labor. For labor, the negative impact of tax rates on wages is substantially more important than the positive effect of higher tax rates on tax revenue and hence government transfers. As a consequence, pro-labor governments end up choosing lower tax rates.

2. *Under imperfect mobility.*

(a) Tax rates chosen by governments in the first period are higher when β' increases. The lowest first period tax rate is observed when a pro-labor government is followed by a pro-capital government with probability one. The pro-labor government in the first period lowers the tax rate beyond the revenue maximizing level to promote inflows of foreign capital that benefit labor in the market place. When the pro-capital party is in government in the second period the revenue maximizing motivations dominate. The latter is an example of the pro-labor government in the first period internalizing the adjustment costs faced by investors in the second period. This is a prediction that is not captured by explanations in the obsolescing bargain tradition.

(b) One implication of the previous result is that when foreign capital strongly complements labor in production workers would become better off in the first period if the pro-labor government is followed by a pro-capital government with probability one. The pro-labor government internalizes the effect of the higher capital tax to be levied by the pro-capital government and hence needs to compensate investors in the first period so that they enter the host country to benefit workers both through foreign capital's effect on labor demand and through workers' consumption of government output. The outcome is higher investment in the

first period.

(c) In the second period, pro-capital governments will choose higher tax rates than those selected by pro-labor governments, since the revenue maximizing motivation dominates and it is not fully compensated by the higher returns in factor markets.

The empirical analysis below will focus on the automotive industry. This sector is closely related to case 3 above (strong complementarity between labor and foreign capital) with high redeployment costs. As explained in the numerical example, in this case higher levels of foreign capital would flow into the country when a pro-labor government is in power. The latter effect holds regardless of the government's political orientation in the next period. Anticipating that future governments will tend to tax more heavily investments with higher redeployment costs, and considering that a pro-labor government facing decisions in the the first period focuses predominantly on the impact of tax rates on wages,[24] then this type government would encourage the entry of foreign capital by choosing relatively low sectoral tax rates.

6 Discussion

Taken together the results discussed above suggest that contrary to received wisdom partisan orientation of incumbent host governments seem to matter in the presence of international investment with high redeployment costs. The results suggest that the incentives to act opportunistically also differ for incumbents of different orientation. The incentives predicted by the obsolescing bargain hypothesis can be augmented or mitigated depending on the distributive consequences of foreign investment flows, which in turn result from the technological relationship among factors of production. We are, thus, able to present the predictions from the obsolescing bargain model as a special case of a broader model of the political economy of foreign investment when governments are partisan.

[24] Relative to the effect of tax rates on tax revenue and, consequently, government transfers.

The different scenarios can be derived from the combination of two basic parameters traditionally associated with the existence of MNCs: variable costs of redeployment and different technologies of production affecting the relative demand of factor services in the host country (Caves, 1996; Markusen, 1995). The combination of these parameters can help explain the existence of political and partisan cycles in foreign direct investment, even when the time horizons of governments and investors do not match. Investors internalize the probability of opportunistic behavior of host governments when deciding their investment strategies; and governments that by assumption cannot commit themselves to maintaining stable tax rates through time are obligated to internalize the expected reaction of forward looking investors when they enact policies aimed at luring investors in or keeping them out.

The model also provides a strong intuition on when the scope conditions under which institutional constraints would result in higher investment flows and shows that partisanship can provide an alternative mechanism mitigating the time inconsistency problem in sequential policy-making. The potential benefits from institutional constraints arise under specific realization of the parameters in our model: in particular it requires high cost of redeployment and the absence of distributional concerns in the host government's objective function.

These predictions are consistent with a number of empirical regularities associated with partisan cycles in investment regulation and performance documented in earlier work. Holding the technological relationship constant, the analysis suggests that the partial correlation between the left and higher FDI flows decreases as political constraints increases. The opposite is found for the right, where higher constraints lead to higher FDI flows (see Pinto (2013, chapter 4)). Both results would be expected since in the aggregate is more likely to lead to higher demand for labor services and competition for host country businesses. Moreover, the relationship is also reflected when looking at measures of policy restrictions imposed on FDI (Pinto, 2013). Table 4 presents the results from regressing an index of investment restrictions develop by Golub (2003) on an indicator of whether the

executive is controlled by the Left, a measure of political constraints developed by Henisz (2002) and the interaction between these two variables. The results, presented graphically in figure 2, suggest the partial correlation between political constraints and a measure of investment policy orientation for a sample of OECD countries depends on the partisanship of the incumbent government. Yet the results also show the differential effect of political constraints on governments of different partisan orientation: when unconstrained the left incumbent is associated with lower restrictions on FDI.

[Table 4 and Figure 2 about here]

The model can also explain the positive partial correlation between the Left and the share of FDI to domestic investment discussed in (Pinto and Pinto, 2008). The link between technology of production and foreign investment flows predicted by the dynamic model is also apparent in the correlation between FDI flows and the party of the left's shares of cabinet portfolios. The correlation of the left control over the cabinet and FDI share of investment (and FDI flows) is stronger for manufacturing industries, weakens for the service sector and turns negative, albeit not significantly different from zero, for the primary sector.[25] Moreover, the proposition that lower adjustment costs and, hence, higher capital mobility, is also consistent with the findings by (Pinto et al., 2010) on the positive correlation between the left and international market capitalization.

Lastly, the model is consistent with the international business literature that documents the constant efforts by MNCs to actively manage risk. Chapter 1 in Jensen et al. (2012) discusses in depth the different risk mitigating strategies adopted by foreign investors. These strategies include, but are not limited to, the following: entering into alliances with local partners and other investors (Stopford et al., 1991); staged entry and local procurement (Delios and Henisz, 2003); reliance on home governments and international organizations (Ramamurti, 2001). Moreover, the intuition from the model explains the numerous concessions made by host governments to lure investors into sectors such as

[25] See Table 4.3 in Chapter 4 in Jensen et al. (2012). We would expect that FDI to increase labor demand in manufacturing, and possibly in the service sector, but not in the primary sector, an expectation that seems to be borne out in the data. The results are also apparent in a dynamic panel setting using a GMM estimator.

mining and even public utilities in Latin America and Eastern Europe during the era of economic reforms of the 1990s.

In the next section we present we further probe proposition that higher costs of redeployment exacerbate partisan cycles in investment in fixed assets. We concentrate in the choice of building auto plants in Latin America. By concentrating in one industry and one region we are better able to assess the choice of investment in one specific asset type which is costly to redeploy and has limited residual value when not used in production.

7 Evidence from the auto industry

Empirical analyses of the links between politics and FDI usually rely on aggregate flows derived from balance of payments statistics recording investment position controlled by foreign firms or individuals. To account for differences in mobility –and liquidity of the investment– some studies exploit measures of sectoral variation in the ratio of physical capital to total capitalization in the related firm. This strategy is not suitable to test of our main hypothesis on the existence of partisan cycles in investment in assets with high mobility costs for several reasons: in the first place, the sectoral allocation of investment is likely to covary with political conditions in host countries (see Pinto and Pinto (2008); Jensen et al. (2012)). Moreover, these data are available for a limited number of countries and sectors. Lastly, investment in fixed assets usually occurs at discrete intervals in the production process, and hence we should expect variance in the incidence of fixed to total assets over time. To better capture mobility costs we construct an original dataset of the timing of entry, geographical location, plant size and production of the auto industry in Latin America. In order to create a proxy for fixed investment we use satellite imaging and GIS to locate and measure the size of the production facilities. Focusing on one industry in one region allows us to better isolate firms' choices of investing in fixed or mobile assets, or not investing at all. We describe below how we collected the data and conduct preliminary analyses of link between partisanship and investment in fixed assets.

