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Foreign Direct Investment, Expropriation, and Unionization

Tapio Palokangas
University of Helsinki and HECER

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HECER – Helsinki Center of Economic Research, P.O. Box 17 (Arkadiankatu 7), FI-00014
University of Helsinki, FINLAND, Tel +358-9-191-28780, Fax +358-9-191-28781,
E-mail info-hecer@helsinki.fi, Internet www.hecer.fi

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Abstract

This paper compares the strategic interaction between a foreign direct investor, a labour union and a self-interested government in the following cases: (a) a competitive labour market, (b) bargaining over wages and employment, or (c) bargaining over wages only. It is assumed that the investor and the union lobby the government for taxation and labour market regulation, and the investor uses its control rights to protect its investment against expropriation. It is shown that in cases (a) and (b) above, the government can use taxation and labour market regulation as a non-distorting vehicle to press the investor's profits to the minimum. Hence, union rights and right-to-manage bargaining (c) predict higher profits for foreign direct investment.

JEL Classification: F21, F23, J51, D78

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Tapio Palokangas

Department of Economics
P.O. Box 17 (Arkadiankatu 7)
University of Helsinki
FI-00014 University of Helsinki
FINLAND

e-mail: tapio.palokangas@helsinki.fi

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1 Introduction

This paper considers the profitability of foreign direct investment (FDI) in economies with labour unions and self-interested governments. Because FDI involves sunk costs, an foreign investor's risk consist of changes in wages, taxes, regulations and market conditions that implicitly expropriate investment rents after FDI has taken place. We assume that labour market institutions are so stable that foreign direct investors take them as given. Hence, we can compare FDI in three different environments: (a) a competitive (or full deregulated) labour market, (b) "efficient bargaining", in which unions and employers negotiate over both wages and employment, and (c) "right-to-manage bargaining", in which these negotiate only over wages.

A multinational company (MNC) can hide its profits e.g. through transfer pricing, but at some cost. This prevents governments from taxing investment rents entirely. Hence, the "creeping expropriation" of FDI more likely takes takes place through the combined use of taxation and labour market regulation. The MNC decides how efficiently it uses its resources. Ownership rights may be severely restricted by all kinds of regulation or direct government intervention, but as long as the owner has not been formally expropriated, he can always decide to leave his assets unproductive and to exclude the other from using them.¹ To explain the strategic dependence between unions, governments and prospective investors, we use a common agency model² to establish a political equilibrium in which the government determines taxes and labour market regulation, and lobbies representing unions and MNCs make offers that relate prospective contributions to government policy.

In the studies that examine the strategic interaction between MNCs and local governments, no foreign investment typically occurs unless taxation is restricted so that MNCs can end up with a positive profit. In Choi and Esfahani (1998), the government's ability to tax FDI is limited by an MNCs ability to withhold an important production asset, which causes the specific capital of the host economy to become idle. In Schnitzer (1999), the MNC facing the risk of expropriation can use its control rights to protect its

¹Cf. Schnitzer (1999).

²Cf. Bernheim and Whinston (1986), Grossman and Helpman (1994), and Dixit, Grossman and Helpman (1997).

investment. Our study differs from these papers in the following respects:

- Esfahani and Schnitzer consider only entirely benevolent governments, which have no interests of their own, but we assume a self-interested government, which receives contributions from interest groups (e.g., MNCs and labour unions) in return for modifications in its policy.
- We demonstrate that the political process prevents the expropriation of profits, even without institutional restrictions on taxation.

In line with Schnitzer (1999), we however restrict attention to the cases where the following conditions hold:

- (i) The host country has no funds or knowledge to carry out the investment project by itself. Hence, a MNC is needed for this purpose.
- (ii) The government cannot make commitments to its future policy.
- (iii) Implicit agreements can protect the economic interests of a foreign investor without explicit guarantees.

