

Lobbying by capital and labor over trade and labor market policies

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Abstract

This paper uses the common agency approach to analyze the joint determination of product and labor market distortions in a small open economy. Capital owners and union members lobby the government on both tariffs and minimum wages, while other factors of production are not organized. The paper shows that product and labor market distortions always move in the same direction, and that their level is not modified by social pacts between capital and labor. It also shows that labor market distortions are second best. Hence, conditionality by foreign organizations should target distortions in product markets but not in labor markets. © 1998 Elsevier Science B.V. All rights reserved.

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1. Introduction

This paper has two goals. On the positive side, to explain observed trade and labor market policies in open economies. On the normative side, to address an institution design question: how to structure conditionality clauses and

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sanctions relating to these policies in aid programs and international agreements. Should conditionality clauses target mainly trade distortions, or labor market distortions, or both? To achieve these goals, the paper studies the *joint* determination of product and labor market distortions. Labor market policies are indeed natural substitutes or complements (depending on the instruments) of product market policies. Moreover, both policies often have the same political determinants.

The joint analysis of endogenous product and labor market distortions is obviously relevant for developing countries, where the resistance of labor unions to trade liberalization is well known. Attempts to reduce or eliminate trade barriers have often led to strikes and demonstrations by organized labor. In places as different as Venezuela and Nigeria, street riots and political turmoil led to the reversal of liberalization programs. The downward rigidity of wages in formerly protected sectors, in turn, has been pointed out as a major source of recidivism. More generally, a large number of researchers and practitioners believe that not tackling product and labor-market distortions simultaneously is a recipe for reform failure in developing countries.

But similar issues also arise in industrial countries. In the EU, for instance, the removal of trade barriers with Eastern Europe is opposed on the ground that lower labor standards in those countries would give them an excessive competitive advantage. The same concerns are voiced within the EU with regard to countries with more deregulated labor markets, such as Portugal. More generally, arguments in favor of a 'Social Charter' in the EU stem from the fear that a single market would either not be feasible without centrally coordinated minimum labor standards, or would lead to excessive labor market deregulation. Opponents of the Social Charter do not dispute the link between trade and labor market policies. On the contrary, they view free trade in goods and services as a way to force the removal of labor market distortions everywhere in Europe.

Concerns about trade with partners with less regulated labor markets is widespread, not only in the EU. In the aftermath of the GATT's Uruguay Round, which should lead to a significant liberalization of world trade, the enforcement of labor standards in developing countries is seen by many as a safeguard against 'unfair competition'. In this spirit, the US approved legislation requiring its executive directors in multi-lateral organizations like the World Bank to make the observance of workers' rights, including the right to form labor unions, a condition of lending. Talks are also underway within the WTO to impose trade sanctions to countries not complying with some set of minimum labor standards. Similar threats are also applied by individual countries. In the first-half of the 1990s, for instance, Indonesia had to double its minimum wages in real terms to defuse potential trade and investment sanctions by the US.

To analyze the link between product and labor market distortions, we rely on the common agency model pioneered by Bernheim and Whinston (1986), and applied to trade policy by Grossman and Helpman (1994) and to the structure of taxation by Dixit (1995). The government is the agent who sets economic policy. Various interest groups act as principals and confront the government with contribution schedules, namely with functions mapping the economic policy into actions valued by the government. These actions admit several alternative interpretations: they can be bribes, campaign contributions, or support demonstrations. It is essential that the government values the actions more than what they cost to the lobbies. The timing is also essential: first the lobbies simultaneously commit to contribution schedules; next, the government, having observed these schedules, sets economic policy. The interest groups thus play Nash against each other, but take into account the influence of their choices on the government.

Grossman and Helpman (1994) apply this approach to a small open economy with many sectors. They only study trade policy. The principals are the owners of fixed factors in each sector, while consumers are not organized in lobbies. By contrast, our paper studies a small open economy with only two sectors: manufacturing and agriculture, or alternately, formal and underground. The government controls two policy instruments: a tariff and a minimum wage. Both policies only affect the manufacturing sector. There are two organized interest groups: capital owners, and union members. They too are only present in manufacturing (the formal sector). Factors of production in agriculture (the underground sector) are not organized in political lobbies. Thus, unlike Grossman and Helpman (1994), our paper focuses on how different factors in the same sector lobby the government for distortionary policies that, on the one hand, create rents (the tariff) and, on the other, determine the distribution of these rents (the minimum wage.)

We obtain several results. First, a set of positive results, concerning the economic and political determinants of trade and labor market policies. Despite the conflict of interest on labor market policies, there is complementarity between the two policy instruments: in equilibrium, labor and product market distortions always move in the same direction in response to exogenous changes in any of the relevant economic and political parameters. The economic parameters are those determining the extent of the deadweight losses resulting from distortions. The political parameters are related to the size of the interest groups and to the value the government attaches to their contributions. In general, the equilibrium level of distortions is not modified if capital owners and unionized workers cooperate in a 'social pact'. However, social pacts may reduce the amount of resources wasted in lobbying. The reason is that when interest groups play Nash, to some extent they lobby against each other (particularly regarding the minimum wage), an inefficiency that can be avoided through cooperation.

Second, we obtain a set of normative results, concerning the optimal design of the conditionality clauses embedded in aid programs and international agreements. Under plausible assumptions, labor market distortions are second best: they are the optimal response to the product market distortions. Thus, conditionality should target product market distortions, but not labor market distortions: if a conditionality clause by a multi-lateral organization like the World Bank succeeds in removing or reducing a tariff, the labor market policy will endogenously adjust and also move in the right direction. Or if the EU opens up to trade with Eastern Europe, its labor market policies will react and remove some existing distortions, without necessarily leading to larger European unemployment. In other words, labor market behavior is endogenous not only in the sense that private wage agreements would react to the new trade situation, but also in the stronger sense that government policies and political lobbying would be affected, and would deliver a more de-regulated labor environment.