7.1 Active Plants

An initial list of countries in Latin America producing passenger cars, light commercial vehicles, heavy trucks, and buses and coaches was compiled using the International Organization of Motor Vehicle Manufacturers (OICA) production statistics (1998 to 2011). The companies operating in each country were then identified using OICA data broken down by manufacturer and country.

For each company in a given country, the number of active plants was identified and cross-checked through each of the following sources; company websites, company annual reports, news outlets, business listings and directories, and auto industry research reports. Using OICA data for type and name of vehicle produced in a country by a company, plant information was also collected and verified by tracking the company's operations for the specific type of vehicle in the region and country. Plants operated by subsidiaries as well as engine producing facilities were also compiled using the similar sources mentioned above.

For each facility, the following variables were collected: year opened/acquired, address, parent company, subsidiary information (where relevant), years in which plant was expanded, type of production (assembly, manufacturing, engine production) and plant size reported by the company (where available). For each country, production data was collected. The final dataset contains 70 production facilities. Plants producing commercial trucks for industrial and agriculture use were not included in the dataset.

7.1.1 Plant Location

Geo-coordinates for plant location was compiled using addresses identified from research on active plants in the region. In cases where addresses were not given, a methodical search using combinations of country, city of plant location, and name of plant was carried out using Google, GoogleEarthPro and GoogleMaps. In most cases, the search was successful and in cases that it was not, further news articles for the plant was gathered and research on the country's automobile industry was carried out to narrow down location and the geo-coordinates were found in this manner.

7.1.2 Plant Area Measurement

For each plant, the following procedure was carried out to measure the size of its facilities. Using the geo-coordinates collected, satellite images of the plant was retrieved using GoogleEarthPro. If the plant existed within an industrial area, buildings belonging to the plant were isolated using company pictures and wikimapia's satellite images and polygon outline overlays. GoogleEarthPro's polygon measurement feature was then utilized to create polygons and shapefiles for each building belonging to the plant's operational area. The time of day for which the measurements were taken is set to evening using GoogleEarthPro's time settings to avoid disruption from shadows falling against building edges during the day.[26] Figures 3 and 4 show two examples of the satellite images of two of the plants in Argentina in 2010: Toyota Argentina in Zárate, and Volkswagen in Córdoba. The figures marks the contours of the plants and ancillary buildings for each plant.

[Figures 3 and 4 about here]

Using the appropriate coordinate system for the region, the shapefiles were then exported to ArcGIS. For reference purposes a world basemap was used as an overlay to verify polygon fit, after which total area in square feet was calculated for each plant. Figure 5 shows that there is ample variance in the size of plants within and across producers. Figure 6 reflects the variance in the size of plants within countries. In figures 7 and 8 we present the areas of new plant in the region and their time of entry; the graphs are created using data from our original dataset. We exploit this variance in our tests of the link between partisanship and investment choices.[27]

[Figures 5–8 about here]

[26] The time settings in GoogleEarth also provide satellite images of the plants from earlier years. This feature was used to track extensions of plants; however, due to inconsistencies in the years where satellite images are available for each plant, the data collected from this feature was not used.

[27] Given changes in the auto industry and reliability of the sources of data for earlier periods we focus our analysis to the years 1990-2011, for which we have confident measures of plant sizes, entry and expansion dates. We are currently developing a strategy to validate the data for earlier periods using industry databases and archival work.

7.2 Plant size and political cycles

As a first step we plot the total installed plant size in 2010 over a series of political variables (averaged over the previous twenty-year). The graphs, reproduced in Figures 9–12, suggest that plants are larger in countries where the governments are more stable (Figure 10), the government faces political constraints (Figure 11), or have been ruled by left/pro-labor leaning incumbents (Figure 12); plant sizes are smaller in countries with a history of high cabinet turnover (9).[28]

[Figures 9–12 about here]

To further test the hypothesis that investment in fixed assets follows partisan cycles we begin by running the following regression:

$$Y_{it} = \alpha_i + \theta_t + \beta_1 Left_{i,t-1} + \gamma X_{t-1} + \epsilon_{it} \tag{30}$$

Subscripts i and t denote respectively country i, and time t.[29] The dependent variable (Y_{it}) is natural log of the area of a new plant operating in country i at time t. We lag the right-hand side variables to account for the time between the decision to invest and the construction of the plant.[30] Left is a dummy variable indicating whether a left-leaning/pro-labor party is in government in country i at time t, and X is a vector of control variables. We explore the alternative hypothesis on the role of institutions as proposed by the extant literature on the politics of investment. To measure the impact of institutional constraints –which would arguably restrict the incumbent's ability to act opportunistically– we use *Polcon* a variable developed by Henisz (2002).[31] Following the literature on the

[28] The patterns are similar when the political variables are averaged over a decade.

[29] This section presents results from preliminary analyses. We are still collecting data on production, investment outlays, employment and other related activities by automakers in the region.

[30] Results in level are substantively similar to those using a natural log transformation.

[31] We use the 2012 version of the Polcon Index (POLCONIII 2012). The index uses information on (1) the number of independent branches of government (including executive, lower and upper legislative chambers) with veto power over policy change, (2) the degree of alignment across branches of government based on party composition of each branch, and (3) the degree of preference heterogeneity within each legislative branch. For the index, each additional veto point not only has a positive but diminishing effect on the level of constraints on policy change but also causes the homogeneity (or heterogeneity) of party preferences within an opposition (or aligned) branch of government to raise the level of constraints. Veto players and institutional constraints should discourage expropriations and restrict the government's ability to change

determinants of FDI (Markusen, 1998, 2001; Markusen and Maskus, 2001, 2002; Jensen, 2003; Li and Resnick, 2003), control variables include real GDP per capita, to account for level of development and relative endowment of capital; trade openness, which may create incentives or disincentives to invest in the host country, depending on the type of investment and product; population, to account for market size; and a battery of country and year dummies that allow us to control for country specific and slow moving variables which are likely to affect the incentives to invest in the host country (such as natural resource endowments, educational attainment, legal system and property rights protection, and other institutional features of the host), and temporal shocks that could affect the countries and industries over time. Controlling for the determinants of investment, a value of β_1 significantly different from zero suggests that the size of new plants are larger when left governments are in power relative to countries and governments of other partisan orientation.

Table 5 reproduces the estimates from our preliminary empirical analyses. These results are consistent with the partisan hypothesis: new auto plants are larger in country-years when the executive is control by a Left-leaning/pro-labor party.[32] Political constraints affect plant size in the expected direction, yet the coefficient only attains statistical significance in models without time dummies.

[Table 5 about here]

8 Conclusion

Recent work on the political determinants of FDI has found preliminary evidence that, controlling for the determinants of capital flows identified in the literature, aggregate FDI inflows tend to be larger to governments that cater to labor (Pinto, 2004, 2013). Those models were motivated by the assumption that foreign capital is more likely to increase

policy.

[32] The coefficient on the Left is substantively stronger when limiting the analyses to countries with current or prior production facilities. Similar results are obtained from models using plant size in levels, when modeling entry as a dummy variable, or fitting zero inflated negative binomial models where the dependent variable is the number of new plants.

labor demand. Yet, we have reason to believe that this assumption depends on the technology associated with capital inflows, which could either complement or substitute for labor and capital in the host, leading to starkly different distributive consequences.

In Pinto and Pinto (2008), we argued that different forms of FDI react differently to political incentives, and hence predicted the existence of partisan cycles in the flow of foreign direct investment to different industries. In host countries governed by the left, FDI will flow to sectors where it is a complement of labor, such as manufacturing. Moreover we expected that capital will be attracted to those sectors where foreign capital is a complement of capital, hence substituting for labor, when the right/pro-business party is in power.[33] In that paper we modeled the interaction between governments and investors as a static game aimed at capturing the long-term equilibrium allocation of investment when costs of relocation tend to zero. We have, hence, abstracted from adjustment costs and time consistency problems faced by investors and governments respectively in their strategic interaction.

