

On the Internalization of Cross National Externalities Through Political Markets: The Case of Labour Standards*

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Abstract

Can lobbying internalize cross national externalities? This paper investigates this in a two-country economy where governments regulate labour markets through national labour standards, but are subject to lobbying. We study four different lobbying architectures and show that cross national externalities are fully internalized in two cases: i) when governments enter binding international agreements and ii) when international lobbying is complete. In cases where international lobbying is incomplete, e.g., because of disagreement among lobby groups in different countries or direct bans on lobbying of foreign governments, internalization is also incomplete and a role remains for governments to enter into binding agreements. (JEL: J51; J8; F16; F12; D78).

1 Introduction

In a world connected through international trade, policy measures introduced in one country often have implications for the welfare of workers, consumers and firms in other countries. The list of policies that may generate such cross nation externalities is long and

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includes trade, environmental, tax and social security, and labour market policies. Although not inevitable, the result is often a race to the bottom in which countries compete to give local firms a comparative advantage or to attract new firms by reducing policy below the globally optimal level. It is well-understood that cross national externalities can be internalized through cooperation and coordination between governments, but it is also recognized that such cooperation is riddled with difficulties, as free rider problems are abundant and domestic political economy constraints make it hard to ratify and insure compliance with existing agreements.¹

AIDT [1998] puts forward the idea that political markets in which lobby groups compete for favours can internalize externalities. This paper builds on this and asks how the lobbying architecture of the political market affects the degree of internalization of cross national externalities. We study and compare how equilibrium policy is set under four different lobbying architectures. The benchmark is an architecture in which lobby groups in different countries lobby their own government which, in turn, sets policy unilaterally. This architecture is compared to two main alternatives. The first alternative is an architecture in which the two governments enter a binding international agreement and the lobby groups seek influence on the nature of that agreement. The second alternative is an architecture in which the two governments set policy unilaterally, but the lobby groups in different countries are either allowed to coordinate their lobbying efforts or to seek influence directly on their own government as well as on the foreign government. We also consider an intermediate case in which only a subset of lobby groups are allowed to lobby internationally.

We compare these four architectures within a specific model that focuses on the cross national externalities that may arise from labour market policy. Although labour market policy should be thought of as one example among many of a policy that generates cross national externalities, it is an example of significant practical importance. Much of the recent North-South contention within the World Trade Organization, for example, has centred on the question of unfair labour practises. Another example is the debate about a "social charter" in the European Union which to a large extent has been fuelled by the fear that the single market will lead to excessive labor market deregulation. A third example is the North American Free Trade Agreement (NAFTA) which has been embroiled in a similar debate about the consequences of differential labour standards (e.g., CAMPA [2001]).

More specifically, our model is based on a simple two-country intra-industry trade model in the tradition of BRANDER AND KRUGMAN [1983], BRANDER AND SPENCE [1985], and DIXIT [1986]. We extend this framework with a unionized labour market as in SØRENSEN [1992]. The two governments set a labour standard that affects the bargaining power of the union located within its jurisdiction. The governments are partly benevolent and partly influenced by the lobbying activities of trade unions and firms. Under the benchmark architecture, in which the two governments set their labour standards unilaterally subject to political pressure from the national lobby groups only, labour stan-

¹See, e.g., the essays in KAUL *et al.* [1999] or BARRETT [1990].

dards are typically too lax. The underlying cross national externality can be internalized if the two governments cooperate and allow the lobby groups to seek influence on the outcome of the resulting international agreement, as in GROSSMAN AND HELPMAN [1995]. The main contribution of the paper is to show that the same result can be achieved under a lobbying architecture in which *all* lobby groups – unions as well as firms – seek to influence *all* governments. This architecture – called international lobbying – can be given two interpretations. One interpretation is that lobby groups in different countries coordinate their lobbying strategies but that the actual lobbying is undertaken by the national lobby groups. Another interpretation is that lobby groups are free to seek direct influence on policy in foreign countries. Irrespective of the interpretation, international lobbying can, in principle, serve as a vehicle for internalizing cross national externalities and, in a sense, be a substitute for international agreements. We stress, however, that *all* lobby groups must engage in international lobbying for this to be true and that externalities are left un-internalized if only a sub-set of lobby groups is such engaged. An implication of the analysis is that one should be careful to use, as it is routinely done, unilateral policy making as the benchmark against which to judge the failure of international governmental coordination. In many cases, a more appropriate benchmark would be one with (partial) internalization of cross national externalities through some degree of international lobbying. Another implication is that legislation that outlaws political contributions from foreign lobby groups can have the unintended side effect of preventing cross national externalities from being internalized. The model also yields some interesting comparative statics results. For example, labour standards are stricter where workers face unfavorable outside options and where political favours are cheap (e.g., because of corruption or liberal campaign contribution legislation).

The paper is related to two strands of literatures. Firstly, it contributes to the literature on common agency models applied to lobbying, started by BERNHEIM AND WHINSTON [1986] and popularized by GROSSMAN AND HELPMAN [1994]. In particular, we adopt the analysis of PRAT AND RUSTICHINI [2003] on multi-principal and multi-agent problems to a policy application with cross national externalities. We are aware of only three other papers that attempt to do something similar. CONCONI [2003] studies how an international environmental lobby group affects the determination of import tariffs and a pollution tax and show that this partly internalizes environmental externalities. We, in contrast, focus on labour standards and provide conditions under which cross national externalities can be fully internalized. FREDRIKSSON AND MILLIMET [2007] adopt the multi-principal and multi-agent setting of PRAT AND RUSTICHINI [2003] to study pollution taxation in the presence of many veto players. DAMANIA AND FREDRIKSSON [2007] use a similar approach to explain why empirical studies on the political economy of trade policy find that the weight on social welfare is much larger than on campaign contributions. Besides studying labor market policy rather than trade or environmental policy, we differ from these studies by allowing the contribution schedules offered by the lobby groups to depend on policy outcomes rather than on policy promises.

Secondly, the analysis is related to a small, but growing literature on the political economy of labour standards and trade unions. RAMA AND TABELLINI [1998] use a

common agency framework similar to ours to model the political process that endogenously determines tariffs and minimum wage policies in a small open economy. They show that capitalists and workers agree on trade policy but disagree on the minimum wage policy. FREDRIKSSON AND GASTON [1999] show that trade unions may have an interest in environmental taxation. HEFEKER AND WUNNER [2002] study how globalization affects the demand for labour standards and show that the effect is ambiguous. We add to this literature by studying the role of international lobbying and its effect on labour standards.

The rest of the paper is organized as follows. Section 2 outlines the economic model. Section 3 sets out the political agency model and characterizes the equilibrium labour standards under each of the four architectures. Section 4 discusses some comparative statics results. Section 5 concludes and discusses some normative implications of the analysis.

2 The Economic Structure

The model consists of two identical countries i ($= 1, 2$). In each country, economic decisions take place in two stages. First, firms and unions negotiate a wage contract, as in STEWART [1989], SØRENSEN [1992] or SKAKSEN [2004] and, second, they make production decisions. Economic outcomes depend critically on the allocation of bargaining power between firms and unions. This allocation is affected by the labour standards implemented by the governments of the two countries and these are taken as given when economic decisions are made.

2.1 Industry Equilibrium

Each country hosts one firm.² The firm located in country i produces the commodity q_i . The commodities are physically homogenous goods and are partly supplied to the home market and partly to the foreign market. There are no impediments to free trade. The two firms treat each country as a separate market and choose the profit maximizing quantity for each country/market separately. The production technology is linear in labour input $q_i = L_i$, where L_i is the labour required to produce $q_i = q_{ii} + q_{ij}$ units of output. q_{ij} represents the output produced by firm i to serve the demand of country/market j . Demand in market $i = 1, 2$ and $i \neq j$ is described by the following inverse demand function $p_i(q_{ii}, q_{ji}) = a - b(q_{ii} + q_{ji})$, where $b > 0$.³ Total profit of firm i is $\Pi_i = (p_i q_{ii} + p_j q_{ij}) - w_i L_i$

²The economic structure is inspired by duopoly models of international trade such as BRANDER AND KRUGMAN [1982].

³We assume throughout that a is large enough to insure that both markets are served in equilibrium by both firms.

where w_i is the pre-determined wage rate of country $i = 1, 2$ and $i \neq j$. Solving for a Cournot-Nash equilibrium, we get

$$q_{ii}(w_i, w_j) = \frac{a - 2w_i + w_j}{3b}; \quad q_{ji}(w_i, w_j) = \frac{a - 2w_j + w_i}{3b} \text{ for } i = 1, 2 \text{ and } i \neq j. \quad (1)$$

As firm i 's own cost of production increases, it scales back production. An increase in the rival firm's cost of production makes it profitable for firm i to expand its production level.