The normative results follow from two assumptions of the model. First, the economic agents not organized in a political lobby (workers in the underground sector) are harmed by trade policy but *not* by the labor market policy. Second, capital and labor are equally effective at lobbying the government. Under these assumptions, the interests of capital and labor are aligned over trade policy but opposite over labor market policies. Hence, capital and labor discipline each other by lobbying in opposite directions, leaving the government free to pursue socially optimal labor market policies. If these features of the model are removed, then the optimal conditionality clause should target both product and labor market distortions, but the optimal targeting of labor markets is generally ambiguous and depends on features of the economy that might be hard to assess. The optimal targeting of commercial policy, on the other hand, should always be in favor of free trade.

The normative results thus provide support for the existing practice of the World Bank, which is characterized by a strong focus on trade liberalization and deregulation, but less emphasis on labor market reforms. With regard to the debate on the Social Charter in the EU, the results support the view that labor market policies ought to be left to national governments, without interference from the EU. In the context of the WTO, they go against the proposal to impose trade sanctions on countries not complying with specific labor standards.

The paper is organized as follows. Section 2 lays out the model summarized above. The welfare effects of economic policies are described in Section 3. The equilibrium policies are characterized in Section 4, while Section 5 discusses the equilibrium contributions by the lobbies. Section 6 evaluates the economic and political consequences of a social pact between capital owners and union members. The optimal design of conditionality clauses is discussed in Section 7, while Section 8 contains some concluding remarks.

2. The model

Consider an economy with two sectors, which could be labelled as ‘manufacturing’ and ‘agriculture’ in the case of developing countries, or as ‘formal’ and ‘underground’ in the case of industrial countries. The nature of the goods produced by these two sectors has, in fact, little importance. Their relevant feature is whether individuals in these sectors are organized in interest groups or not. It is assumed that workers in agriculture or the underground economy undertake no collective action, while both workers and capital owners in manufacturing or the formal economy do. Therefore, the sectoral distinction accounts here for institutional heterogeneity. The hypothesis that different sectors have different institutions is quite plausible: some characteristics of the production process (such as spatial agglomeration, or the number of individuals involved, or the possibility of evading taxes) could make it easier to overcome the obstacles to collective action in one of the sectors.

Total population is normalized to one. A fraction α^K of the individuals own the capital used in manufacturing and do not need to work as wage earners to make a living. These individuals are organized in a producers’ association. A fraction α^U of the individuals are manufacturing workers, members of a trade union. Finally, the remaining $1 - \alpha^K - \alpha^U$ individuals work in agriculture and have no organization to represent them.

All individuals have the same preferences over consumption goods, represented by the following objective function:

$$u^i = a^i + U(c^i), \quad (1)$$

where u^i is the utility level of individual i , a^i is his or her consumption of the agricultural good, and c^i is his or her consumption of the manufactured good. The function $U(\cdot)$ is increasing and concave. Utility is maximized subject to the budget constraint:

$$I^i \geq a^i + pc^i, \quad (2)$$

where I^i is the net income of individual i , to be defined below, and p is the domestic relative price of the manufactured good. The price of the agricultural good is normalized to unity. Given the specification chosen for the utility function u^i , it follows that consumption of the manufactured good does not depend on income:

$$c^i = C(p) \quad \text{for all } i, \quad C_p < 0, \quad (3)$$

where a subscript denotes a derivative.

Agricultural goods are produced with labor only, by means of a linear technology. Wages in agriculture are normalized to unity. Manufactured goods are produced with capital K and labor L , according to a concave function

$F(K, L)$. Profit maximization by firms implies that for a given capital stock, employment in manufacturing depends on the domestic price p of the manufactured good and on the wage w paid to the workers in this sector:

$$F_L(K, L) = \frac{w}{p}. \quad (4)$$

Since total population was normalized to one, $L(p, w)$ represents the fraction of total population actually employed in manufacturing, as a function of p and w . Clearly, $L_p > 0 > L_w$. Similarly, physical output $F(K, L)$ in manufacturing is a function $Y(p, w)$ such that $Y_p > 0 > Y_w$. The dependence on K is omitted since capital is fixed and treated as a parameter.

The government has two policy instruments: import tariffs, $p - p^*$, where p^* is the international price of manufacturing goods; and minimum wages in the manufacturing sector, w . Since wages in agriculture are equal to one, the wage differential $w - 1$ measures the government intervention in the labor market. For simplicity, we assume that the only government revenues are the proceeds T of import tariffs on manufactured goods

$$T(p, w) \equiv (p - p^*)[C(p) - Y(p, w)]. \quad (5)$$

It is possible to show that $T_p \geq 0 \geq T_w$.¹

Tariff revenues are distributed only among union members and capital owners, in equal proportions. Thus, agricultural workers do not receive any revenue, while each individual belonging to one of the lobbies receives a proportion $1/(x^K + x^U) > 1$ of per capita tariff revenue. A previous version of the paper also considered the case in which revenue was distributed evenly across the whole population. We comment below on how that would affect the results.

Individuals belonging to different groups differ in their net income. By assumption, agricultural workers do not make any contributions to influence economic policy outcomes, and only receive wage income. Since wages in agriculture are normalized to one, the income of an individual working in this sector is $I^A \equiv 1$.