In the present work we extend the model by adding this dynamic element to analyze the effect of partisanship on the regulation of FDI. Our modeling strategy allows us to identify the conditions under which higher costs of redeployment will affect the incentives to tax foreign investment more heavily, rendering the predictions from the obsolescing bargain model as a sub-case in the broader framework that we defined as the politics of investment.

We also show that irrespective of the costs of adjustment faced by investors, incumbents have an incentive to tax more heavily foreign capital that is substitute in production to the incumbents' core constituents, i.e.: a pro-labor government will, for instance, tax more heavily foreign capital that is associated with the introduction of labor saving technologies, as predicted by our earlier work.

We predict that the net rate of return offered to foreign investors in the first stage

[33] Jensen et al. (2012); Pinto (2013). In Pinto and Pinto (2007), we analyze the consequences of adding employment effects to the analysis of the political economy of FDI when the incumbent has partisan motivations.

should "compensate" them for their cost of redeployment. The amount of the compensation, which effectively takes place through lower tax rates in the first period, depends on both the probability the incumbent will be replaced in the second period and on the technological relationship between factors of production.

We identify conditions under which the pro-labor will offer better investment conditions -in the form of lower taxes in our stylized model- to investment that raises labor demand, and hence wages. How much those taxes are reduced depends on the impact of this policy on direct income (in this case, wages) and on the amount of tax revenue used to finance government transfers.

The predictions of our theoretical framework are consistent with our findings on the differential sectoral allocation of FDI in OECD countries as the orientation of the incumbent changed, and the positive effect of FDI on wages under the left.[34] We are also able derive conditions under which investors decide to enter a market and choose a ratio of fixed to mobile assets in anticipation of opportunistic government activity. Alternation in power of governments representing different coalitions would result in stark changes in investors' decision to enter a market as well as in the mix of assets with different redeployment costs that investors commit to that market. The corollary is that governments who are motivated by distributional concerns would be associated with higher levels of investment in fixed and relatively immobile assets from investors who increase the relative demand for the services supplied by the core constituents of the incumbent. We predict that investment in immobile assets will be lumpy as uncertainty about the orientation of the incumbent increases. To test the predictions from the model we construct an original dataset of the timing of entry, geographical location, plant size and production of the auto industry in Latin America using satellite imaging and GIS. Focusing on one industry in one region allows us to better isolate firms' choices of investing in fixed or mobile assets, or not investing at all. We find strong support to the partisan hypothesis: while the main determinant of plant location is marginally affected by political conditions, the number of plants and their size are associated with the orientation of the incumbent government at the

[34]See Pinto and Pinto (2008); Jensen et al. (2012); Pinto (2013)

time of entry, as well as by the probability that the government would remain in office. The ratio of production to sales is also affected by the orientation of the incumbent. Political constraints, on the other hand, are not associated with location, plant size or activity. We conclude that distributional motivations allow governments to commit to investors in ways that inflexible policy or political constraints cannot.

In future research we intend to explore the effect of allowing investors to adjust technology to changing political conditions to maximize rate of return conditional on the orientation of the incumbent. We will also extend the framework to allow host governments to subsidize investors' costs of redeployment, or allow them to deduct those costs for tax purposes.

Last, one of the central implications from our model is that while constraining effects of globalization on governments ability to enact their most preferred policy as predicted by the literature on policy convergence, increasing international capital mobility could result in starkly different investment regimes as the orientation of the incumbent parties moves from Left and the Right, and back. While higher mobility may indeed reduce government's ability to tax internationally mobile capital, we are likely to see governments compete for different types of capital. And these differences are likely to result from the differential distributive consequences of the various types of investment flows.

Figure 1: Timing of Events

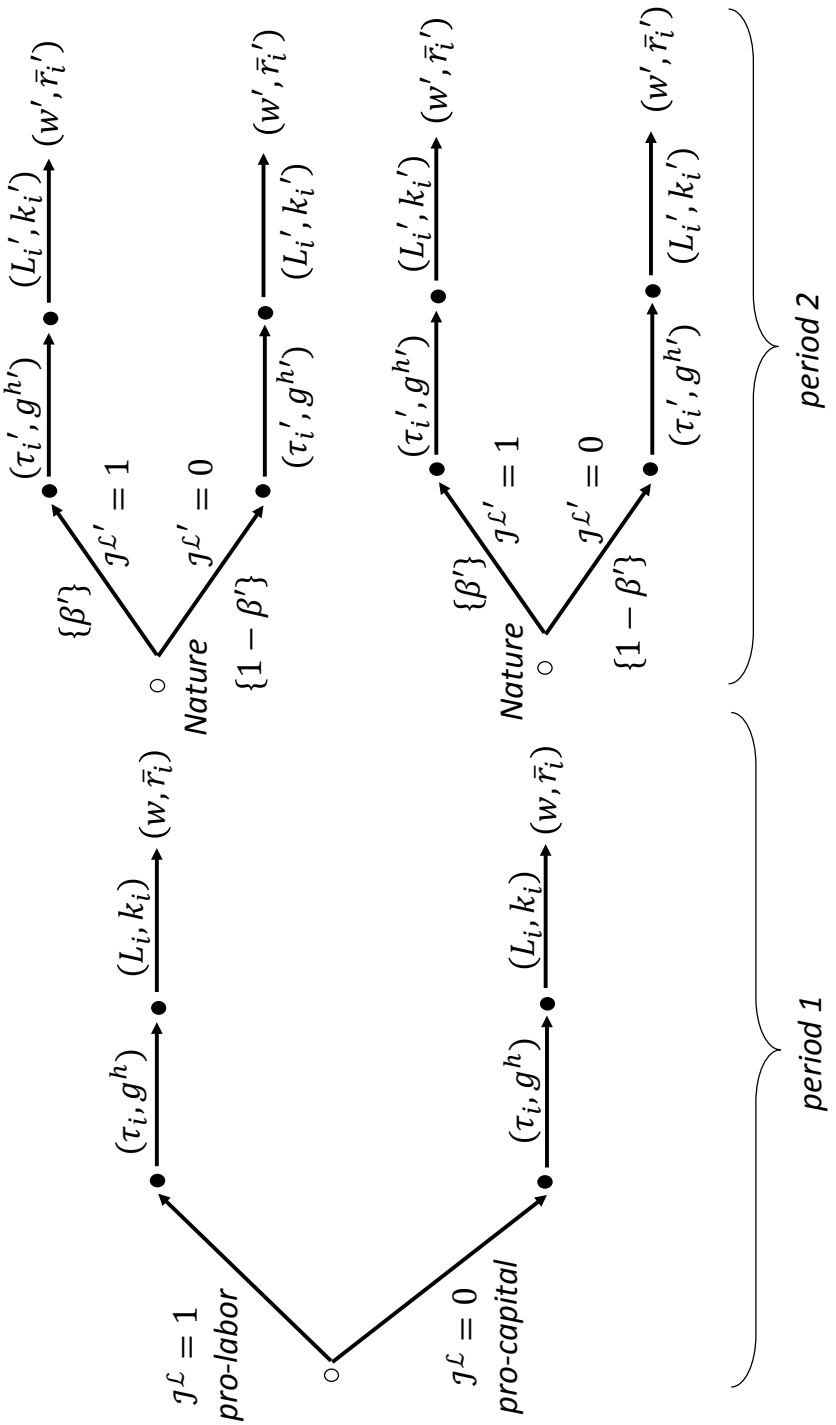
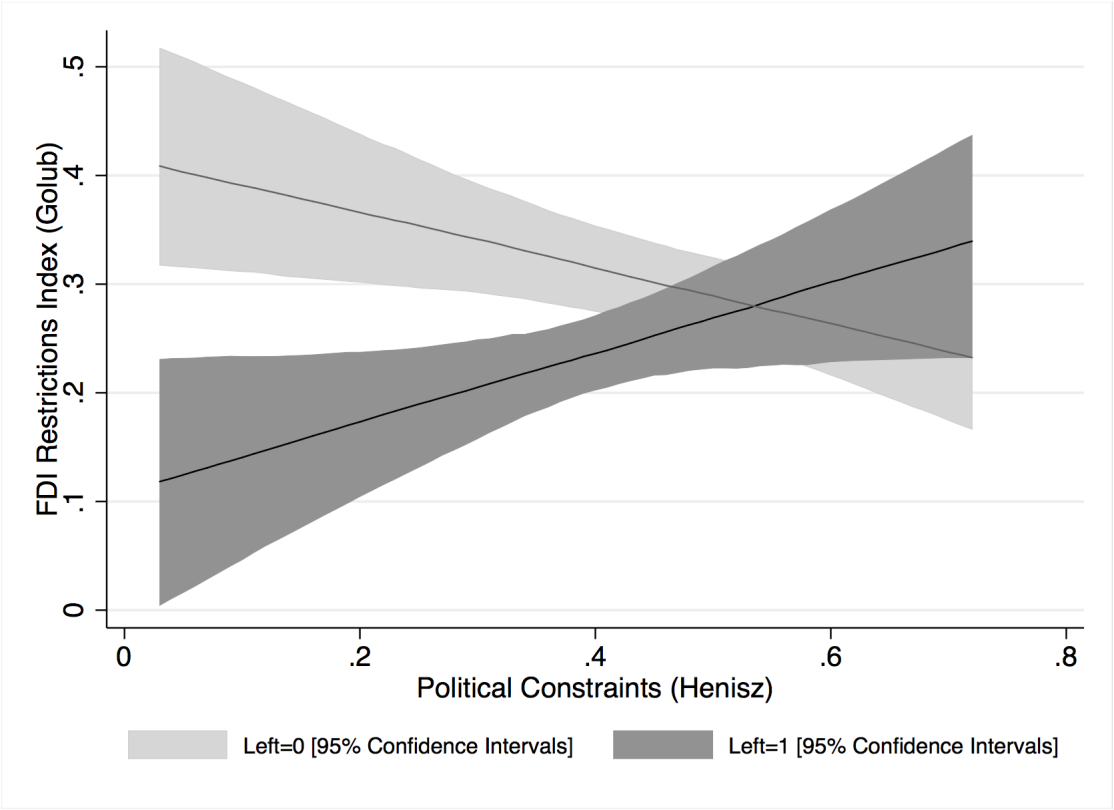