2.2 Wage Bargaining

The wage rate of each country is determined before production (and employment) decisions are made through bargaining between a (national) trade union and the firm. We assume that firms have the right to manage, i.e., unilaterally decide how many workers to employ, as in LAYARD *et al.* [1991, chapter 2] and so, the trade union and firm bargain over the wage rate only. The trade union in country i maximizes a modified Stone-Geary utility function

$$U_i(w_i, L_i) = w_i L_i^\gamma + \bar{w} (N^\gamma - L_i^\gamma) \text{ for } i = 1, 2 \text{ and } i \neq j, \quad (2)$$

where N is the total workforce and \bar{w} is the outside (wage) option of workers, both assumed to be the same in the two countries; L_i is the employment level and w_i is the negotiated wage in country i . The parameter γ controls how "sensitive" the union is to changes in employment. We assume that $\gamma > 1$.⁴

The trade union and the firm of country i negotiate a wage contract w_i that maximizes the (generalized) Nash product, $[U_i - \bar{w}N^\gamma]^{\lambda_i} [\Pi_i]^{1-\lambda_i}$, subject to $L_i = q_i$ and $w_i \geq \bar{w} \geq 0$ for $i = 1, 2$ and $i \neq j$. The parameter $\lambda_i \in [0, 1]$ is an index of the bargaining power of trade union i . The reservation payoff for the trade union is $\bar{w}N^\gamma$ while the reservation payoff for the firm is 0. During the wage negotiations, the union-firm pair of one country takes the wage negotiated in the other country as given. A Nash equilibrium is a set of wages (\hat{w}_i, \hat{w}_j) such that the union-firm pair of country i will not want to renegotiate its wage contract given the wage contract agreed in country j and vice versa. The equilibrium wage contracts as a function of the bargaining power of the union in each country are:⁵

⁴This assumption insures that the union benefits from an increase in its bargaining power (see MEZZETTI AND DINOPOULOS [1991]).

⁵The first order condition is

$$\lambda_i \left(\frac{\partial(U_i - \bar{w}N^\gamma)}{\partial w_i} \right) \Pi_i + (1 - \lambda_i) (U_i - \bar{w}N^\gamma) \left(\frac{\partial \Pi_i}{\partial w_i} \right) = 0 \text{ for } i = 1, 2 \text{ and } i \neq j.$$

The second order condition is satisfied ($-L_i^{1+\gamma} < 0$ for positive L_i).

$$w_i(\lambda_i, \lambda_j) = \bar{w} + \frac{\lambda_i(a - \bar{w})\{4 + \lambda_j(\Delta + \gamma)\}}{8(2 + \lambda_j\Delta) + \lambda_i\{8\Delta + \lambda_j(3 + 4\gamma(\Delta - 1))\}} \quad (3)$$

for $i = 1, 2$ and $i \neq j$ where $\Delta = \gamma - 1 > 0$ and $(a - \bar{w}) > 0$. We note that the negotiated wage is a mark-up on the outside wage and that the wage negotiated in country i is increasing *both* in the bargaining power of the union in that country and in that of the union in the other country. The first effect is obvious: an increase in the bargaining power of a union allows it to reach a better agreement. The second effect is more subtle. The increase in the bargaining power of the foreign union leads to an increase in the foreign wage. This increase in the cost of labour abroad puts the foreign firm at a competitive disadvantage and allows the domestic firm to increase its profits in both markets. The union in country i gets a share of the extra profits through an increase in the negotiated wage.

By substitution of the equilibrium wage from equation (3) into equation (1) and the result of this into the objective function of the union and the profit function of the firm, we can express the payoff of the trade union and the firm of each country as a function of the bargaining power of the union in each country and other parameters of the model:

$$\begin{aligned} v_i^\pi(\cdot) &= \Pi_i(\lambda_i, \lambda_j, \gamma, \bar{w}), \\ v_i^u(\cdot) &= U_i(\lambda_i, \lambda_j, \gamma, \bar{w}) \end{aligned} \quad (4)$$

for $i, j = 1, 2$ and $i \neq j$. We use the superscripts π and u as an index for the firm and union, respectively.

Most labor market policies affect the distribution of rents between factors of production. This can be modelled in different ways. One possibility, used by RAMA AND TABELLINI [1998], is to focus on direct intervention in the wage setting process (e.g., minimum wages). Another, used by HEFEKER AND WUNNER [2002], is to model labour standards as an increase in the cost of production. We have chosen an alternative approach that has the advantage that it captures broader aspects of the policy environment, including more fundamental institutions, than RAMA AND TABELLINI [1998], while at the same time providing a micro-foundation for why strict labour standards tend to increase the cost of production. Our approach is based on the observation that the allocation of bargaining power between unions and firms is an important determinant of the distribution of rents between factors of production in a unionized labor market. The bargaining power of a union, in turn, depends on many factors. Some of these relate to the specific characteristics of the union (how patient or well-endowed it is, for example), while others are related to the legal and economic framework within which the union operates. At the most general level, unions derive their bargaining power from *core* labour standards guaranteeing them the right to collective bargaining and the right to freedom of association. These rights, when respected *de jure* and *de facto*, allow unions to attempt to monopolize labour supply, to call strikes and to bargain collectively on behalf of their members. While this defines

the general framework, specific labour legislation can enhance or limit the bargaining power of trade unions. For example, the ban on closed shops in Britain in the late 1980s significantly reduced the bargaining power of unions which had previously established such arrangements. Other labor market policies such as the regulation of work conditions, strike legislation, minimum wages, safety regulation, etc. also affect the bargaining position of unions vis-à-vis firms, either because they affect outside options or because they induce unions to adopt different bargaining strategies. AIDT AND SENA [2005], for example, show how unions can enhance their bargaining power by devoting real resources to the task and how the incentive to do so is systematically related to labour and product market policy. To capture this range of possibilities, we assume that the government in each country controls a policy instrument that affects the allocation of bargaining power between unions and firms. Specifically, we postulate a functional relationship between the labour market policy of the government in country i , s_i , and the bargaining power of the union in that country:

$$\lambda_i = \lambda_i(s_i) = s_i \quad (5)$$

where $s_i \in [0, 1]$. For simplicity, we assume a linear relationship and refer to s_i as a *labour standard*, although it can be understood to represent labour market policy more broadly. It should be clear that other factors, not controlled by the government, also affect the bargaining power of unions, but for the purpose of the model, we keep all those factors constant.⁶

Substituting equation (5) into equation (4), it becomes clear that the welfare of the firm and the union in country i is affected by the labour standards set by both governments. The following Lemmas summarize these effects.

Lemma 1 *An increase in the labour standard in country i reduces the profit of firm i , $\partial v_i^\pi / \partial s_i < 0$ but increases the profit of firm j , $\partial v_j^\pi / \partial s_i > 0$.*

The two firms disagree on the appropriate level of the labour standard in each country. An increase in the labour standard in one country reduces the profit of the firm located in that country because stricter standards increase the unit cost of production. The foreign firm, in contrast, benefits as it can expand production to capture larger market shares. An implication, then, is that the two firms disagree about what the optimal labour standard is: each firm wants a lax labour standard at home and a strict standard abroad.⁷

Lemma 2 *An increase in the labour standard in country i increases the welfare of both trade unions, i.e., $\partial v_i^u / \partial s_i > 0$ and $\partial v_j^u / \partial s_i > 0$.*

A trade union benefits from stricter labour standards at home because its bargaining power is enhanced. It also benefits from stricter labour standards abroad. This is because the resulting increase in the cost of labour abroad allows its parent firm to make larger

⁶To accommodate such effects, the analysis can easily be extended to more complex increasing functions.

⁷Moreover, $\partial^2 v_i^\pi / \partial s_i^2 > 0$, and $\partial^2 v_i^\pi / \partial s_i \partial s_j < 0$.

profits; profits that are shared with the trade union. This has the implication that the two trade unions agree that labour standards should be strict everywhere.⁸

The two lemmas highlight the conflict of interest between the firm and the union in each country. The conflict of interest must be resolved by the respective governments. The resulting political compromise may, however, fail to internalize the cross national externality associated with the labour standards adopted in each country. An important question, therefore, is under which institutional structures political competition between trade unions and firms can help internalize these externalities.