Capital owners in the manufacturing sector earn profits in addition to the transfer $T/(x^K + x^U)$. They pay contributions λ^K to the government, contingent on the chosen economic policies: $\lambda^K(p, w)$ is a schedule mapping every pair (p, w) into a contribution level. Under these assumptions, the net individual income of

¹ Eq. (4) and Eq. (5) imply $T_p = C - Y + (p - p^*)(C_p - Y_p)$ and $T_w = -(p - p^*)(w/p)L_w$, with $Y_p = -(w/p)^2 L_w$. We implicitly assume that protection is not so high to be on the 'wrong' side of the Laffer curve. Again, p^* is treated as a parameter and thus does not enter $T(\cdot)$ as an argument. The results would be unchanged if there was an export subsidy, rather than an import tariff, on manufactured goods. In this case, T would be negative.

a capital owner is

$$I^K \equiv \frac{pY(p, w) - wL(p, w)}{\alpha^K} + \frac{T(p, w)}{\alpha^K + \alpha^U} - \frac{\lambda^K(p, w)}{\alpha^K}. \quad (6)$$

Finally, the *expected* income of workers who are organized in unions depends on how the minimum wage w affects employment L in manufacturing (see Oswald, 1985). Since $L_w < 0$, a higher wage increases the probability for a union member to end up working in agriculture.² The expected wage of a union member is a weighted average of the wages in the two sectors, w and 1, with weights L/α^U and $(\alpha^U - L)/\alpha^U$, respectively. Therefore, his or her expected income is

$$I^U \equiv 1 + \frac{(w - 1)L(p, w)}{\alpha^U} + \frac{T(p, w)}{\alpha^K + \alpha^U} - \frac{\lambda^U(p, w)}{\alpha^U}, \quad (7)$$

where $T(p, w)/(\alpha^K + \alpha^U)$ are government transfers and $\lambda^U(p, w)$ are contributions paid by trade unions to the government. These contributions are treated in the same way as those by capital owners.

The government cares about aggregate well-being, but also about the support it gets from interest groups. Its objective function V^G can thus be written as

$$V^G(p, w) \equiv \beta[\lambda^K(p, w) + \lambda^U(p, w)] + [\Omega(p, w) - \lambda^K(p, w) - \lambda^U(p, w)], \quad (8)$$

where $\beta > 1$ is the weight the government attaches to the support it gets from organized groups, and $\Omega(p, w)$ is the aggregate welfare level that could be attained in the absence of any political contributions:

$$\Omega(p, w) \equiv \alpha^K V^K(p, w) + \alpha^U V^U(p, w) + (1 - \alpha^K - \alpha^U) V^A(p, w). \quad (9)$$

In Eq. (9), V^j represents the *gross* indirect utility of an individual belonging to group j , i.e. the utility level that would be attained, *given* the government policies, if he or she did not make any political contribution to the government. Note that Ω would be the objective function of the social planner in the Pigouvian approach to economic policy. The second term in brackets in Eq. (8) is net aggregate welfare, obtained by subtracting political contributions from gross welfare Ω .³

Since $\beta > 1$, the government values the contributions more than what they cost the lobbies. By assumption, the government values all contributions the same, no matter whether they come from capital owners or from unionized

² Throughout the paper we assume that in equilibrium $L < \alpha^U$.

³ This simple interpretation of Eqs. (8) and (9) is made possible by the linearity of preferences in the agricultural good. We are also implicitly assuming that the contributions λ^K and λ^U are consumed by the government.

workers (i.e. there is no class bias). We discuss below what happens if the government values the contributions by one group more, i.e. if one group finds it easier to influence government policies.

Individuals maximize their utility for a given contribution and a given policy, while contributions are decided by the corresponding interest group. Naturally, interest groups take into account the effect of the policy on $T(\cdot)$, $L(\cdot)$ and $Y(\cdot)$. The interaction between the interest groups and the government has the structure of a menu auction problem, like the one analyzed by Bernheim and Whinston (1986) or, in a context more similar to ours, by Grossman and Helpman (1994).

3. Welfare effects of the policies

To understand the properties of the model, we first discuss the welfare effects of product and labor market distortions on individuals belonging to each group. There are direct welfare effects, since changes in p and w modify the net income of these individuals, as well as the consumption distortions they face. But there are indirect effects too, because employment L in manufacturing depends on the real wage w/p .

Taking these indirect effects into account, the envelope theorem implies that agricultural workers are harmed by protection, that causes consumption distortions, but are not affected by minimum wages:

$$\begin{aligned} V_p^A &= -C < 0, \\ V_w^A &= 0. \end{aligned} \tag{10A}$$

The negative welfare effect of protection is general. The absence of effects from minimum wages depends on two features of the economy: the linear production function in agriculture, that makes the wage rate in that sector independent of how many workers are employed in it; and our assumption that tariff revenue is not distributed to agricultural workers. A higher minimum wage reduces the production of manufacturing goods, increases imports and hence tariff revenues, and shifts workers into agriculture. Hence, in a more general model, higher minimum wages would have ambiguous effects on the welfare of agricultural workers, as the resulting increase in tariff revenues would be offset by a declining wage rate.

In the case of capital owners, the envelope theorem implies

$$\begin{aligned} V_p^K &= \frac{Y}{\alpha^K} + \frac{T_p}{\alpha^K + \alpha^U} - C \geq 0, \\ V_w^K &= -\frac{L}{\alpha^K} + \frac{T_w}{\alpha^K + \alpha^U} \geq 0. \end{aligned} \tag{10K}$$

If $p = p^*$, $T_p = C - Y$ and $T_w = 0$. Hence $V_p^K > 0 > V_w^K$ at free trade: capitalists benefit from protection and are harmed by higher minimum wages, as expected. These results hold when tariffs are positive, provided that capital owners represent a narrow group (α^K is small), or that tariffs are not too large (p is sufficiently close to p^*).

With regard to unionized workers, their indirect utility function is such that

$$V_p^U = \frac{(w-1)L_p}{\alpha^U} + \frac{T_p}{\alpha^K + \alpha^U} - C \geq 0,$$

$$V_w^U = \frac{L + (w-1)L_w}{\alpha^U} + \frac{T_w}{\alpha^K + \alpha^U} \geq 0. \quad (10U)$$

At free trade, union members can either benefit or suffer from protection depending on whether the induced increase in employment exceeds or falls short of the consumption distortion. The benefits from protection are greater the higher is the minimum wage. In any event, unionized workers suffer less from increased protection than agricultural workers, and they can benefit from protection when the wage gap $w - 1$ is large and union membership α^U is small. Moreover, union members always benefit from higher minimum wages, provided that the wage bill does not decrease as w increases.