Figure 2: Index of FDI restrictions, partisanship and political constraints: predicted values



Predicted values from coefficients in Model (3) of Table 4
Source:(Pinto, 2013, pp. 112).

Figure 3: Toyota Zárate, Argentina

Figure 4: Volkswagen Córdoba, Argentina

Figure 5: Plant size by producer

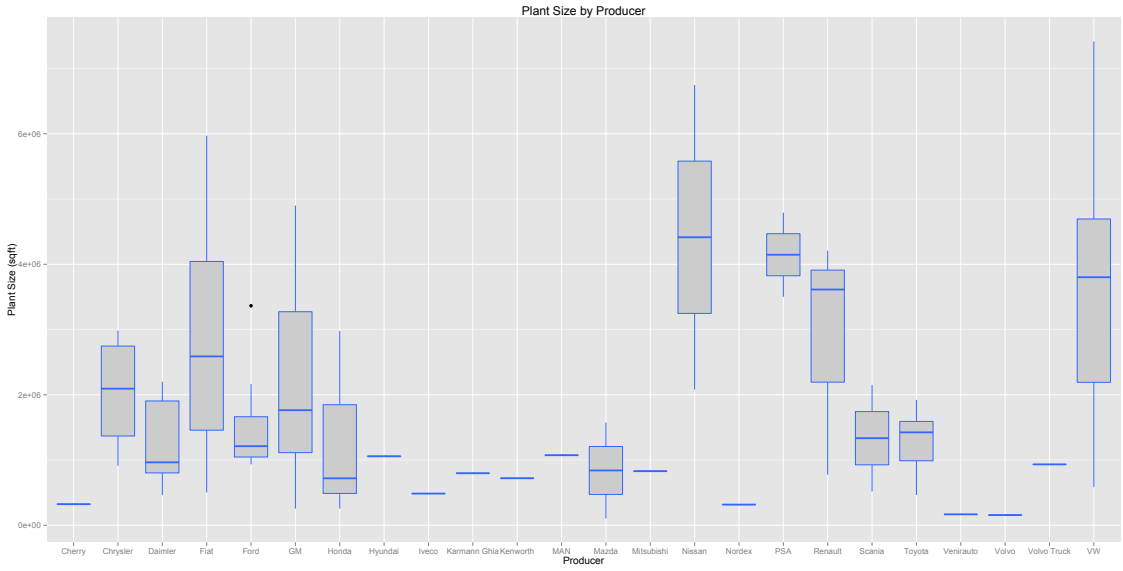


Figure 6: Plant size by country

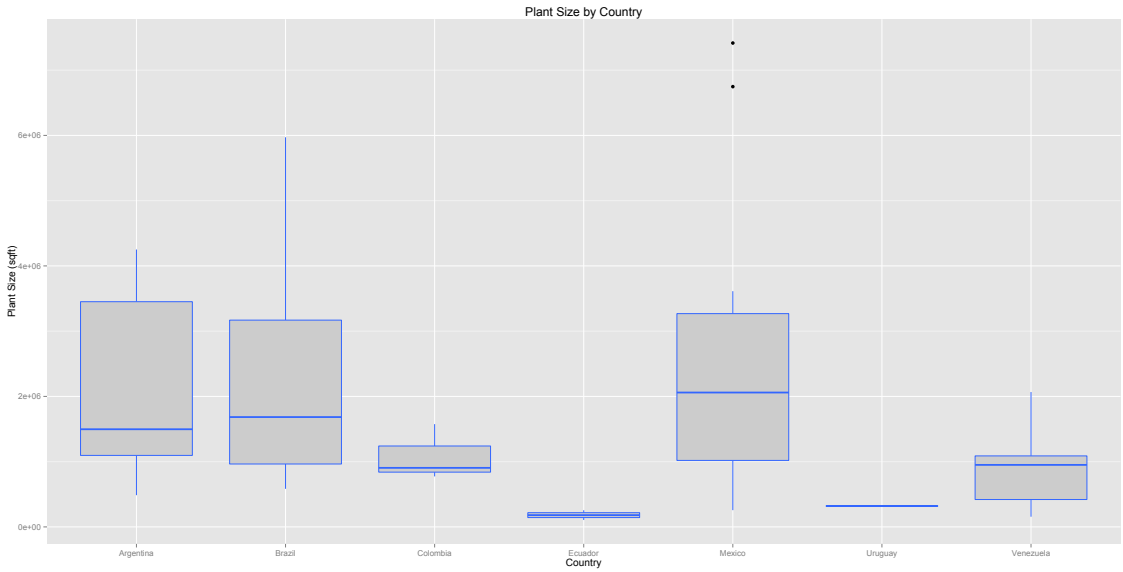


Figure 7: Plant size by country (and producer) by year of entry

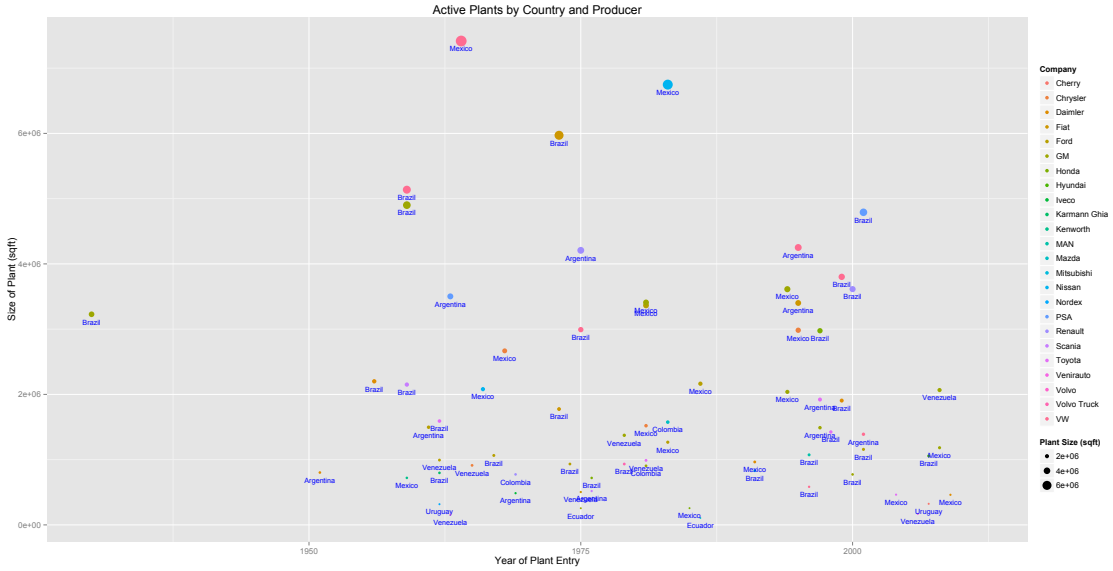


Figure 8: Plant size by producer (and country) by year of entry

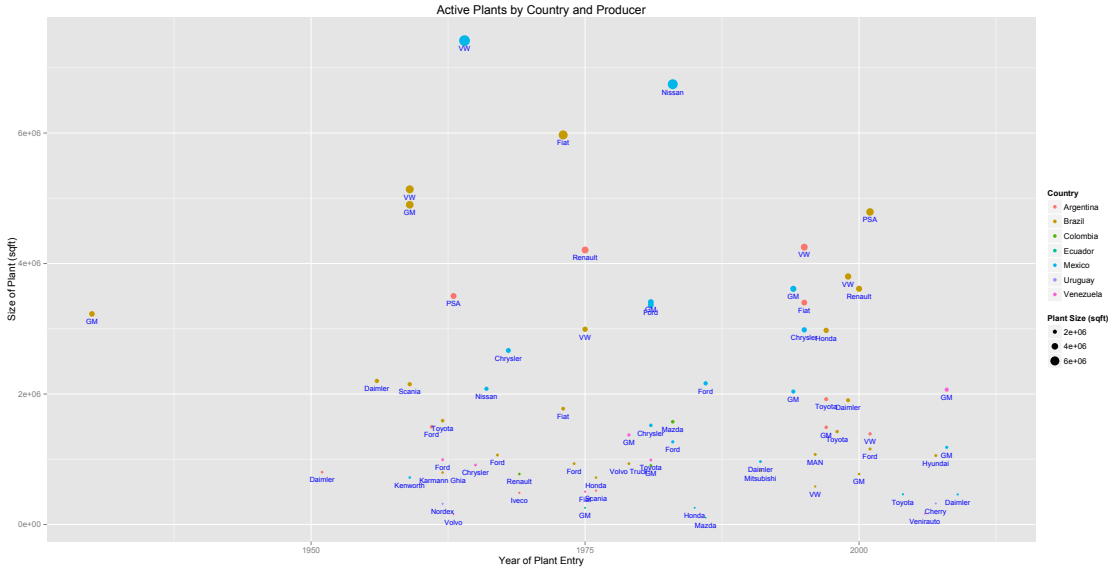


Figure 9: Plant size Cabinet turnover

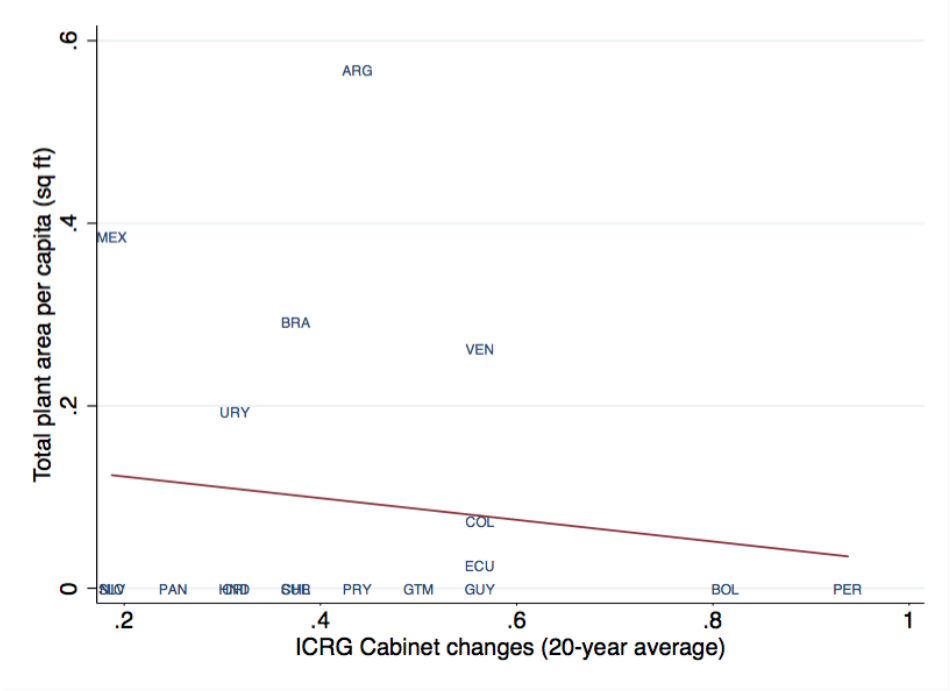


Figure 10: Plant size and political stability

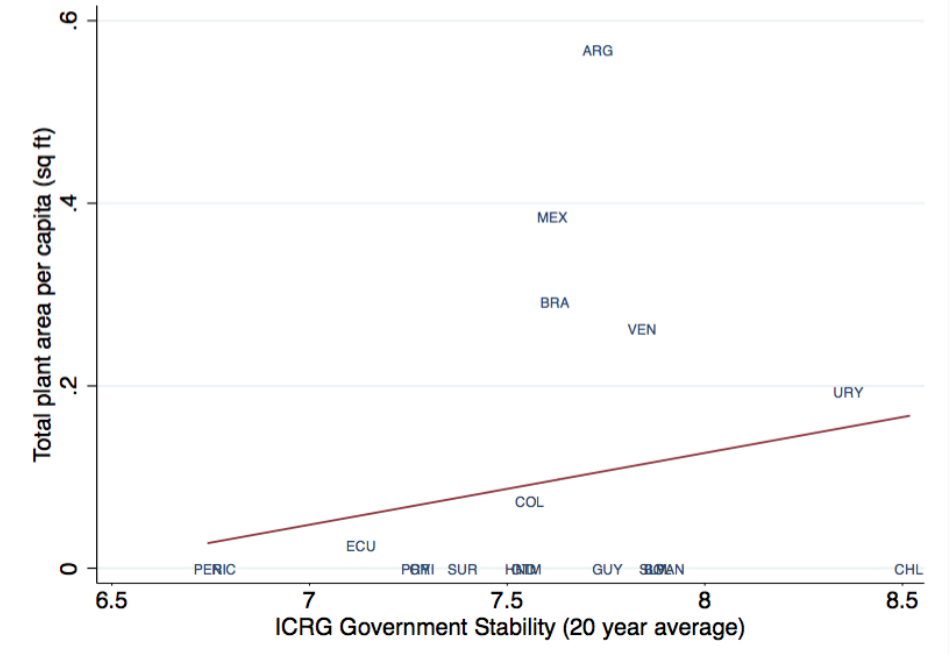


Figure 11: Plant size and political constraints