3 The Political Model

Trade unions not only represent workers in wage bargaining, they also serve as vocal and influential lobby groups. Likewise, firms are often organized in employer's organizations or in producer groups. It is, therefore, natural to suppose that labour market policies are heavily influenced by special interest group politics. Specifically, we assume that the trade union and the firm in each country organize lobby groups and seek influence on the labour standards by offering monetary rewards or contributions to the relevant government(s), as in BERNHEIM AND WHINSTON [1986] and DIXIT *et al.* [1997].⁹

We examine four lobbying architectures. Under the first architecture – national lobbying – labour standards are decided unilaterally by the two governments and the two lobby groups in each country seek influence on that country's policy only. Under the second architecture – international negotiations – the two governments coordinate their labour standards through an international agreement and the lobby groups, as in GROSSMAN AND HELPMAN [1995], seek influence on that agreement. Under the third architecture – international lobbying – the two trade unions and the two firms, respectively, are allowed to lobby both governments which, in turn, set their labour standards unilaterally. The fourth architecture – partial international lobbying – studies the same situation but assumes that only some of the lobby groups lobby internationally. To conserve space, we only study one of the two possible cases, namely the one in which the trade unions, but not firms, are engaged in international lobbying, but note that the opposite case can be studied along similar lines. We characterize the equilibrium labour standards under each architecture in the following subsections.¹⁰ We assume throughout that the contribution schedules that the lobby groups offer to the government(s) are differentiable and that the relevant second order conditions hold.

⁸Moreover, $\partial^2 v_i^u / \partial s_i^2 < 0$, and $\partial^2 v_i^u / \partial s_i \partial s_j > 0$.

⁹Consumers are assumed not to organize. This is motivated by the fact that this group is likely to be unable to overcome the free rider problem associated with collective action (see OLSON [1965]).

¹⁰We focus on interior equilibria throughout.

3.1 Architecture I: National Lobbying

Under the first architecture, the two lobby groups in each country lobby their own government only and the two governments set their labour standards unilaterally. We index the lobby groups in each country by $m \in \{u, \pi\}$ where u stands for trade union and π stands for firm lobby. The objective of the two lobby groups of country $i = 1, 2$ and $i \neq j$ is to maximize $v_i^m(s_i, s_j) - c_i^m(s_i)$ for $m \in \{u, \pi\}$ where $c_i^m(s_i)$ is the contribution schedule offered by lobby group m in country i to the government of country i . We note that the contributions are contingent on the labour standard chosen by the government in country i only. The two governments care about social welfare and the contributions from the lobby groups:

$$G_i^I = c_i^u(s_i) + c_i^\pi(s_i) + \delta W_i(s_i, s_j) \quad i = 1, 2 \text{ and } i \neq j, \quad (6)$$

where W_i represents social welfare of country i and superscript "I" indicates architecture I. Social welfare is the sum of consumer's surplus, cs_i , and the (gross) payoffs of the two lobby groups (defined in equation (4))¹¹

$$W_i(s_i, s_j) = cs_i(s_i, s_j) + v_i^u(s_i, s_j) + v_i^\pi(s_i, s_j). \quad (7)$$

The parameter $\delta \geq 0$ is the relative weight attached by the government to social welfare. It can be interpreted as an inverse measure of corruption (see, e.g., FREDRIKSSON AND SVENSSON [2003]).

The strategic interaction between the lobby groups in a given country and their government can be represented as a common agency game. The solution to this type of game is well-known (see, e.g., GROSSMAN AND HELPMAN [1995]), so we do not provide the details here. It is sufficient to note that the equilibrium labour standards in the two countries are characterized by the solutions to the following two equations:¹²

¹¹With a linear inverse demand function, consumer's surplus of country i is

$$cs_i(s_i, s_j) = \frac{(a - p_i(s_i, s_j))^2}{2b}.$$

Moreover,

$$\frac{\partial cs_i}{\partial s_i} < 0, \quad \frac{\partial cs_i}{\partial s_j} < 0, \quad \frac{\partial^2 cs_i}{\partial s_i^2} > 0, \quad \frac{\partial^2 cs_i}{\partial s_i \partial s_j} < 0.$$

¹²An Appendix with the details is available upon request.

$$\phi_i^I(\widehat{s}_i, \widehat{s}_j) = \delta \frac{\partial cs_i(\widehat{s}_i, \widehat{s}_j)}{\partial s_i} + (1 + \delta) \left\{ \frac{\partial v_i^u(\widehat{s}_i, \widehat{s}_j)}{\partial s_i} + \frac{\partial v_i^\pi(\widehat{s}_i, \widehat{s}_j)}{\partial s_i} \right\} = 0, i = 1, 2, \text{ and } i \neq j, \quad (8)$$

where " \wedge " denotes equilibrium value. Equation (8) shows that the equilibrium labour standard in each country implicitly maximizes, for a given labour standard implemented in the other country, a weighted "social welfare" function where domestic consumers are given less weight than the two domestic lobby groups. Consumer's surplus is decreasing in the labour standard because a stricter standard leads to higher prices. This implies that the labour standard, *ceteris paribus*, is biased upwards relative to the standard that maximizes domestic social welfare.¹³ More important, however, is the fact that the political process in country i does not take into account that s_i affects the welfare of citizens in country j . This externality implies that the outcome under national lobbying is inefficient from a global point of view. Whether labor standards are too high or too low depends on the benchmark we choose for comparison and on the relative weight different groups gets in the benchmark "social welfare function". One way to internalize the externality is for the governments to coordinate their labour standards through an international agreement. As we shall see, against this benchmark, labor standards are typically but not inevitably too lax under lobbying architecture I.

3.2 Architecture II: International Negotiations

Under the second architecture, the two governments coordinate their labour standards and the lobby groups, as in GROSSMAN AND HELPMAN [1995], seek influence on the outcome of the negotiations between the two governments. The contribution schedule of each lobby group thus depends on the labour standard of both countries, and we can write the net payoff of the two lobby groups in country $i = 1, 2$ and $i \neq j$ as $v_i^m(s_i, s_j) - c_i^m(s_i, s_j)$ for $m \in \{u, \pi\}$. The objective functions of the two governments are

$$G_i^{II} = \widehat{c}_i^u(s_i, s_j) + \widehat{c}_i^\pi(s_i, s_j) + \delta \{W_i(s_i, s_j) + J_i T\} \quad (9)$$

for $i = 1, 2$ and $i \neq j$ where $J_1 = 1$ and $J_2 = -1$. We allow for an inter-country transfer (T) as part of the negotiations between the countries, but this is not important for the results. The social welfare functions, $W_i(\cdot)$, are defined in equation (7).

Political competition takes place in two stages. In the first stage, the two lobby groups in country i offer contribution schedules to the government of country i with the view of

¹³Yet, the labour standard of country i is efficient in the sense that it is not possible, for a given labour standard in country j , to devise another standard that would make government i or one of the two lobby groups in country i better off without reducing the welfare of one of the others.

influencing the outcome of the negotiations, i.e., the labour standards adopted in both countries. In the second stage, the two governments negotiate a set of labour standards (s_1, s_2) taking as given the contribution schedules offered by the national lobby groups. To characterize the (policy) outcome of these negotiations, we need not specify the details of the bargaining process.¹⁴ All that is required is that the agreement (s_1^{II}, s_2^{II}) maximizes the joint surplus of the two governments:

$$\begin{aligned} \{\widehat{s}_1^{II}, \widehat{s}_2^{II}\} = \arg \max_{s_1, s_2} & \sum_{m \in \{u, \pi\}} [\widehat{c}_1^m(s_1, s_2) + \widehat{c}_2^m(s_2, s_1)] + \\ & \delta [W_1(s_1, s_2) + W_2(s_2, s_1)]. \end{aligned} \quad (10)$$

We adopt Definition 3 from GROSSMAN AND HELPMAN [1995] to characterize the equilibrium policy.¹⁵ The two equilibrium labour standards must satisfy two intuitive requirements. First, the negotiated labour standards must maximize the joint surplus of the two governments, as defined in equation (10). Second, the negotiated labour standards must maximize the joint welfare of each lobby group and the two governments when the contribution schedules of the other lobby groups are taken as given; if not, the lobby groups could change their contribution schedules and increase their payoff. This requirement can be written as

$$\begin{aligned} (\widehat{s}_1^{II}, \widehat{s}_2^{II}) = \arg \max_{s_1, s_2} & v_i^m(s_i, s_j) - \widehat{c}_i^m(s_i, s_j) + \sum_{m \in \{u, \pi\}} \widehat{c}_1^m(s_1, s_2) + \\ & \sum_{m \in \{u, \pi\}} \widehat{c}_2^m(s_2, s_1) + \delta [W_1(s_1, s_2) + W_2(s_2, s_1)] \end{aligned} \quad (11)$$

for all $m \in \{u, \pi\}$ and $i = 1, 2$ and $i \neq j$. The first order conditions associated with problems (10) and (11) imply that the equilibrium labour standards of the two countries are characterized by the solutions to the following two equations:

$$\phi_i^{II}(\widehat{s}^{II}) = \delta \frac{\partial cs(\widehat{s}^{II})}{\partial s_i} + (1 + \delta) \left\{ \frac{\partial v^{\tilde{u}}(\widehat{s}^{II})}{\partial s_i} + \frac{\partial v^{\tilde{\pi}}(\widehat{s}^{II})}{\partial s_i} \right\} = 0, \quad i = 1, 2 \text{ and } i \neq j, \quad (12)$$

where $\widehat{s}^{II} = (\widehat{s}_1^{II}, \widehat{s}_2^{II})$, $cs(\cdot) \equiv cs_1(\cdot) + cs_2(\cdot)$, $v^{\tilde{u}}(\cdot) \equiv v_1^u(\cdot) + v_2^u(\cdot)$, and $v^{\tilde{\pi}}(\cdot) \equiv v_1^\pi(\cdot) + v_2^\pi(\cdot)$.