Thus, as expected, starting from a policy of free trade and no minimum wage, agriculture is harmed by protection, and capitalists in manufacturing are the primary beneficiaries of protection, even though workers can benefit too if minimum wages are high. Moreover, higher minimum wages in manufacturing benefit union members and harm capitalists. Since union members and capital owners are the groups that actively lobby, it is important to stress that their economic interests are *opposite* with regard to the minimum wage policy, while they tend to be *similar* with regard to protection. This plausible feature of the model is reflected in the properties of the equilibrium described in the remainder of the paper.

4. Equilibrium policies

In this section we characterize the equilibrium policies. Such policies are optimal for the government and for the interest groups, given the equilibrium contributions (see Bernheim and Whinston, 1986; Grossman and Helpman, 1994). Thus, in equilibrium, interest groups make contributions up to the point where the gain from the resulting change in economic policies is exactly offset by

the marginal cost of the contributions:⁴

$$x^x V_p^x = \dot{\lambda}_p^x, \quad x^x V_w^x = \dot{\lambda}_w^x, \quad x = K, U. \quad (11)$$

The first-order conditions of the government's optimization problem imply

$$\begin{aligned} V_p^G &\equiv (\beta - 1)(\dot{\lambda}_p^K + \dot{\lambda}_p^U) + \Omega_p = 0, \\ V_w^G &\equiv (\beta - 1)(\dot{\lambda}_w^K + \dot{\lambda}_w^U) + \Omega_w = 0. \end{aligned} \quad (12)$$

Combining Eqs. (11) and (12), and recalling the definition of the social welfare function Ω in Eq. (9), the solution to the government's optimization problem can be re-written as

$$\begin{aligned} V_p^G &= \beta x^K V_p^K + \beta x^U V_p^U + (1 - x^K - x^U) V_p^A = 0, \\ V_w^G &= \beta x^K V_w^K + \beta x^U V_w^U + (1 - x^K - x^U) V_w^A = 0. \end{aligned} \quad (13)$$

Therefore, by valuing the contributions of interest groups, the government implicitly maximizes a social welfare function in which different individuals have different weights depending on whether they belong to one of these groups. The more the government values the contributions (i.e. the higher is the β), the greater is the share of interest group members in this social welfare function. A similar result is obtained by Grossman and Helpman (1994) in the context of pure trade policy, and it extends naturally to factor market distortions.

We now discuss the nature and direction of the policy distortions induced by the lobbying activities. The issue is not obvious, because of second-best arguments. With two endogenous distorting policies, it is not clear that welfare improvements would be obtained by moving one instrument in the direction of less intervention, given that the other policy distortion remains intact. In fact, this second-best argument is shown to be particularly relevant for the labor market distortion. To see this, rewrite Eq. (13) as

$$\begin{aligned} \Omega_p &= \frac{(\beta - 1)(1 - x^K - x^U)}{\beta} V_p^A < 0, \\ \Omega_w &= \frac{(\beta - 1)(1 - x^K - x^U)}{\beta} V_w^A = 0. \end{aligned} \quad (13a)$$

Since $\Omega(p, w)$ is the (utilitarian) social welfare function, Eq. (13a) identifies the direction of the equilibrium distortions. Quite intuitively, the distortion is proportional to the welfare effect of the policy on the unrepresented group, the

⁴ We only consider differentiable contribution schedules. This point is further discussed below.

agricultural sector. The constant of proportionality depends on how much the government values the contributions by the active lobbies. By Eq. (10A), $V_p^A < 0$ and consequently $\Omega_p < 0$, which means that the equilibrium tariff is too high from the social welfare viewpoint. But Eq. (10A) also implies $V_w^A = 0$ and therefore $\Omega_w = 0$, so that minimum wages are at the second-best level, given that tariffs are positive. The labor market distortion is set at the efficient level because it only affects the individuals who are represented by interest groups and hence can do something about it.

Fig. 1 (suggested by a referee) helps understanding why a labor market distortion is efficient in the presence of tariffs. The horizontal axis measures employment in the manufacturing sector (from left to right) and in agriculture (from right to left). The vertical axis measures wages in the two sectors, respectively. At free trade, $p = p^*$, and without minimum wages, manufacturing employment would be at L^* . As the tariff increases, if $w = 1$ the size of manufacturing expands, and employment in manufacturing is driven to L^{**} . A minimum wage restores productive efficiency, since it can bring manufacturing employment back to L^* . In general, as long as $L > L^*$, a higher minimum wage increases efficiency. In fact, since L depends only on p/w , the second-best

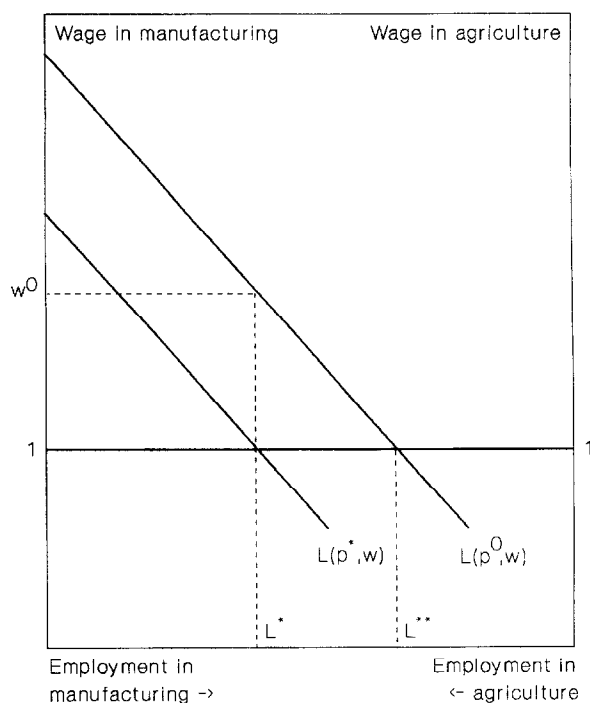


Fig. 1. Labor allocation as function of tariffs and minimum wages.

minimum wage must be such that $p/w = p^*$. As shown by Eq. (20) below, this is in fact the case in equilibrium.