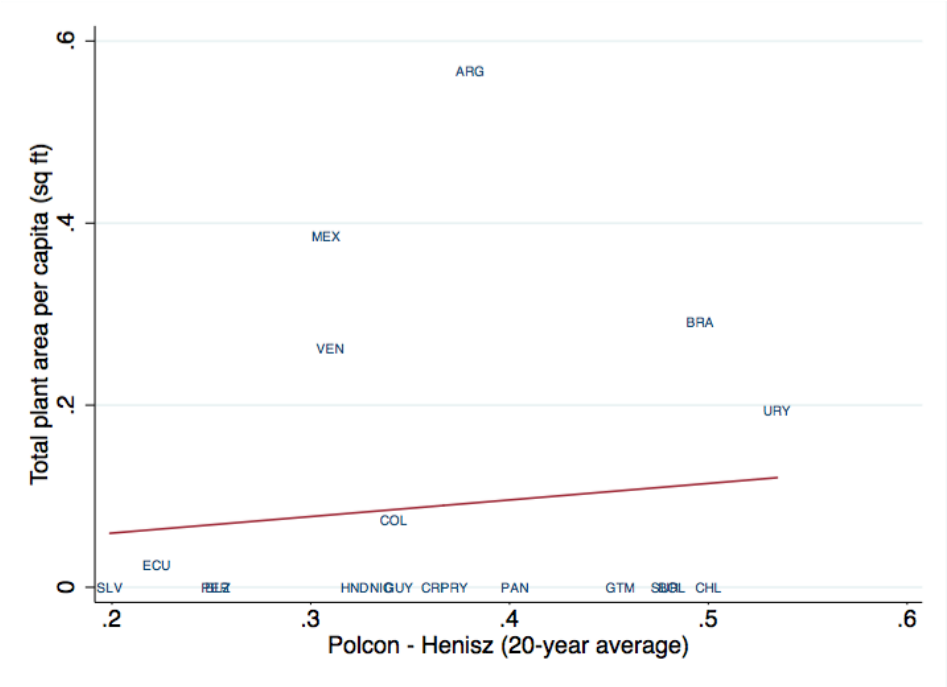


Figure 12: Plant size and tenure of pro-labor governments

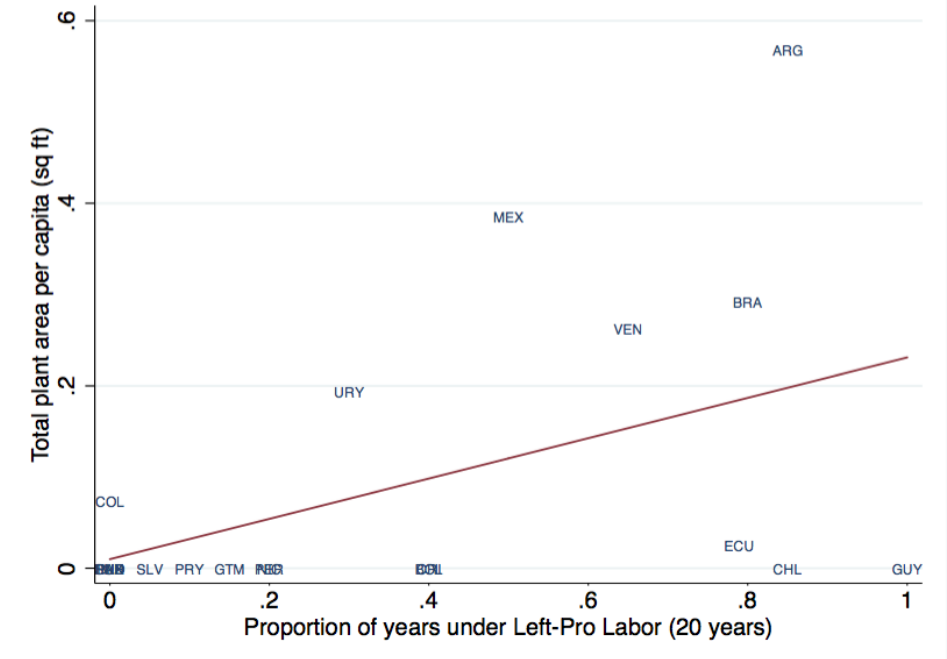


Table 1: Substitutes: $\sigma_i > (1-\alpha_i) > 0$

ϕ	$\{I^{\mathcal{L}}, \beta'\}$	τ	k	w	$\bar{r}$	T	$\tau'\|_{I^{\mathcal{L}\prime}=1}$	$k'\|_{I^{\mathcal{L}\prime}=1}$	$\tau'\|_{I^{\mathcal{L}\prime}=0}$	$k'\|_{I^{\mathcal{L}\prime}=0}$
0.00	$\{0, 0.00\}$	0.2885	0.3866	0.1421	0.1965	0.0314			0.2885	0.3866
	$\{0, 0.50\}$	0.2885	0.3866	0.1421	0.1965	0.0314	0.4442	0.2160	0.2885	0.3866
	$\{0, 1.00\}$	0.2885	0.3866	0.1421	0.1965	0.0314	0.4442	0.2160		
	$\{1, 0.00\}$	0.4442	0.2160	0.1441	0.1830	0.0345			0.2885	0.3866
	$\{1, 0.50\}$	0.4442	0.2160	0.1441	0.1830	0.0345	0.4442	0.2160	0.2885	0.3866
	$\{1, 1.00\}$	0.4442	0.2160	0.1441	0.1830	0.0345	0.4442	0.2160		