Equation (12) shows that the equilibrium labour standards internalize the externalities

¹⁴The details matter only for the division of the surplus between the two governments.

¹⁵An appendix with the precise definition and some derivations is available upon request.

arising when the two governments set their standards unilaterally: the labour standard implemented in a given country reflects the interests of consumers, unions and firms in both countries.¹⁶

A comparison of equations (8) and (12) suggests that national lobbying results in a race to the bottom, unless consumer interests play a dominant role. This is because both the union and the firm in country j benefits from higher labour standards in country i and internalization of this positive externality through international negotiations, *ceteris paribus*, leads to stricter standards in both countries. Consumers, on the other hand, would like the labour standards in both countries to be as lax as possible because this reduces prices. This produces a countervailing effect. Accordingly, we have

Proposition 1 *Suppose that interior equilibria exist under architectures I and II. If*

$$\delta \frac{\partial cs_j(\widehat{s}^{II})}{\partial s_i} + (1 + \delta) \left(\frac{\partial v_j^u(\widehat{s}^{II})}{\partial s_i} + \frac{\partial v_j^\pi(\widehat{s}^{II})}{\partial s_i} \right) > 0, \quad i = 1, 2 \text{ and } i \neq j, \quad (13)$$

then

$$(\widehat{s}_1^I, \widehat{s}_2^I) < (\widehat{s}_1^{II}, \widehat{s}_2^{II}). \quad (14)$$

The Proposition shows that an architecture with national lobbying leads to lower labour standards than an architecture with international negotiations if condition (13) is satisfied. Since both $\frac{\partial v_j^u}{\partial s_i}$ and $\frac{\partial v_j^\pi}{\partial s_i}$ are positive, but $\frac{\partial cs_j}{\partial s_i}$ is negative, the condition is satisfied whenever consumer's surplus receives little consideration in the political calculus or is not affected much by the level of the labour standard in other countries. Two special cases in which this condition is surely satisfied can be identified. The first case is when good x is sold to a third market (instead of to the two national markets) as in BRANDER AND SPENCER [1985], while the second case is when the governments attach no weight to social welfare ($\delta = 0$). In both cases, consumer interests (being unorganized) are not taken into account and labor standards are too low under architecture I because unions and firms in the other country would like them to be stricter. Moreover, simulations of the general model suggest that condition (13) is satisfied in the vast majority of cases.

All countries are better off – at least in the aggregate – coordinating their labour standards. Although, for example, the International Labour Organization (ILO), the World Trade Organization (WTO) and the European Union (EU) provide frameworks within which this, in principle, can take place, the record of international coordination of labour

¹⁶Moreover, the equilibrium standards are *globally efficient* in the sense that no other set of standards can be devised that would make one of the governments or one of the lobby groups better off without reducing the welfare of one of the others. The standards, however, do not constitute a global social maximum (defined as a situation where $W_1(\cdot) + W_2(\cdot)$ is maximized) because consumer interests being unorganized are under-represented in the political calculus.

standards is far from perfect.¹⁷ International agreement, not only on labour standards, but also on environmental and social policy, is difficult to achieve because of conflicting economic or political goals and because of free rider incentives. International agreements are, moreover, hard to enforce and, if established, tend to be unstable and to break down over time in the absence of a strong commitment device. Such considerations motivate our analysis of international lobbying and an alternative lobbying architecture that might allow cross national externalities to be internalized.

3.3 Architecture III: International Lobbying

Under the third architecture, international lobbying is allowed. International lobbying can take place through two avenues. Firstly, the two trade unions and the two firms, respectively, may organize an international lobby group that through its national subsidiary offers contributions to each of the two governments.¹⁸ Secondly, the unions and firms may lobby not only their own but also the foreign government directly. The key assumption under this architecture is that no cooperation takes place *between* the two governments and that the governments set their labour standard unilaterally; instead lobby groups in different countries either join forces and coordinate their political strategies through international umbrella organizations or engage directly in foreign lobbying. The two interpretations of international lobbying – coordination between lobby groups in different countries or direct foreign lobbying – are equivalent and in the main exposition, we focus on the first interpretation, but return to the second interpretation at the end of the subsection.

We use the index $\tilde{m} \in \{\tilde{u}, \tilde{\pi}\}$ to indicate the international trade union lobby and the international firm lobby, respectively. Let $v^{\tilde{u}}(s_1, s_2) = \sum_{i=1}^2 v_i^u(\cdot)$ and $v^{\tilde{\pi}}(s_1, s_2) = \sum_{i=1}^2 v_i^\pi(\cdot)$ be the gross payoffs of the two international lobby groups. The net payoffs then are $v^{\tilde{m}}(s_1, s_2) - c_1^{\tilde{m}}(s_1; s_2) - c_2^{\tilde{m}}(s_2; s_1)$ for $\tilde{m} \in \{\tilde{u}, \tilde{\pi}\}$. Each lobby group offers two contribution schedules $c_i^{\tilde{m}}(s_i; s_j)$, $i = 1, 2$ and $i \neq j$; one to each government. The schedule offered to government i is a function of the labour standard implemented in that country, taking as given the labour standard of the other country.¹⁹ The objective function of government $i = 1, 2$ and $i \neq j$ is

$$G_i^{III} = \hat{c}_i^{\tilde{u}}(s_i; s_j) + \hat{c}_i^{\tilde{\pi}}(s_i; s_j) + \delta W_i(s_i, s_j). \quad (15)$$

¹⁷See, e.g., AIDT AND TZANNATOS [2002, chapter 2]; BASU *et al.* [2003]; and WATERMAN AND WILLS [2001].

¹⁸To focus on the differences in lobbying strategies, we do not allow the trade unions to coordinate wage setting, as in DRIFILL AND PLOEG [1995]. If the two unions coordinate the determination of wages, they would internalize the fact that a higher wage in one country benefits workers in the other country.

¹⁹We assume that each international lobby group has an internal mechanism for allocating the cost of lobbying such that the two constituent lobby groups gain from joining the international lobby group.

As before, political competition takes place in two stages. First, the two international lobbying groups simultaneously offer contribution schedules to the two governments. Second, the two governments unilaterally implement a labour standard taking as given the contribution schedules offered by the two international lobby groups and the labour standard adopted in the other country.

Formally, the game between the two governments and the two international lobby groups is a multiple principal-agent game. The solution to this type of game is less well known in the applied political economics literature than the solutions to the common agency games of architecture I and II, and we, for that reason, shall dwell more on the technical details.²⁰ PRAT AND RUSTICHINI [1999], [2003] provide an equilibrium characterization that can be adopted to our model.²¹

Lemma 3 (*Adopted from PRAT AND RUSTICHINI [1999], [2003]*) *Let $s_j \in (0, 1)$ be an arbitrary (interior) labour standard set by country j and let $s = \{s_1, s_2\}$ be a set of labour standards. A set of feasible non-negative contribution schedules $\{\widehat{c}_i^{\widetilde{m}}\}$ and a labour standard $\widehat{s}_i^{III} \in (0, 1)$ constitute an equilibrium response to s_j if the following three conditions hold.*

$$(a) \quad \widehat{s}_i^{III} = \arg \max_{s_i} \sum_{\widetilde{m}} \widehat{c}_i^{\widetilde{m}}(s_i; s_j) + \delta W_i(s_i, s_j), \quad (16)$$

where $W_i(s_i, s_j)$ is given in equation (7).

(b) For every international lobby group $\widetilde{m} \in \{\widetilde{u}, \widetilde{\pi}\}$, there cannot be a feasible contribution schedule $\widetilde{c}_i^{\widetilde{m}}(s_i; s_j)$ and a labour standard $\widetilde{s}_i^{\widetilde{m}}$ such that [i]

$$\widetilde{s}_i^{\widetilde{m}} = \arg \max_{s_i} \widetilde{c}_i^{\widetilde{m}}(s_i; s_j) + \widehat{c}_i^{-\widetilde{m}}(s_i; s_j) + \delta W_i(s_i, s_j) \quad (17)$$

and [ii]

$$v^{\widetilde{m}}(\widetilde{s}_i^{\widetilde{m}}, s_j) - \sum_i \widetilde{c}_i^{\widetilde{m}}(\widetilde{s}_i^{\widetilde{m}}; s_j) > v^{\widetilde{m}}(\widehat{s}_i^{III}, s_j) - \sum_i \widehat{c}_i^{\widetilde{m}}(\widehat{s}_i^{III}; s_j), \quad (18)$$

where if $\widetilde{m} = \widetilde{u}$ (or $\widetilde{\pi}$), then $-\widetilde{m} = \widetilde{\pi}$ (or \widetilde{u}).