Even though it is generally true that, with a tariff on the manufacturing sector, the second-best minimum wage is above unity and equal to p/p^* , small changes in the model could imply that such second-best minimum wage would not be enacted in equilibrium. In particular, suppose that capital and labor are not equally effective in influencing government policies. In terms of the model notation, suppose that the government valuation of labor contributions is $\beta + \delta$, where β is as before the valuation coefficient of capital contributions. Thus, $\delta > 0$ ($\delta < 0$) implies that labor is more (less) effective than capital at 'bribing' the government. This could happen because the nature of the contributions of capital and labor differ (for instance, labor offers support demonstrations, while capital offers cash), or because the cost of organizing into an active lobby (and thus what the contributions cost to the lobby) differs between capital and labor.

Whatever the nature of this difference, it matters. Taking into account that $V_w^A = 0$, the second equation in Eq. (13a) can now be rewritten as

$$\Omega_w = -\frac{\delta x^U}{\beta} V_w^U. \quad (13b)$$

By Eq. (10U), $V_w^U > 0$ provided that the wage bill increases with the minimum wage. Therefore, $\Omega_w < 0$ ($\Omega_w > 0$) as $\delta > 0$ ($\delta < 0$). That is, if the union is more powerful than capitalists ($\delta > 0$), the equilibrium wage is too high relative to the second best, while the wage is too low if the capital lobby is relatively more powerful.⁵

A common view is that labor markets are often distorted in developing countries, in the sense that minimum wages are sub-optimally high. Our analysis suggests that this view is correct only if labor's influence activities are more effective than those of capital. In particular, the mere presence of a minimum wage in a protected sector, by itself, is not a symptom of labor market distortions. On the contrary, if labor is politically not very effective, it could be that such equilibrium wage remains sub-optimally low.⁶

To complete the characterization of the equilibrium policies, replace the V_j^A in Eq. (13) by their analytical expressions, given by Eqs. (10A) and (10K) and Eq. (10U). After some algebra, Eq. (13) can be solved for the equilibrium

⁵ The statement concerns the equilibrium relative to the second best. It is not a comparative statics result, since $\delta \neq 0$ would also affect equilibrium tariffs.

⁶ Departures of the equilibrium wage from the second best could also be due to the fact that workers in agriculture are affected by w (i.e. $V_w^A \neq 0$). The previous discussion suggests why that may happen under different assumptions.

distortions, to yield⁷

$$\frac{w^0 - 1}{w^0} = \frac{p^0 - p^*}{p^0} = \frac{(\beta - 1)(1 - \alpha^K - \alpha^U)}{\beta \varepsilon}, \quad (14)$$

where the superscript ‘0’ reminds that this is the equilibrium, and where $\varepsilon = -C_p p/C > 0$ is the price elasticity of domestic demand for manufactured goods. Note that, as argued before, the equilibrium wage is second-best, since it satisfies $w = p/p^*$.

Eq. (14) immediately implies some intuitive comparative statics results. First of all, there would be no distortions at all if $\beta = 1$, i.e. if the government did not value contributions by interest groups. More generally, the higher is the valuation β , the larger are the equilibrium distortions. Moreover, product and labor market distortions are higher the smaller is the price-elasticity ε of domestic demand for the manufactured good, and the more concentrated is the property of capital and labor (i.e. the smaller are α^K and α^U). A high price elasticity makes it indeed more costly for the government to introduce policy wedges in this sector, because consumption distortions become significant. Capital owners and union members are also consumers and, as such, they suffer from market distortions. The bigger their group, the more they internalize the efficiency loss resulting from their lobbying.

Eq. (14) also underlines the strong complementarity that exists between labor and product market distortions. Anything that moves one distortion also moves the other, in the same proportion. This complementarity is a general feature of the model, even though, as already remarked, the fact that the two distortions move exactly one-to-one is not. Specifically, suppose that $\delta \neq 0$, so that capital and labor are not equally effective in their influence activities. The complementarity of product and labor market distortions would remain, in the sense that they would always move in the same direction, even though not by the same amounts.

The complementarity between product and labor market distortions would also remain if tariff revenues were distributed to all the population. A previous version showed that in this case employment in manufacturing is above its optimal level and wages fall short of the second best (see Rama and Tabellini, 1995). However, as long as $Y/C < 1$, tariff barriers are also lower. Redistribution of tariff revenues to agricultural workers thus reduces consumption distortions, while aggravating production distortions. Finally, if tariff revenue is distributed to agricultural workers, both distortions are an increasing function of Y/C .

⁷ Here we assume that $\delta = 0$: capital and labor are equally effective in lobbying.

The complementarity between product and labor market distortions implies that both markets are always distorted, even if there is only one active interest group. Capital owners have, of course, no interest in paying wages above 1 if not forced to do so (at free trade, $V_w^K < 0$). Similarly, workers may not find it in their interest to pay more than p^* for manufactured goods (at free trade, $V_p^U < 0$). Still, the objective function of the government involves social welfare, in addition to political contributions (β is finite). Because of second-best considerations, therefore, the government will distort both markets, even when facing contributions from only one lobby.