ϕ	$\{I^{\mathcal{L}}, \beta'\}$	τ	k	w	$\bar{r}$	T	$\tau'\|_{I^{\mathcal{L}\prime}=1}$	$k'\|_{I^{\mathcal{L}\prime}=1}$	$\tau'\|_{I^{\mathcal{L}\prime}=0}$	$k'\|_{I^{\mathcal{L}\prime}=0}$
0.03	$\{0, 0.00\}$	0.2903	0.3193	0.1428	0.1915	0.0283			0.3683	0.2991
	$\{0, 0.50\}$	0.2888	0.3223	0.1428	0.1918	0.0283	0.4940	0.1989	0.3679	0.3002
	$\{0, 1.00\}$	0.2874	0.3252	0.1428	0.1920	0.0283	0.4938	0.1994		
	$\{1, 0.00\}$	0.4458	0.1779	0.1447	0.1795	0.0310			0.3954	0.2357
	$\{1, 0.50\}$	0.4417	0.1808	0.1447	0.1797	0.0310	0.5102	0.1650	0.3947	0.2373
	$\{1, 1.00\}$	0.4377	0.1836	0.1446	0.1800	0.0310	0.5097	0.1659		

Parameter values:
$r_i = 0.20; A_i = 0.30; a_i = 1.025; \alpha_i = 0.50; \sigma_i = 0.60; \delta = 0.90; b = 0.90; \theta = 0.50; x_i = 0.$

Table 2: Complements I: $(1-\alpha_i) > \sigma_i > 0$ (Weak Complements)