²⁰Under architectures I and II, the game is a standard common agency. Under architecture I, the two lobby groups in each country are principals for the government (the agent) of that country. Under architecture II, all four lobby groups are principals for the "mediator" who conducts the negotiations between the two governments.

²¹PRAT AND RUSTICHINI [2003] focus on a scenario in which the agents do not have preferences over actions taken. In our setting, the two government care, not only about the action they take themselves, but also about the action taken by the other government. This complicates the strategic interaction as the agents must form conjectures about the contribution payments offered to other agents. In the working paper version of the paper, PRAT AND RUSTICHINI [1999], they however, show that their main characterization result also holds for the case with externalities (Theorem 8), at least in the case where each agent only observes the schedules offered to him and holds passive beliefs about the schedules offered to others. This allows us to adopt their equilibrium characterization to our application.

(c) Each international lobby group \tilde{m} offers the cost minimizing contribution schedule to each government i , i.e., for $\forall \tilde{m} \in \{\tilde{\pi}, \tilde{u}\}$ and $i \in \{1, 2\}$,

$$\sum_{\tilde{m}} \widehat{c}_i^{\tilde{m}}(\widehat{s}_i; s_j) + \delta W_i(\widehat{s}_i, s_j) = \max_{s_i} (\widehat{c}_i^{\tilde{m}}(s_i; s_j) + \delta W_i(s_i, s_j)). \quad (19)$$

The two first conditions of the lemma are familiar from the common agency games analyzed above. Condition (a) says that each government i chooses a labour standard that maximizes the weighted sum of social welfare and the aggregate contributions offered by the two international lobby groups. Condition (b) says that an international lobby group \tilde{m} cannot find a contribution schedule that yields higher payoff than its equilibrium schedule given the equilibrium contribution schedule of the other international lobby group. The third condition is new. It essentially is a cost minimization condition that insures that the cost of "buying" influence from the two governments is the same at the margin. A pair of contribution schedules and labour standards is the outcome of what is called a weakly truthful passive belief equilibrium if these conditions are satisfied and the standards are best responses to each other.

We can now determine the labour standard of government i as a function of the labour standard of country j . It follows from conditions (a) and (b) that the equilibrium labour standard of country i , \widehat{s}_i^{III} , must maximize the joint welfare of each international lobby group and the two governments, respectively. That is,

$$\begin{aligned} \widehat{s}_i^{III} = \arg \max_{s_i} & v^{\tilde{m}}(s_i, s_j) - \widehat{c}_i^{\tilde{m}}(s_i; s_j) - \widehat{c}_j^{\tilde{m}}(s_j; s_i) + \\ & \widehat{c}_i^{\tilde{m}}(s_i; s_j) + \widehat{c}_i^{-\tilde{m}}(s_i; s_j) + \delta W_i(s_i, s_j) + \\ & \widehat{c}_j^{\tilde{m}}(s_j; s_i) + \widehat{c}_j^{-\tilde{m}}(s_j; s_i) + \delta W_j(s_j, s_i) \end{aligned} \quad (20)$$

for all \tilde{m} and $-\tilde{m}$.

The first order conditions associated with problems (17) and (20) generate the following conditions:

$$\frac{\partial v^{\tilde{m}}}{\partial s_i} - \frac{\partial \widehat{c}_i^{\tilde{m}}}{\partial s_i} + \frac{\partial \widehat{c}_j^{\tilde{m}}}{\partial s_i} + \delta \frac{\partial W_j}{\partial s_i} = 0 \text{ for } \forall \tilde{m} \in \{\tilde{\pi}, \tilde{u}\}. \quad (21)$$

If we add these conditions up, we get

$$\frac{\partial v^{\tilde{u}}}{\partial s_i} + \frac{\partial v^{\tilde{\pi}}}{\partial s_i} + 2\delta \left(\frac{\partial W_j}{\partial s_i} \right) - \frac{\partial \widehat{c}_i^{\tilde{u}}}{\partial s_i} - \frac{\partial \widehat{c}_i^{\tilde{\pi}}}{\partial s_i} + \frac{\partial \widehat{c}_j^{\tilde{u}}}{\partial s_i} + \frac{\partial \widehat{c}_j^{\tilde{\pi}}}{\partial s_i} = 0. \quad (22)$$

The third condition of Lemma 4 – the cost minimization condition – requires that each

international lobby group offers a contribution schedule such that the cost of getting \widehat{s}_i implemented is minimized. The point is that the international lobby groups can get favors from two governments. At equilibrium, it, therefore, must be the case that they get these favors in the cheapest possible way, i.e., that they cannot offer more to one government at the expense of the other and increase their overall net payoff. The cost minimizing contribution schedule of lobby group \widetilde{m} must satisfy

$$\widehat{c}_i^{\widetilde{m}}(s_i; s_j) = \left\{ \max_{s_i} (\widehat{c}_i^{\widetilde{m}}(s_i; s_j) + \delta W_i(s)) \right\} - \left\{ \widehat{c}_i^{\widetilde{m}}(s_i; s_j) + \delta W_i(s) \right\}. \quad (23)$$

Since $\max_{s_i} (\widehat{c}_i^{\widetilde{m}}(s_i) + \delta W_i(s))$ is a constant, evaluated at the equilibrium labour standard of government i , cost minimization imposes the following restrictions on the marginal contribution schedules:

$$\frac{\partial \widehat{c}_i^{\widetilde{u}}}{\partial s_i} = -\frac{\partial \widehat{c}_i^{\widetilde{\pi}}}{\partial s_i} - \delta \frac{\partial W_i}{\partial s_i} \quad \text{and} \quad \frac{\partial \widehat{c}_j^{\widetilde{u}}}{\partial s_i} = -\frac{\partial \widehat{c}_j^{\widetilde{\pi}}}{\partial s_i} - \delta \frac{\partial W_j}{\partial s_i}. \quad (24)$$

This shows that, at equilibrium, the marginal contribution of lobby \widetilde{m} corresponds to the lowest possible marginal inducement that the lobby group has to provide in order to get government i to choose \widehat{s}_i . If we substitute equation (24) into equation (22), we get

$$\frac{\partial v^{\widetilde{u}}}{\partial s_i} + \frac{\partial v^{\widetilde{\pi}}}{\partial s_i} + 2\delta \left(\frac{\partial W_j}{\partial s_i} \right) + \delta \frac{\partial W_i}{\partial s_i} - \delta \frac{\partial W_j}{\partial s_i} = 0, \quad (25)$$

which simplifies to

$$\frac{\partial v^{\widetilde{u}}}{\partial s_i} + \frac{\partial v^{\widetilde{\pi}}}{\partial s_i} + \delta \frac{\partial W_i}{\partial s_i} + \delta \frac{\partial W_j}{\partial s_i} = 0. \quad (26)$$

It follows that the equilibrium labour standards of the two countries are characterized by the solutions to the following two equations:

$$\phi_i^{III}(\widehat{s}^{III}) = \delta \frac{\partial cs(\widehat{s}^{III})}{\partial s_i} + (1 + \delta) \left\{ \frac{\partial v^{\widetilde{u}}(\widehat{s}^{III})}{\partial s_i} + \frac{\partial v^{\widetilde{\pi}}(\widehat{s}^{III})}{\partial s_i} \right\} = 0, \quad i = 1, 2 \text{ and } i \neq j, \quad (27)$$

where $\widehat{s}^{III} = (\widehat{s}_1^{III}, \widehat{s}_2^{III})$ and $cs(\cdot) \equiv cs_1(\cdot) + cs_2(\cdot)$. We see that this is the same as equation (12) that determines the equilibrium policy under architecture II. Thus, we have

Proposition 2 *The labour standards under international negotiations (architecture II) and international lobbying (architecture III) are the same, i.e., $(\widehat{s}_1^{III}, \widehat{s}_2^{III}) = (\widehat{s}_1^{II}, \widehat{s}_2^{II})$.*

The proposition essentially shows that decentralized cooperation between lobby groups in different countries can internalize the cross national externalities associated with unilateral labour standard setting. The intuition for this result is as follows. When firms and unions, respectively, coordinate their lobbying efforts internationally, they influence the choice of labour standard in both countries simultaneously and, as a consequence, the equilibrium labour standards internalize the external effect that (organized) citizens in other countries are exposed to. In contrast to architecture II, where the two governments bargain over the labour standards and the lobby groups effectively influence the outcome of the negotiations, internalization happens because of decentralized cooperation.