These results are similar to those obtained by Grossman and Helpman (1994) for the structure of protection. As in their paper, the equilibrium level of market distortions combines the parameters that should be considered in a Ramsey rule for optimal taxation (ε and Y/C) with those that specifically correspond to the common agency setting (α^K , α^U and β). However, by considering capital and labor as the relevant interest groups, our results also bridge the gap with the literature on the virtues of corporatism (see Bruno and Sachs, 1985; Calmfors and Driffill, 1988, among others). If trade unions are narrowly defined, their members benefit greatly from tariff barriers and wage differentials, while imposing only a light burden on each individual consumer. As the number of beneficiaries from the distortions increases, though, the burden gets heavier, thus making organized workers internalize (as consumers) part of the resulting efficiency loss. In the limit, if all individuals are represented by either a trade union or a capital-owners association, which is the proper form of corporatism, then neither product nor labor markets are distorted. In this case, the common agency model yields efficient outcomes. Hence, the inefficiency is due to incomplete representation.⁸

5. Equilibrium contributions

This section characterizes the equilibrium contributions. Following Grossman and Helpman (1994), we only consider *truthful contribution schedules*. Only these contributions support ‘coalition proof’ Nash equilibria, and vice-versa all such equilibria are reflected by truthful contributions (see Bernheim and Whinston, 1986).⁹ A truthful contribution schedule has the form:

$$\lambda^x(p, w; z^x) = \text{Max}[0, \alpha^x V^x(p, w) - z^x], \quad x = K, U, \quad (15)$$

where z^x is a scalar. Thus, a truthful contribution pays the government the true welfare effect of the policy, in excess of a reservation value z^x . The latter is pinned

⁸ Eq. (14) implies that the distortions are driven to zero as $\alpha^K + \alpha^U$ approaches 1.

⁹ A ‘coalition proof’ Nash equilibrium is stable to non-binding communication among the players.

down by the requirement that, given the equilibrium contribution of the other group, each lobby is paying as little as possible to induce the equilibrium policy. Thus, the government must be indifferent between implementing the equilibrium policy and receiving the equilibrium contribution from both lobbies on the one hand, or taking a positive contribution from only one lobby, and implementing the policy optimal for that lobby on the other. Specifically

$$\begin{aligned} \Omega(p^0, w^0) + (\beta - 1)[\lambda^K(p^0, w^0; z^K) + \lambda^U(p^0, w^0; z^U)] \\ = \Omega(p^x, w^x) + (\beta - 1)\lambda^x(p^x, w^x; z^x), \quad x = K, U, \end{aligned} \quad (16)$$

where (p^0, w^0) is the equilibrium policy characterized by Eq. (13) and (p^x, w^x) is the policy which is jointly optimal for the government and lobby x only.¹⁰ The left-hand side of Eq. (16) denotes the equilibrium government payoffs; the right-hand side denotes the government payoffs when only one interest group provides contributions.

Inserting the expression for truthful contributions, Eq. (15), in Eq. (16), and simplifying yields the equilibrium reservation utilities for both lobbies:

$$\begin{aligned} (\beta - 1)z^x = \Omega(p^0, w^0) + (\beta - 1)[\alpha^K V^K(p^0, w^0) + \alpha^U V^U(p^0, w^0)] \\ - \Omega(p^y, w^y) - (\beta - 1)\alpha^y V^y(p^y, w^y), \quad x = K, U, \quad x \neq y. \end{aligned} \quad (17)$$

The first two terms on the right-hand side of Eq. (17) are a measure of the maximum gross welfare (i.e. disregarding the contributions) attainable by the government and the two active lobbies. The last two terms measure the maximum gross welfare attainable by the smaller coalition consisting of the government plus only one lobby. Thus, the equilibrium reservation utilities equal the welfare difference between the coalition inclusive of all the lobbies, and the smaller coalition with only one lobby.

The reservation utility z^x measures the ‘rent’ that lobby x can extract from the agency relation with the government. The larger is z^x , the larger is the benefit resulting from the policy distortion that is appropriated by the lobby rather than by the government. The foregoing discussion illustrates that the size of this rent for lobby x depends on how well the government can do with the other lobby alone. Thus, the ‘economic power’ of a lobby is not absolute, but it is relative to that of its competitors.

It is possible to show that Eq. (17) implies $z^x > 0$, $x = K, U$: in equilibrium both lobbies capture some rents from the agency relation. Repeating the analysis for λ^x , rather than z^x , it is also possible to show that $\lambda^x(p^0, w^0; z^x) > 0$, $x = K, U$.

¹⁰ Thus, $(p^x, w^x) = \text{Argmax} [\Omega(p, w) + (\beta - 1)\alpha^x V^x(p, w)]$, $x = K, U$.

Thus, contributions by both lobbies are strictly positive, and the government also gains something.¹¹

6. Social pact

A social pact can be viewed as a cartel between unionized workers and capital owners. The shift from non-cooperative to cooperative decision making by the two interest groups modifies the way political contributions are chosen, which in turn could affect equilibrium distortions, as well as the size of the contributions. But this shift can have consequences on employment determination too. So far, it has been assumed that firms are on their labor demand schedule. Each of them unilaterally determines its level of employment, given the level of prices and wages. Both capital owners and unionized workers could be better off though, if they jointly decided on employment. This would take them away from the labor demand schedule, to some more efficient contract schedule (McDonald and Solow, 1981).

Consider first the joint determination of political contributions under the assumption that firms are on their labor demand schedule. This assumption corresponds to the case of a cartel which is strong enough to set and monitor political contributions by capital owners, but not to interfere with their 'right to manage' the firms. The cartel thus chooses the lobbying activities to maximize the joint welfare function V^S , defined as:

$$V^S(p, w) \equiv x^K V^K(p, w) + x^U V^U(p, w) - \lambda(p, w), \quad (18)$$

where λ is now the joint contribution of the cartel to the government. The government is still described as before; namely, it maximizes Eq. (8), except that $\lambda^K + \lambda^U$ is now replaced by λ . Employment is also determined like in the previous model, and there are no side payments between capital owners and union members. Thus each individual in the cartel pays a contribution equal to $\lambda/(x^K + x^U)$.