ϕ	$\{I^{\mathcal{L}}, \beta'\}$	τ	k	w	r	T	$\tau'\|_{I^{\mathcal{L}\prime}=1}$	$k'\|_{I^{\mathcal{L}\prime}=1}$	$\tau'\|_{I^{\mathcal{L}\prime}=0}$	$k'\|_{I^{\mathcal{L}\prime}=0}$
0.00	$\{0, 0.00\}$	0.3329	0.8234	0.1717	0.2952	0.0822			0.3329	0.8234
	$\{0, 0.50\}$	0.3329	0.8234	0.1717	0.2952	0.0822	0.5324	0.4373	0.3329	0.8234
	$\{0, 1.00\}$	0.3329	0.8234	0.1717	0.2952	0.0822	0.5324	0.4373		
	$\{1, 0.00\}$	0.5324	0.4373	0.1676	0.2611	0.0996			0.3329	0.8234
	$\{1, 0.50\}$	0.5324	0.4373	0.1676	0.2611	0.0996	0.5324	0.4373	0.3329	0.8234
	$\{1, 1.00\}$	0.5324	0.4373	0.1676	0.2611	0.0996	0.5324	0.4373		
ϕ	$\{I^{\mathcal{L}}, \beta'\}$	τ	k	w	r	T	$\tau'\|_{I^{\mathcal{L}\prime}=1}$	$k'\|_{I^{\mathcal{L}\prime}=1}$	$\tau'\|_{I^{\mathcal{L}\prime}=0}$	$k'\|_{I^{\mathcal{L}\prime}=0}$
0.03	$\{0, 0.00\}$	0.3325	0.7074	0.1707	0.2861	0.0768			0.4071	0.6751
	$\{0, 0.50\}$	0.3327	0.7125	0.1707	0.2865	0.0771	0.5719	0.4187	0.4068	0.6767
	$\{0, 1.00\}$	0.3329	0.7180	0.1708	0.2870	0.0774	0.5717	0.4194		
	$\{1, 0.00\}$	0.5304	0.3732	0.1667	0.2539	0.0926			0.4400	0.5376
	$\{1, 0.50\}$	0.5282	0.3789	0.1667	0.2546	0.0928	0.5908	0.3519	0.4392	0.5407
	$\{1, 1.00\}$	0.5264	0.3843	0.1668	0.2552	0.0931	0.5904	0.3534		

Parameter values:
$r_i = 0.20; A_i = 0.30; a_i = 1.025; \alpha_i = 0.50; \sigma_i = 0.40; \delta = 0.90; b = 0.90; \theta = 0.50; x_i = 0.$

Table 3: Complements II: $(1-\alpha_i) > 0 > \sigma_i$ (Strong Complements)

ϕ	$\{I^{\mathcal{L}}, \beta'\}$	τ	k	w	r	T	$\tau'\|_{I^{\mathcal{L}\prime}=1}$	$k'\|_{I^{\mathcal{L}\prime}=1}$	$\tau'\|_{I^{\mathcal{L}\prime}=0}$	$k'\|_{I^{\mathcal{L}\prime}=0}$
0.00	$\{0, 0.00\}$	0.4329	0.5796	0.0226	0.0139	0.0885			0.4329	0.5796
	$\{0, 0.50\}$	0.4329	0.5796	0.0226	0.0139	0.0885	0.3601	0.7295	0.4329	0.5796
	$\{0, 1.00\}$	0.4329	0.5796	0.0226	0.0139	0.0885	0.3601	0.7295		
	$\{1, 0.00\}$	0.3601	0.7295	0.0332	0.0164	0.0821			0.4329	0.5796
	$\{1, 0.50\}$	0.3601	0.7295	0.0332	0.0164	0.0821	0.3601	0.7295	0.4329	0.5796
	$\{1, 1.00\}$	0.3601	0.7295	0.0332	0.0164	0.0821	0.3601	0.7295		
ϕ	$\{I^{\mathcal{L}}, \beta'\}$	τ	k	w	r	T	$\tau'\|_{I^{\mathcal{L}\prime}=1}$	$k'\|_{I^{\mathcal{L}\prime}=1}$	$\tau'\|_{I^{\mathcal{L}\prime}=0}$	$k'\|_{I^{\mathcal{L}\prime}=0}$
0.03	$\{0, 0.00\}$	0.3917	0.5461	0.0203	0.0133	0.0776			0.4670	0.5156
	$\{0, 0.50\}$	0.3927	0.5428	0.0201	0.0132	0.0775	0.4107	0.6054	0.4670	0.5150
	$\{0, 1.00\}$	0.3938	0.5395	0.0199	0.0131	0.0775	0.4108	0.6044		
	$\{1, 0.00\}$	0.3308	0.6713	0.0289	0.0154	0.0727			0.4695	0.5364
	$\{1, 0.50\}$	0.3314	0.6680	0.0287	0.0154	0.0726	0.4086	0.6390	0.4694	0.5359
	$\{1, 1.00\}$	0.3319	0.6647	0.0284	0.0153	0.0726	0.4086	0.6382		

Parameter values:
$r_i = 0.20; A_i = 0.50; a_i = 1.025; \alpha_i = 0.10; \sigma_i = -1.20; \delta = 0.90; b = 0.90; \theta = 0.50; x_i = 0.$

Table 4: Partisanship and Investment Restrictions

	Dependent Variable: FDI Restrictions Index (Golub 2003)				
	(1)	(2)	(3)	(4)	(5)
Left	-0.051 *	-0.055 *	-0.314 ***	-0.293 **	-0.297 **
	(0.031)	(0.032)	(0.101)	(0.146)	(0.147)
Polcon iii		-0.102	-0.256 *	-0.706 ***	-0.274
		(0.138)	(0.131)	(0.246)	(0.211)
Left x Polcon iii			0.586 **	0.580 *	0.593 *
			(0.231)	(0.317)	(0.315)
Centralized Business Org.				0.148 **	
				(0.058)	
Government Share of GDP					0.003
					(0.003)
Constant	0.299 ***	0.346 ***	0.418	0.588 ***	0.370 ***
	(0.021)	(0.069)	(0.065)	(0.122)	(0.113)
Observations	72	72	72	36	54
Units	27	27	27	18	18
R^2	0.0370	0.0441	0.0898	.0792	0.0719

Significance levels: 1% (***), 5% (**), 10%(*). Robust standard errors in parenthesis.

Source: (Pinto, 2013, page 111).

INVESTMENT RESTRICTIONS INDEX: is an index of FDI specific restrictions such as limitations on foreign ownership, screening or notification procedures, and management, and operational restrictions (Golub 2003). Countries covered: Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, Korea, Mexico, Netherlands, New Zealand, Norway, Poland, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States. Years: 1980, 1990, 2000

Table 5: Plant size at entry and political conditions

	DV: Ln new plant area					
	(1)	(2)	(3)	(4)	(5)	(6)
Ln Plant Area$_{t-1}$	-0.606***	-0.565***	-0.559***	-0.535***	-0.579***	-0.559***
	(0.123)	(0.125)	(0.125)	(0.128)	(0.126)	(0.129)
Left-Pro-labor$_{t-1}$	0.064**	0.071**	0.069**	0.073**	0.080**	0.085**
	(0.032)	(0.034)	(0.032)	(0.034)	(0.033)	(0.035)
Center$_{t-1}$					0.069	0.074
					(0.054)	(0.054)
Polcon iii$_{t-1}$			0.161*	0.101	0.156*	0.093
			(0.092)	(0.098)	(0.092)	(0.098)
Ln GDP/cap$_{t-1}$	0.040	0.132	0.022	0.123	0.029	0.126
	(0.104)	(0.157)	(0.104)	(0.157)	(0.104)	(0.157)
Ln Openness$_{t-1}$	-0.057	-0.083	-0.060	-0.080	-0.052	-0.074
	(0.062)	(0.069)	(0.062)	(0.069)	(0.062)	(0.069)
Ln Pop.$_{t-1}$	-0.182	0.025	-0.136	0.068	-0.136	0.047
	(0.146)	(0.300)	(0.148)	(0.303)	(0.148)	(0.303)
Ln X-rate$_{t-1}$	0.037***	0.035***	0.035***	0.035***	0.035***	0.034***
	(0.010)	(0.011)	(0.010)	(0.011)	(0.010)	(0.011)
Constant	1.915*	-0.656	1.575	-1.026	1.490	-0.875
	(1.045)	(3.534)	(1.060)	(3.552)	(1.061)	(3.550)
Country FE	Yes	Yes	Yes	Yes	Yes	Yes
Year FE	No	Yes	No	Yes	No	Yes
Observations	439	439	439	439	439	439
Countries (clusters)	20	20	20	20	20	20
R^2 (within)	0.082	0.132	0.089	0.134	0.093	0.138

Cluster-robust standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Countries: Argentina, Belize, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Guyana, Honduras, Mexico, Nicaragua, Panama, Peru, Paraguay, Suriname, Uruguay, Venezuela. *Years:* 1990-2011.