Another way to understand the result is to note that equilibrium policy reflects the marginal interests of the lobby groups that pay the contributions. The problem with uncoordinated, unilateral policy making (architecture I) is that while the interests of the national lobby groups are represented in the national political calculus because they pay contributions to the national government, they are not represented in the foreign political calculus. The interests of national lobby groups can be represented in the foreign political calculus either by allowing the governments to enter an agreement and allowing the national lobby groups to seek influence on the outcome of that agreement (architecture II) or by allowing the lobby groups to lobby the foreign government (architecture III). Holding the set of lobby groups that seeks influence either on the international agreement or on foreign governments constant, policy outcomes under the two architectures are the same.

We have derived Proposition 2 under the assumption that lobbying takes place through international umbrella organizations. However, as we show in the Appendix, a similar equivalence result holds if the lobby groups are allowed to lobby their own *and* the foreign government directly. The reason for this should be clear from the discussion of the intuition behind Proposition 2. What matters for the policy outcome is whose preferences are counted in the political calculus and this at the end of the day is determined by who offer contributions to whom, not by how they pay them. As long as the objective functions of the international lobby groups are utilitarian with equal weight given to the welfare of each constituent organization, it is clear that it does not matter for equilibrium policy if the contribution from a lobby group in one country is channelled through an umbrella organization or is given directly to the government of another country. In both cases, the lobby group's influence on policy is the marginal effect that a small change in policy has on its welfare. In short, we can interpret international lobbying either as direct cross-national lobby or as international coordination between lobby groups.

Two further comments about Proposition 2 should be made. First, global social welfare is maximized neither under architecture II nor under architecture III because consumer interests are under-represented in the political calculus. Nevertheless, Proposition 2 has the flavor of result reported by GROSSMAN AND HELPMAN [1994], [1995] that a more encompassing political process (with more lobby groups represented) tends to promote socially efficient policies.²² To see this notice that the difference between architecture

²²GROSSMAN AND HELPMAN [1994] show that if all interests are represented by lobby groups, then

I (national lobbying) and III (international lobbying) is that political representation is more encompassing under architecture III because lobby groups seek influence on policy outcomes in other countries. As a consequence, the equilibrium labour standards move closer to the social optimum (defined as an outcome in which a global utilitarian welfare function is maximized). Second, our setup is entirely symmetric. However, this assumption is not critical for the equivalence result. Proposition 2 can be generalized to cases with asymmetric countries.

3.4 Architecture IV: Partial International Lobbying

The equivalence result in Proposition 2 requires that all lobby groups are able to cooperate internationally or to lobby in other countries. These conditions may often fail. For example, some countries, including the United States and the United Kingdom, ban foreign lobbying (in the form of contribution payments to political parties). This makes it hard, but not due to numerous loopholes (see, e.g., POWELL [1996] or GAWANDE *et al.* [2006]) impossible for firms and unions to seek influence on policy in other countries. Regarding international cooperation, trade unions and producer groups often have an international dimension, with national subsidiaries being members of transnational umbrella organizations. This, in principle, allows special interest groups in different countries to coordinate their political activities. In practice, international cooperation among trade unions do take place through organizations such as, for example, the World Confederation of Labour, the International Confederation of Free Trade Unions and the European Trade Union Confederation. Cooperation among unions in different countries is facilitated by shared goals: unions in different countries agree that strict labour standards abroad as well as at home are beneficial. Firms can, in principle, coordinate their political activities through multinational enterprises or through cross-national producer organizations which are prominent in sectors such as petroleum and pharmaceuticals and within the automobile industry. Examples include the Association of European Automobile Constructors, the Association of Plastics Manufacturers of Europe, the Association of Petrochemicals Producers in Europe, the Organization of International Automobile Constructors, and the Union of Industrial and Employers' Confederations of Europe.²³ However, the constituent members of these umbrella organizations, typically, have very different views on what the best lobbying strategy is. One reason elaborated on in our model is that strict labour standards abroad are, *ceteris paribus*, desirable while strict standards at home are not. The lack of shared goals makes it harder for firms to enforce a common, international lobbying strategy and coordination can be expected to be less effective than for unions. On the other hand, firms may find it easier to explore loopholes in campaign contribution legislation. The key point, however, is that as long as some lobby groups can and do coordinate their lobbying efforts and/or bans on direct contributions can to some extent be

the equilibrium policy is equal to the socially optimal policy.

²³See the essays in MAZEY AND RICHARDSON [1993] for further examples.

circumvented partial internalization of cross national externalities through international lobbying will take place.

To formalize this argument, we study in this section a lobbying architecture under which unions, but not firms, engage in international lobbying. The opposite case can be analyzed along similar lines and is left out for brevity. So, under the fourth architecture – partial international lobbying – the two trade unions organize an international lobby group that through its national subsidiary offer contributions to each of the two governments.²⁴ The two firms, on the other hand, do not lobby internationally but seek influence on their own governments separately. The two governments set their labour standard unilaterally. The objective functions of the two separate firm lobby groups and the international union lobby are $v_i^\pi(s_i, s_j) - c_i^\pi(s_i)$ $i = 1, 2$ and $i \neq j$ and $v^{\tilde{u}}(s_i, s_j) - c_i^{\tilde{u}}(s_i; s_j) - c_j^{\tilde{u}}(s_j; s_i)$, respectively. The objective function of government i is $G_i^{IV} = \widehat{c}_i^\pi(s_i) + \widehat{c}_i^{\tilde{u}}(s_i; s_j) + \delta W_i(s_i, s_j)$. To derive the equilibrium policy, we need to combine aspects of the analysis of architecture I and III. To conserve space, the details of the definition of equilibrium are in the Appendix.

At equilibrium, the labour standard of government i , \widehat{s}_i^{IV} , must maximize the joint welfare of the international union lobby and the two governments, respectively, i.e.,

$$\begin{aligned} \widehat{s}_i^{IV} = \arg \max_{s_i} & v^{\tilde{u}}(s_i, s_j) - \widehat{c}_i^{\tilde{u}}(s_i; s_j) - \widehat{c}_j^{\tilde{u}}(s_j; s_i) + \\ & \widehat{c}_i^{\tilde{u}}(s_i; s_j) + \widehat{c}_i^\pi(s_i) + \delta W_i(s_i, s_j) + \\ & \widehat{c}_j^{\tilde{u}}(s_j; s_i) + \widehat{c}_j^\pi(s_j) + \delta W_j(s_j, s_i). \end{aligned} \quad (28)$$

At the same time, \widehat{s}_i^{IV} must maximize the joint welfare of firm i and government i :

$$\begin{aligned} \widehat{s}_i^{IV} = \arg \max_{s_i} & v_i^\pi(s_i, s_j) - \widehat{c}_i^\pi(s_i) + \\ & \widehat{c}_i^{\tilde{u}}(s_i; s_j) + \widehat{c}_i^\pi(s_i) + \delta W_i(s_i, s_j). \end{aligned} \quad (29)$$

Combining the first order conditions associated with problems (28) and (29) with the cost minimization condition

$$\frac{\partial \widehat{c}_i^{\tilde{u}}}{\partial s_i} = -\frac{\partial \widehat{c}_i^\pi}{\partial s_i} - \delta \frac{\partial W_i}{\partial s_i} \quad (30)$$

yields

$$\frac{\partial v^{\tilde{u}}}{\partial s_i} + \delta \frac{\partial W_i}{\partial s_i} + \frac{\partial v_i^\pi}{\partial s_i} + \delta \frac{\partial W_j}{\partial s_i} = 0. \quad (31)$$

²⁴Equivalently, the unions could pay the contributions directly to the two governments.

This can also be written as

$$\phi_i^{IV}(\widehat{s}^{IV}) = \delta \frac{\partial cs(\widehat{s}^{IV})}{\partial s_i} + \delta \frac{\partial v_j^\pi(\widehat{s}^{IV})}{\partial s_i} + (1 + \delta) \left\{ \frac{\partial v_i^\pi(\widehat{s}^{IV})}{\partial s_i} + \frac{\partial v^{\tilde{u}}(\widehat{s}^{IV})}{\partial s_i} \right\} = 0, \quad (32)$$

where $i = 1, 2$ and $i \neq j$, $\widehat{s}^{IV} = \{\widehat{s}_1^{IV}, \widehat{s}_2^{IV}\}$ and $cs(\cdot) = cs_1(\cdot) + cs_2(\cdot)$. The equilibrium labour standards in the two countries are then characterized by the solutions to these two equations. Comparing equation (32) with equations (8) and (27) shows the following:

Proposition 3 *Suppose that interior equilibria exist under all lobbying architectures. Then*

$$(\widehat{s}_1^{IV}, \widehat{s}_2^{IV}) < (\widehat{s}_1^{III}, \widehat{s}_2^{III}). \quad (33)$$

Moreover, if

$$\delta \frac{\partial cs_j(\widehat{s}^{IV})}{\partial s_i} + (1 + \delta) \frac{\partial v_j^u(\widehat{s}^{IV})}{\partial s_i} > 0, \quad i = 1, 2 \text{ and } i \neq j, \quad (34)$$

then

$$(\widehat{s}_1^{IV}, \widehat{s}_2^{IV}) > (\widehat{s}_1^I, \widehat{s}_2^I). \quad (35)$$

Not surprisingly, partial international lobbying fails to fully internalize the cross national externality. In particular, the fact that the two firms do not coordinate their lobbying efforts (or lobby both governments directly) leads to lower labour standards in both countries. This is because the two firms favor high standards abroad and in the absence of coordination between the two firms or direct foreign lobbying, this effect is not reflected in the contribution schedules offered to the governments and thus not taken into account in policy making. The equilibrium policy under partial international lobbying is, typically, stricter than the equilibrium policy under national lobbying. But, as in the case with international lobbying, the fact that consumers want lower standards in both countries have countervailing effects that might overturn this result (if condition (34) fails). This observation is important because "partial international lobbying" is often a more relevant benchmark for judging the consequences of failed international agreements than "national lobbying".