The cartel's first-order conditions imply

$$\begin{aligned} x^K V_p^K + x^U V_p^U &= \lambda_p, \\ x^K V_w^K + x^U V_w^U &= \lambda_w, \end{aligned} \quad (19)$$

¹¹ To see this, subtract $(\beta - 1)x^x V^x(p^0, w^0)$ from both sides of Eq. (17), which becomes

$$\begin{aligned} (\beta - 1)[x^x V^x(p^0, w^0) - z^x] &= \Omega(p^x, w^x) + (\beta - 1)x^x V^x(p^x, w^x) - \Omega(p^0, w^0) \\ &\quad - (\beta - 1)x^y V^y(p^0, w^0), \quad x = K, U, \quad x \neq y. \end{aligned} \quad (17a)$$

It can be shown that the right-hand side of Eq. (17a) is strictly positive.

while the government's first-order conditions are exactly as before. Combining Eq. (19) with the government's first-order conditions, the equilibrium policy turns out to be identical to that described in the previous sections. The distortion in the setup of the previous sections arises from the fact that one sector (agriculture) is excluded from the lobbying. The social pact does nothing to remedy that distortion.

There is a sense, however, in which the social pact could be welfare improving. The cost of influencing the government could be smaller if capital and labor cooperate with each other. Without the social pact, capital and labor unilaterally lobby the government to tilt policy in their desired direction. To some extent, therefore, they also lobby against each other (particularly, in the case of the minimum wage), and the government free rides on that. Cooperation enables them to pay the government the minimum amount needed to get the policy they want.

To formally address this issue, we need to characterize the cartel contribution schedule in equilibrium. Like in Section 5, we only consider truthful contribution schedules. Thus,

$$\lambda^S(p, w; z^S) = \text{Max}[0, \alpha^K V^K(p, w) + \alpha^U V^U(p, w) - z^S], \quad x = K, U, \quad (20)$$

where z^S is the reservation utility of the cartel. With only one lobby, equilibrium requires the government to be indifferent between taking the equilibrium contribution and taking no contribution at all and implementing the optimal policy of no intervention. Using the same notation as before, this indifference condition can be stated as

$$\Omega(p^0, w^0) + (\beta - 1)\lambda^S(p^0, w^0; z^S) = \Omega(p^*, 1), \quad (21)$$

where the right-hand side of Eq. (21) is aggregate (and government) welfare at free trade and no labor market intervention. Combining Eqs. (21) and (20), we obtain the equilibrium reservation utility of the cartel:

$$(\beta - 1)z^S = \Omega(p^0, w^0) + (\beta - 1)[\alpha^K V^K(p^0, w^0) + \alpha^U V^U(p^0, w^0)] - \Omega(p^*, 1). \quad (22)$$

Recall that the social pact leads to the same equilibrium policy discussed in the previous sections. Hence, the question of whether the social pact reduces the equilibrium contributions received by the government amounts to a comparison of z^S versus $z^K + z^U$. By Eq. (22) and Eq. (17), equilibrium contributions are smaller with the social pact than in a decentralized setting if the following condition is satisfied:

$$\begin{aligned} & \sum_{x=K,U} [\Omega(p^x, w^x) + (\beta - 1)\alpha^x V^x(p^x, w^x)] \\ & > \Omega(p^*, 1) + \Omega(p^0, w^0) + (\beta - 1)\alpha^K V^K(p^0, w^0) \\ & \quad + (\beta - 1)\alpha^U V^U(p^0, w^0). \end{aligned} \quad (23)$$

Applying the same arguments of Section 5, condition (23) has a nice interpretation. The left-hand side of Eq. (23) is the maximum welfare attainable by the two coalitions consisting of the government plus one active lobby. The right-hand side is instead the maximum welfare attainable by the two coalitions consisting of the government plus both lobbies (i.e. the Nash equilibrium) and of the government alone (i.e., the free trade and no labor intervention outcome). If the left-hand side is larger than the right-hand side, then in the Nash equilibrium the government can extract more surplus, because it can credibly threaten to play one lobby against the other. It is precisely in this case that the social pact pays, in the sense that it reduces the amount of resources wasted in distributional activities.

Condition (23) is more likely to be fulfilled if the interests of capital and labor diverge from each other. For in this case the policies implemented when only capital or only labor is an active lobby, (p^K, w^K) and (p^L, w^L) , are very different from each other; hence the equilibrium policy (p^0, w^0) is more likely to be a compromise that does not please either lobby very much. This conflict of interest is present in this model with regard to the wage policy, but not with regard to commercial policy. Hence, in the absence of specific assumptions on the functional form of preferences and technology, we cannot tell whether Eq. (23) is satisfied.

Next we turn to the second relevant issue in a social pact, concerning employment determination. Under the previous assumptions, the wage gap is second best and productive efficiency is attained, even when employment is determined unilaterally by firms. Hence, no welfare improvement is possible, even if employment was jointly determined by firms and unions.

The issue of employment determination would become relevant, however, if the equilibrium minimum wage were no longer second best. For instance, if tariff revenue is also distributed to agricultural workers, then the Nash equilibrium wage rate is too low and manufacturing employment is too high to achieve productive efficiency. A social pact with joint employment determination restores efficiency and reduces manufacturing employment to the second-best level.

To summarize, a social pact will modify the extent of product and labor market distortions if two conditions are met. First, the pact has to include employment as one of the variables capital owners and unionized workers negotiate on. In terms of the wage bargaining literature, firms have to give up their 'right to manage'. Second, the minimum wage in the absence of the social pact must differ from the second-best level. If these two conditions are fulfilled, the social pact leads to smaller distortions both in consumption (lower tariff rate) and in resource allocation (lower employment in manufacturing). But except for this particular case, the social pact only affects the extent of political contributions, in the way that was described above.

7. Reform conditionality

The model discussed in the previous sections can be used to analyze the design of conditionality clauses related to product and labor market distortions. These clauses, embedded in subsidized loans by multi-lateral organizations like the World Bank, or in international agreements at the level of organizations like the EU or the WTO, aim at shaping domestic economic policies. By making aid or sanctions conditional on economic policies, these organizations can be seen as an additional principal of the model, competing with capital owners and unionized workers in influencing economic policies. Assume that the foreign organization is interested in improving the aggregate welfare of the member country. The question is, how should conditionality be designed to achieve this goal?