References

Calvo, G. A. (1978). On the time consistency of optimal policy in a monetary economy. *Econometrica: Journal of the Econometric Society 46*(6), 1411–1428.

Caves, R. E. (1996). *Multinational enterprise and economic analysis* (2nd ed.). Cambridge, England: Cambridge University Press.

Chari, V. V. and P. J. Kehoe (1990). Sustainable plans. *The Journal of Political Economy 98*(4), 783–802.

Delios, A. and W. J. Henisz (2003). Political hazards, experience, and sequential entry strategies: the international expansion of japanese firms, 1980–1998. *Strategic Management Journal 24*(11), 1153–1164.

Drazen, A. (2000). *Political economy in macroeconomics*. Princeton University Press.

Golub, S. S. (2003). Measures of restrictions on inward foreign direct investment for oecd countries. *OECD Economic Studies 2003*(1), 85–116.

Haber, S. H., N. Maurer, and A. Razo (2002). Sustaining economic performance under political instability: Political integration in revolutionary mexico. In S. H. Haber (Ed.), *Crony capitalism and economic growth in Latin America: theory and evidence*, pp. 25–74. Stanford, CA: Hoover Institution Press.

Haber, S. H., N. Maurer, and A. Razo (2004). *The politics of property rights: political instability, credible commitments, and economic growth in Mexico, 1876-1929*. Political economy of institutions and decisions. Cambridge: Cambridge University Press.

Henisz, W. J. (2000). The institutional environment for multinational investment. *Journal of Law Economics and Organization 16*(2), 334–364.

Henisz, W. J. (2002). The institutional environment for infrastructure investment. *Industrial and Corporate Change 11*(2), 355–389.

Jensen, N. M. (2003). Democratic governance and multinational corporations: Political regimes and inflows of foreign direct investment. *International organization 57*(3), 587–616.

Jensen, N. M., G. Biglaiser, Q. Li, E. Malesky, P. M. Pinto, S. M. Pinto, and J. L. Staats (2012). *Politics and Foreign Direct Investment: What Makes a Country Attractive to Multinational Corporations?* Ann Arbor, MI: University of Michigan Press.

Kindleberger, C. P. (1969). *American business abroad: six lectures on direct investment*. New Haven, CT: Yale University Press.

Klein, P. and J.-V. Ríos-Rull (2003). Time-inconsistent optimal fiscal policy. *International Economic Review 44*(4), 1217–1245.

Kobrin, S. J. (1987). Testing the bargaining hypothesis in the manufacturing sector in developing countries. *International Organization 41*(4), 609–638.

Kydland, F. E. and E. C. Prescott (1977). Rules rather than discretion: The inconsistency of optimal plans. *The Journal of Political Economy 85*(3), 473–492.

Li, Q. and A. Resnick (2003). Reversal of fortunes: Democratic institutions and foreign direct investment inflows to developing countries. *International Organization 57*(1), 175–211.

Markusen, J. R. (1995). The boundaries of multinational-enterprises and the theory of international-trade. *Journal of Economic Perspectives 9*(2), 169–189.

Markusen, J. R. (1998). Multinational firms, location and trade. *World Economy 21*(6), 733–756.

Markusen, J. R. (2001). Contracts, intellectual property rights, and multinational investment in developing countries. *Journal of International Economics 53*(1), 189–204.

Markusen, J. R. and K. E. Maskus (2001, January). Multinational firms: Reconciling theory and evidence. In M. Blömstrom and L. S. Goldberg (Eds.), *Topics in Empirical International Economics: A Festschrift in Honor of Robert E. Lipsey*, pp. 71–98. University of Chicago Press.

Markusen, J. R. and K. E. Maskus (2002). Discriminating among alternative theories of the multinational enterprise. *Review of International Economics 10*(4), 694–707.

Moran, T. H. (1978). Multinational corporations and dependency: A dialogue for dependentistas and non-dependentistas. *International Organization 32*(1), 79–100.

Moran, T. H. and G. T. West (Eds.) (2005). *International political risk management: Looking to the future*. Washington, D.C.: World Bank.

North, D. C. and R. P. Thomas (1973). *The rise of the Western world: a new economic history*. Cambridge, England: Cambridge University Press.

North, D. C. and B. R. Weingast (1989). Constitutions and commitment: The evolution of institutional governing public choice in seventeenth-century england. *Journal of Economic History 49*(4), 803–832.

Pinto, P. M. (2004). *Domestic Coalitions and the Political Economy of Foreign Direct Investment*. Ph. D. thesis, Department of Political Science and IR/PS, University of California San Diego, La Jolla, CA.

Pinto, P. M. (2013). *Partisan Investment in the Global Economy: Why the Left loves Foreign Direct Investment, and FDI loves the Left*. Cambridge, England: Cambridge University Press.

Pinto, P. M. and S. M. Pinto (2007). The politics of investment: Partisan governments, wages and employment. In *International Political Economy Society Annual Conference (November 9-10)*, Palo Alto, California.

Pinto, P. M. and S. M. Pinto (2008). The politics of investment: Partisanship and the sectoral allocation of foreign direct investment. *Economics and Politics 20*(2), 216–254.

Pinto, P. M. and S. M. Pinto (2011). Partisanship and the allocation of foreign investment under imperfect capital mobility. In *Annual Meeting of the American Political Science Association (September 1-4, 2011)*, Seattle, WA.

Pinto, P. M., S. Weymouth, and P. Gourevitch (2010). The politics of stock market development. *Review of International Political Economy 17*(2), 378–409.

Ramamurti, R. (2001). The obsolescing 'bargaining model'? mnc-host developing country relations revisited. *Journal of International Business Studies 32*(1), 23–39.

Spiller, P. T. and M. Tommasi (2003). The institutional foundations of public policy: A transactions approach with application to argentina. *Journal of Law Economics & Organization 19*(2), 281–306.

Stasavage, D. (2003). *Public debt and the birth of the democratic state: France and Great Britain, 1688-1789*. Political economy of institutions and decisions. Cambridge: Cambridge University Press.

Stopford, J. M., S. Strange, and J. S. Henley (1991). *Rival states, rival firms: competition for world market shares*, Volume 18 of *Cambridge studies in international relations*. Cambridge, England: Cambridge University Press.

Tomz, M. and M. L. J. Wright (2010). Sovereign theft: Theory and evidence about sovereign default and expropriation. In S. F. Hogan, William W. (Ed.), *The natural resources trap: private investment without public commitment*, pp. 69–110. MIT Press.

Vernon, R. (1971). *Sovereignty at bay; the multinational spread of U.S. enterprises*. The Harvard multinational enterprise series;. New York, N.Y.: Basic Books.

Whiting, V. R. (1992). *The political economy of foreign investment in Mexico: nationalism, liberalism, and constraints on choice*. Baltimore, MD: Johns Hopkins University Press.

Wildasin, D. E. (2003). Fiscal competition in space and time. *Journal of Public Economics 87*(11), 2571–2588.