4 Comparative Statics

It is of interest to examine how the equilibrium labour standards are affected by the parameters (δ , γ and \bar{w}) of the model under each of the four architectures. Unfortunately,

the model is too complex to allow us to derive analytic results. To get a sense of what the comparative statics results might be, we have conducted an extensive set of simulations (not reported).²⁵ The first observation to make is that the impact of the parameters appears to be the same under all lobbying architectures: the comparative statics are architecture-independent. So when we in the following talk about the effect on "the labour standard", we refer to the symmetric labour standard set by the two countries under either of the four architectures.

The parameter \bar{w} represents the outside wage, \bar{w} , that the members of the trade union would receive in other sectors or through the unemployment benefit system. Our simulations suggest that the equilibrium labour standard in both countries decreases as the outside wage increases. This is intuitive. For a given level of bargaining power, the union can secure a better bargaining outcome – a higher negotiated wage – when its outside option is better. For this reason, the union is less concerned about getting a strict labour standard implemented. As a consequence, it is, irrespective of the lobbying architecture, less willing to make political contributions. The result is a lower labour standard in equilibrium. One intriguing implication of this is that more generous unemployment benefits might lead to laxer labour standards. Of course, the level of unemployment benefits may also be subject to lobbying and in that case, unions may be able to secure strict labour standards *and* generous unemployment benefits. It is, therefore, perhaps best to interpret this as saying that labour standards tend to be strict in situations where non-unionized labour markets offer poor alternatives to laid-off union workers. In other words, trade unions are more willing to make political contributions to improve their bargaining position when operating in an environment with poor outside options.

The parameter γ represents the relative weight on employment in the trade unions' objective function. Our simulations suggest that γ is positively related to the labour standard: the more employment oriented the union is, the more it is willing to pay to increase the labour standard. To see why, notice that the negotiated wage in equation (3) decreases when the trade union becomes more employment orientated. To compensate for this reduction in the negotiated wage, the union is willing to pay more to secure a stricter labour standard (that can help it to improve its bargaining position). The net result is an increase in the labour standard and in the negotiated wage under all lobbying architectures.

The parameter δ represents the relative weight on social welfare in the governments' objective function. It can, loosely speaking, be interpreted as an inverse measure of corruption, capturing how easy it is for the lobby groups to buy political influence (see, e.g., FREDRIKSSON AND SVENSSON [2003]). In a more corrupt society or societies with liberal campaign finance legislation, *all* lobby groups find it cheaper to buy political favours. Since trade unions and firms seek to influence labour standards in opposite directions, it

²⁵The range over which each parameter is varied is chosen to insure that interior solutions exist under each architecture and that these correspond to global maxima (all second order conditions are satisfied locally and interior equilibrium yields higher utility than either corner solution). The simulations are available upon request.

is not obvious if labour standards become more or less strict. Our simulations suggest that the equilibrium standards are stricter where governments are more willing to sacrifice social welfare for campaign contributions or bribes. This suggests that trade unions may be in a better position than the firms to take advantage of a more "corrupt" environment. However, there is another reason why labour standards tend to be high in environments in which political favours are cheap which has to do with consumer interests. Recall that consumers want lax labour standards because that keeps prices down. In societies in which social welfare and therefore consumer interests receive little weight in the political calculus, this effect can, *ceteris paribus*, account for strict labour standards.

5 Conclusion

Many economic policies are associated with cross national externalities. Using the example of labour standards, we have studied the extent to which these are internalized under different institutional arrangements or lobbying architectures. Our main theoretical result is that cross national externalities can be fully internalized either through international agreements between governments *or* through international lobbying. In other words, international cooperation between lobby groups in different countries or direct cross national lobbying can, in principle, internalize the externalities associated with unilateral policy making. In practise, cooperation between governments as well as cooperation between lobby groups is hampered by free rider incentives and foreign lobbying may be illegal. However, our analysis indicates that insofar as some lobby groups do manage (e.g., because of shared goals) to coordinate their lobbying activities internationally or to explore loopholes in campaign contribution legislation, then partial international lobbying and not national lobbying is the relevant benchmark against which failure of international agreement should be judged. In an interesting study of U.S. trade policy, GAWANDE et al. [2006] show the empirical relevance of this. They report that foreign lobby groups have a significant impact on U.S. tariffs and nontariff trade barriers and that they force U.S. policy makers to internalize the impact that such restrictions have on foreign produces.

We study international lobbying in the context of labour standards, but the logic applies in other policy areas. The fact that international lobbying may play a role in internalizing a wide range of cross national externalities questions whether a ban on lobbying by foreign interests, such as that introduced by the United States in 1976 and more recently by other countries, are justified. The concern that advocates of such bans often express is that foreign campaign contributions subvert the goals of democracy and undermine the legitimacy of government (see, e.g., the discussion by SAVRIN [1988] or POWELL [1996]). Our analysis shows that foreign interests often have a legitimate stake in domestic policy making and that one potential benefit of allowing international lobbying is that it can help internalize cross national externalities. Ultimately, of course, these benefits must be quantified and weighted against any loss in democratic legitimacy.

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A Appendix

Direct international lobbying Suppose that all lobby groups are allowed to lobby all governments. It is useful to introduce the following new notation. Let $c_i^{m_j}$ be the contribution schedule offered by a lobby group of type m located in country j to the government in country i where $m_j \in \{u_j, \pi_j\}$. Likewise, let v^{m_j} be the gross payoff function of a lobby group of type m located in country j . Moreover, note that $\sum_{m_j} \widehat{c}_i^{m_j} = \widehat{c}_i^{m_j} + \widehat{c}_i^{-m_j}$ where if $m_j = u_j$, then $-m_j = \pi_j$. Using this notation, the equilibrium characterization provided by PRAT AND RUSTICHINI [1999], [2003] can be adopted as follows.

Lemma 4 (*Adopted from PRAT AND RUSTICHINI [1999], [2003]*) *Let $s_i \in (0, 1)$ be an arbitrary (interior) level of the labour standard set by country i and let $s = \{s_1, s_2\}$ be a set of labour standards. A set of feasible non-negative contribution schedules $\{\widehat{c}_i^{m_j}\}$ and a labour standard $\widehat{s}_i^* \in (0, 1)$ constitute an equilibrium response to s_j if the following three conditions hold.*

$$(a) \quad \widehat{s}_i^* = \arg \max_{s_i} \sum_{m_j} \widehat{c}_i^{m_j}(s_i; s_j) + \sum_{m_i} \widehat{c}_i^{m_i}(s_i; s_j) + \delta W_i(s_i, s_j) \quad (36)$$

where $m_j \in \{u_j, \pi_j\}$ and $i, j = 1, 2$.

(b) *For every lobby group $m_j \in \{u_j, \pi_j\}$, there cannot be a feasible contribution schedule $c_i^{m_j}(s_i; s_j)$ and a labour standard $s_i^{m_j}$ such that [i]*

$$s_i^{m_j} = \arg \max_{s_i} c_i^{m_j}(s_i; s_j) + \widehat{c}_i^{-m_j}(s_i; s_j) + \sum_{m_i} \widehat{c}_i^{m_i}(s_i; s_j) + \delta W_i(s_i, s_j) \quad (37)$$

and [ii]

$$v^{m_j}(s_i^{m_j}, s_j) - \sum_i c_i^{m_j}(s_i^{m_j}; s_j) > v^{m_j}(\widehat{s}_i^*, s_j) - \sum_i \widehat{c}_i^{m_j}(\widehat{s}_i^*; s_j) \quad (38)$$

where if $m_j = u_j$ (or π_j), then $-m_j = \pi_j$ (or u_j) for $i, j = 1, 2$.