Let $B(p, w)$ be the net transfer from abroad. Conditionality is reflected in the fact that the transfer depends on the chosen economic policies, p and w . Although this is not essential to the argument, assume the organization manages to get this transfer directly to the individuals, hence by-passing the government. In this case, the government's objective function becomes

$$V^G(p, w) \equiv (\beta - 1)[\lambda^K(p, w) + \lambda^U(p, w)] + \Omega(p, w) + B(p, w). \quad (8a)$$

The objective function V^F of the foreign agency, in turn, is given by

$$V^F(p, w) \equiv \Omega(p, w) + (1 - \theta)B(p, w), \quad (24)$$

where $\theta > 1$ represents the opportunity cost of the organization's funds. If $\theta = 1$, financing the transfer would not be a problem, and the organization would care only about aggregate welfare in the recipient country.

Suppose that the foreign organization and domestic interest groups simultaneously set their contribution schedules. Then, interest groups take the net transfer B as given. Therefore, their first-order conditions remain the same as before (see Eq. (11)). With regard to the foreign organization, it maximizes its objective function when

$$\begin{aligned} B_p &= \frac{1}{\theta - 1} \Omega_p, \\ B_w &= \frac{1}{\theta - 1} \Omega_w. \end{aligned} \quad (25)$$

Not surprisingly, the slopes of its contribution schedule with respect to the economic policy arguments p and w have the same signs as the slopes of the aggregate welfare function Ω with respect to these two arguments.

Finally, the government's first-order conditions are

$$\begin{aligned} V_p^G &= (\beta - 1)(\lambda_p^K + \lambda_p^U) + \Omega_p + B_p = 0, \\ V_w^G &= (\beta - 1)(\lambda_w^K + \lambda_w^U) + \Omega_w + B_w = 0. \end{aligned} \quad (26)$$

After replacing the first-order conditions for the foreign agency and the domestic interest groups, Eq. (26) can be re-written as follows:

$$\begin{aligned} V_p^G &= \hat{\beta}z^K V_p^K + \hat{\beta}z^U V_p^U + (1 - z^K - z^U)V_p^A = 0, \\ V_w^G &= \hat{\beta}z^K V_w^K + \hat{\beta}z^U V_w^U + (1 - z^K - z^U)V_w^A = 0, \end{aligned} \quad (27)$$

with

$$\hat{\beta} = \frac{1 + \beta(\theta - 1)}{\theta} < \beta.$$

Therefore, reform conditionality reduces the influence of the lobbies, and reduces the distortions. But the structure of protection remains the same as before: wages are second best, while tariffs are positive. As the opportunity cost Θ of the funds pledged by the foreign organization decreases, the influence of the domestic lobbies vanishes and efficiency increases. In the limit, if Θ was equal to one, then conditionality would lead to first-best policies.

What does the analysis suggest about the optimal design of conditionality? The answer is given by Eq. (25). With positive tariffs, $\Omega_p < 0$, and hence $B_p < 0$: net transfers should therefore be contingent on the tariff and put a premium on trade liberalization. But this conclusion does not apply to labor market liberalization. Since wages are second best, $\Omega_w = 0$, and consequently $B_w = 0$, which means that transfers should *not* be conditional on labor market policies. This result follows from the complementarity that was noted above, between product and labor market distortions. If the foreign organization succeeds in inducing the government to reduce tariffs, labor market policies will automatically be moved in the right direction by domestic political forces.

Finally, if the foreign organization commits to a conditional transfer rule before the interest groups lobby the government, the results are similar, but the conditionality clause becomes more effective. The reason is that a conditionality clause announced well in advance increases the cost of large departures from first-best policies. The lobbies realize that the transfer is smaller if the economy is more distorted. As a result, the equilibrium lobbying is smaller, and so are the resulting equilibrium distortions.

A conditionality clause changes slightly the equilibrium reservation utilities, z^K and z^U . Since the logic discussed above still applies, we do not derive once more the equilibrium contribution functions of the lobbies.

8. Concluding remarks

This paper has studied the joint determination of trade and labor market policies when union members and capital owners lobby the government for intervention. Trade protection creates rents for all factors of production in the protected sector, while government intervention in labor markets distributes these rents between capital and labor. Thus, the interests of capital and labor are aligned in the case of trade policies, but they are opposite over labor market policies. For this reason, the lobbies are able to influence trade policies, and obtain trade protection at the expenses of the citizens employed in the economic sectors without adequate political representation. In the case of labor market policies, on the other hand, capital and labor fight each other but are unable to influence government policies, which remain second best.

This basic insight is likely to be robust. Changing the model details could modify the results somewhat, but it is not going to alter the asymmetry between the strong inefficiency of equilibrium trade policies, and the approximate optimality of the equilibrium labor market interventions considered in this paper. This asymmetry stems from the fact that some sectors/groups directly affected by trade protection are not politically represented. In the case of labor market interventions, on the other hand, capital and labor have conflicting interests and fight each other trying to influence government policy in opposite directions. This conflict between the active lobbies insures that there is a ‘level playing field’ for every one. If the conflict of interests between capital and labor is particularly acute, the government can benefit, as it can play one lobby against the other. In this case, a ‘social pact’ enables labor and capital to avoid wasting resources in influence activities. But the equilibrium policies and allocations are not affected by the cooperation.

A practical implication of these results is that international organizations and agreements, should primarily target trade policies but not labor market policies. More generally, labor market distortions are not invariant to the trade policy arrangement. Liberalizing international trade and forcing competition with countries that have more deregulated labor markets facilitates the removal of domestic labor market distortions. Labor market institutions are endogenous, because political behavior and government policies, and not only private contracts, respond to the trade regime.

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