(c) *Each lobby group m_j offers the cost minimizing contribution schedule to each government i , i.e., for $\forall m_j \in \{u_j, \pi_j\}$ and $i, j \in \{1, 2\}$,*

$$\sum_{m_j} \widehat{c}_i^{m_j}(\widehat{s}_i; s_j) + \sum_{m_i} \widehat{c}_i^{m_i}(\widehat{s}_i; s_j) + \delta W_i(\widehat{s}_i, s_j) \quad (39)$$

$$= \max_{s_i \in S_i} \left(\widehat{c}_i^{-m_j}(s_i; s_j) + \sum_{m_i} \widehat{c}_i^{m_i}(s_i; s_j) + \delta W_i(s_i, s_j) \right). \quad (40)$$

Given this characterization, we can determine the labour standard of government i as a function of the labour standard of country j . It follows from conditions (a) and (b) that the equilibrium labour standard of country i , \widehat{s}_i^* , must maximize the joint welfare of each

lobby in country j and the two governments, respectively. That is,

$$\begin{aligned} \widehat{s}_i^* = \arg \max_{s_i} & v^{m_j}(s_i, s_j) - \widehat{c}_i^{m_j}(s_i; s_j) - \widehat{c}_j^{m_j}(s_j; s_i) + \\ & \sum_{m_j} \widehat{c}_i^{m_j}(s_i; s_j) + \sum_{m_i} \widehat{c}_i^{m_i}(s_i; s_j) + \delta W_i(s_i, s_j) + \\ & \sum_{m_j} \widehat{c}_j^{m_j}(s_j; s_i) + \sum_{m_i} \widehat{c}_j^{m_i}(s_j; s_i) + \delta W_j(s_j, s_i) \end{aligned} \quad (41)$$

for every m_j and $-m_j$ where $i, j = 1, 2$.

The first order conditions associated with problems (37) and (41) generate the following conditions:

$$\frac{\partial v^{m_i}}{\partial s_i} - \frac{\partial \widehat{c}_i^{m_i}}{\partial s_i} + \frac{\partial \widehat{c}_j^{m_j}}{\partial s_i} + \frac{\partial \widehat{c}_j^{-m_i}}{\partial s_i} + \frac{\partial \widehat{c}_j^{-m_j}}{\partial s_i} + \delta \frac{\partial W_j}{\partial s_i} = 0 \quad \forall m_i, m_j, -m_i, -m_j. \quad (42)$$

If we add these conditions up, we get, for every m_i ,

$$\frac{\partial v^{m_i}}{\partial s_i} + \frac{\partial v^{m_j}}{\partial s_i} - \frac{\partial \widehat{c}_i^{m_i}}{\partial s_i} - \frac{\partial \widehat{c}_i^{m_j}}{\partial s_i} + \frac{\partial \widehat{c}_j^{m_i}}{\partial s_i} + \frac{\partial \widehat{c}_j^{m_j}}{\partial s_i} + 2 \left(\frac{\partial \widehat{c}_j^{-m_i}}{\partial s_i} + \frac{\partial \widehat{c}_j^{-m_j}}{\partial s_i} + \delta \frac{\partial W_j}{\partial s_i} \right) = 0. \quad (43)$$

Moreover, the cost minimizing contribution schedule of lobby group m_j must satisfy

$$\begin{aligned} \widehat{c}_i^{m_j}(s_i; s_j) = & \left\{ \max_{s_i \in S_i} \left(\widehat{c}_i^{-m_j}(s_i; s_j) + \sum_{m_i} \widehat{c}_i^{m_i}(s_i; s_j) + \delta W_i(s) \right) \right\} \\ & - \left\{ \widehat{c}_i^{-m_j}(s_i; s_j) + \sum_{m_i} \widehat{c}_i^{m_i}(\widehat{s}_i; s_j) + \delta W_i(s) \right\}. \end{aligned} \quad (44)$$

Cost minimization imposes the following restrictions on the marginal contribution schedules:

$$\frac{\partial \widehat{c}_i^{m_i}}{\partial s_i} = -\frac{\partial \widehat{c}_i^{m_j}}{\partial s_i} - \frac{\partial \widehat{c}_i^{-m_i}}{\partial s_i} - \frac{\partial \widehat{c}_i^{-m_j}}{\partial s_i} - \delta \frac{\partial W_i}{\partial s_i} \quad (45)$$

$$\text{and } \frac{\partial \widehat{c}_j^{-m_i}}{\partial s_i} = -\frac{\partial \widehat{c}_j^{-m_j}}{\partial s_i} - \frac{\partial \widehat{c}_j^{m_i}}{\partial s_i} - \frac{\partial \widehat{c}_j^{m_j}}{\partial s_i} - \delta \frac{\partial W_j}{\partial s_i}. \quad (46)$$

If we substitute equation (45) into equation (43) and add the resulting expressions up, we finally get

$$\frac{\partial v^{m_i}}{\partial s_i} + \frac{\partial v^{m_j}}{\partial s_i} + \frac{\partial v^{-m_i}}{\partial s_i} + \frac{\partial v^{-m_j}}{\partial s_i} + \delta \frac{\partial W_i}{\partial s_i} + \delta \frac{\partial W_j}{\partial s_i} = 0. \quad (47)$$

Recall that $v^{\tilde{u}}(s_1, s_2) = \sum_{i=1}^2 v_i^u(\cdot)$ and $v^{\tilde{\pi}}(s_1, s_2) = \sum_{i=1}^2 v_i^\pi(\cdot)$ and that $v^{m_i} = v_i^m$. Using the fact that $v^{\tilde{m}} = v^{m_i} + v^{m_j}$ and $v^{-\tilde{m}} = v^{-m_i} + v^{-m_j}$, we can rewrite equation (47) to get

$$\frac{\partial v^{\tilde{m}}}{\partial s_i} + \frac{\partial v^{-\tilde{m}}}{\partial s_i} + \delta \frac{\partial W_i}{\partial s_i} + \delta \frac{\partial W_j}{\partial s_i} = 0. \quad (48)$$

This is the same as equation (26) or (27).

Architecture IV Under architecture IV – partial international lobbying – the characterization of a pure strategy equilibrium is adopted from BERNHEIM AND WHINSTON [1986], GROSSMAN AND HELPMAN [1995] and PRAT AND RUSTICHINI [2003].

Lemma 5 *A set of feasible contribution functions $\{\hat{c}_i^{\tilde{u}}, \hat{c}_i^{\tilde{\pi}}\}_{i=1,2}$ and a labour standard policy $\hat{s}_i^{IV} \in (0, 1)$ is an equilibrium response to the policy s_j by the other government j , if the following conditions are satisfied.*

1. $\forall i$ and $\forall s_i$,

$$\hat{c}_i^{\tilde{\pi}}(\hat{s}_i) + \hat{c}_i^{\tilde{u}}(\hat{s}_i) + \delta W_i(\hat{s}) \geq \hat{c}_i^{\tilde{\pi}}(s_i) + \hat{c}_i^{\tilde{u}}(s_i) + \delta W_i(s_i). \quad (49)$$

2. For every interest group, there cannot be a feasible function $c_i^\pi(s_i; s_j)$ and $c_i^{\tilde{u}}(s_i; s_j)$ and a set of labour standards $(s_i^\pi, s_i^{\tilde{u}})$ such that [i] for $\forall s_i$

$$s_i^{\tilde{u}} = \arg \max_{s_i} \hat{c}_i^{\tilde{\pi}}(s_i; s_j) + \hat{c}_i^{\tilde{u}}(s_i; s_j) + \delta W_i(s) \quad \text{and} \quad (50)$$

$$v^{\tilde{u}}(s_i^{\tilde{u}}, s_j) - \sum_i c_i^{\tilde{u}}(s_i^{\tilde{u}}; s_j) > v^{\tilde{u}}(\hat{s}_i^{IV}, s_j) - \sum_i \hat{c}_i^{\tilde{u}}(\hat{s}_i^{IV}; s_j).$$

[ii] for $\forall s_i$

$$s_i^\pi = \arg \max_{s_i} c_i^\pi(s_i; s_j) + \hat{c}_i^{\tilde{u}}(s_i; s_j) + \delta W_i(s) \quad \text{and} \quad (51)$$

$$v_i^\pi(s_i^\pi, s_j) - c_i^\pi(s_i^\pi; s_j) > v_i^\pi(\hat{s}_i^{IV}, s_j) - \hat{c}_i^{\tilde{u}}(\hat{s}_i^{IV}; s_j).$$

3. The international trade union lobby group offers the cost minimizing contribution to each government i such that

$$\widehat{c}_i^{\widetilde{u}}(\widehat{s}_i^{IV}, s_j) + \delta W_i(\widehat{s}_i^{IV}, s_j) = \max_{s_i} (\widehat{c}_i^{\widetilde{u}}(s_i, s_j) + \delta W_i(s_i, s_j)). \quad (52)$$

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