The government can weaken or strengthen the union's possibilities to respond to the employers' offers e.g. by compulsory arbitration. The micro-foundations of collective bargaining³ tell that when two players are making alternating offers to each other, they behave so as to maximize a weighed geometric average of their utilities – the Generalized Nash product. The weights of such an average, which reflect the relative bargaining power of the parties, are determined by the parameters of the model. Labour market regulation influences union power through these parameters. Following Blanchard and Giavazzi (2003), we assume that the government can make smooth and continuous changes in union power. The results can then be generalized for discrete changes in union power.

The following papers examine the relationship between labour unions and MNCs with inward FDI. Naylor and Santoni (1999) suggest that because high wages reduce potential rents associated with investment, a decrease in relative union bargaining power in a potential host economy subsequently increases the likelihood of FDI within that economy. Zhao (1998) shows

³Cf. Osborne and Rubinstein (1990).

that because FDI increases MNCs' mobility between economies, it improves MNC's position in collective bargaining and depresses union wages in every economy. These papers assume that relative union bargaining power is exogenously given, and that there is bargaining over wages only. We assume that relative union bargaining power is endogenous in the political equilibrium. Following Manning (1987a; 1987b), we consider also the case where a MNC and a labour union can bargain over both wages and employment.

Haaparanta (1996) examines inward FDI in a common agency framework. Because he focuses on a case in which a number of benevolent governments try to attract an MNC to make FDI, he assumes the governments as principals, and the MNC he designates as the agent. In this paper, we consider the case where an MNC's willingness to invest in a country depends on both labour market institutions and the response of a self-interested government. Hence, in our model, the MNC and the union representing its workers are principals while the government is the agent.

Palokangas (2003a) examines the political economy of collective bargaining in the following framework. The economy is closed and output is produced from labour only. First, there is a bargain over wages, then a bargain over employment between the producer and the labour union. Depending on government regulations, union power may be different within these two bargains. Workers and producers lobby the government. In this framework, it is shown that if it is much easier to tax wages than profits, then the government protects union power by labour market regulation. In this study, we extend the model of Palokangas (2003a) for an open economy with capital and a foreign direct investor. Combining this extension with Schnitzer's (1999) ideas of expropriation, we obtain a framework in which the profitability of FDI can be examined in the presence of different labour market institutions.

This paper is organized as follows. Section 2 presents the basic structure of the model as an extensive game. Section 3 considers collective bargaining. The government's behaviour is endogenized in section 4 and the political equilibrium is constructed in sections 5 and 6. Section 7 examines the implicit agreement between the MNC and the government when the former can control the use of its resources.

2 The agents in an extensive game

We assume that a MNC which is able to invest in an open economy in order to produce goods from labour and capital. The MNC sees the economy only as an export base and is therefore not interested in the local market it offers. Capital cost is sunk for the MNC. Once investment has been made, it cannot be dissolved and resold as old investment goods.⁴

The MNC produces output y from labour l and capital k through the thrice differentiable and strictly concave function f as follows:

$$y = af(l, k), \quad f_i > 0, \quad f_{ii} < 0, \quad f(0, k) = y(l, 0) = 0, \quad 0 < \underline{a} \leq a \leq \bar{a}, \quad (1)$$

where \underline{a} and \bar{a} are constants and subscripts $i \in \{l, k\}$ denote the partial derivatives with respect to $i \in \{l, k\}$. The MNC can use its control rights to determine total factor productivity a . It produces normally with the maximum effort $a = \bar{a}$, but in the case of expropriation it has the option of ‘slowing down’ production with $a = \underline{a}$. The domestic firms in the host economy cannot replace the MNC by making the same investment.

The MNC is able to hide its profits π from taxation at some cost, e.g. through transfer pricing.⁵ Let $q\pi$ be hidden and $(1 - q)\pi$ observed profit, where $0 \leq q \leq 1$. We assume that the level of profits does not affect the MNC’s ability to conceal profits, but that such activity is subject to increasing costs. The real cost of hiding profits, Z , is then linear homogeneous with respect to total profits π but increasing and strictly convex with respect to the ratio q of hidden to total profits. With all profits revealed, $q = 0$, there is no such cost, $Z = 0$. Hence, the following cost function can be established:

$$Z = z(q)ck, \quad z' > 0, \quad z'' > 0, \quad z(0) = 0, \quad z \doteq Z/(ck), \quad (2)$$

where z is the ratio of administrative cost investment. Let θ be the profit tax rate. After-tax profits are then equal to observed profits net of taxes, $\theta(1 - q)\pi$, hidden profits $q\pi$ minus costs of hiding profits, Z ,

$$\theta(1 - q)\pi + \theta(1 - q)\pi - Z = [1 - \theta + \theta q - z(q)]\pi.$$

⁴Grout (1984) and Palokangas (2000), Chapter 5, assume that capital can be sold as old investment goods after machines have been installed. Because this extension would complicate the model, we prefer to assume that capital is wholly country-specific.

⁵This assumption is from Palokangas (2000), p. 34-37. It is needed to eliminate fully expropriating capital taxation.

Since the MNC chooses q to maximize these, we obtain after-tax profits as

$$\varphi(\theta)\pi, \quad \varphi(\theta) \doteq c \max_q [1 - \theta + \theta q - z(q)], \quad \varphi' < 0. \quad (3)$$

The MNC and the labour union representing its workers bargain first over wages and then over employment. We assume that the union and the MNC bargain over the wage and employment after the MNC has made its investment.⁶ The government sets taxes, provides public services and regulates the labour market. Any public policy measures that strengthen (weaken) the position of unions in collective bargaining are called labour market *regulation (deregulation)*. Unions and MNCs lobby the government, and offer contributions that are conditional on prospective public policy. On the assumption that the marginal disutility of employment is constant b in terms of consumption, we can focus on an economy in which there is only one MNC and one worker. These two agents bargain over labour conditions and lobby the government. The government is free to set any tax $t \in (-\infty, 1)$ on wages.

We present the institutional characteristics of the economy as an extended game with the following sequence of events. First, the nature chooses one of the following labour market institutions: (a) a competitive labour market, (b) bargaining over wages and employment, or (c) bargaining over wages only. Second, the government and the MNC make an implicit agreement on non-expropriating taxation. Third, the worker and the MNC lobby the government (or the political elite) by announcing contributions. Fourth, the government sets taxes, supplies public services, regulates relative union power in the bargains over the wage and employment, and collects the contributions. Fifth, the MNC decides on its investment. Sixth, the MNC and a labour union representing the worker bargain over the wage. Seventh, the MNC and the union bargain over employment. This extensive game is now solved through backward induction: stages *VII*, *VI* and *V* in section 3, stages *IV* and *III* in sections 4-6, and stages *II* and *I* in section 7.

⁶In a larger version of the model [Palokangas (2003b)], we examine the case where the union and the MNC bargain over the wage and employment before the MNC has made its investment. The results are qualitatively the same as in this paper, except that this additional investment uncertainty is equivalent to an increase in the tax on capital.

3 Collective bargaining

Noting the production function (1), we obtain the MNC's total profit as

$$\pi = \begin{cases} \Pi(a, l, k, w) \doteq y - wl - ck = af(l, k) - wl - ck & \text{with production,} \\ \underline{\Pi} \doteq \Pi(a, 0, k, w) = -ck & \text{without production,} \end{cases} \quad (4)$$

where y output, l employment, w the wage, k capital and c the unit cost of capital, which is given from abroad. The workers in the MNC's service earn

$$v = V \doteq (1 - t)wl - bl = [(1 - t)w - b]l, \quad (5)$$

where wl is wages, t the labour tax and b the marginal disutility of employment. During a strike, the MNC's earns $\underline{\Pi}$, while the union's members earn zero. Hence, the union maximizes its utility V , while the MNC maximizes its profit Π minus its status quo income $\underline{\Pi}$.

In the seventh stage of the extended game, there is asymmetric Nash bargaining over employment l . Given (4) and (5), l is then determined by

$$\begin{aligned} \max_l V^\beta [\Pi(a, l, k, w) - \underline{\Pi}]^{1-\beta} &= \max_l \{ \beta \log V + (1 - \beta) \log [\Pi(a, l, k, w) - \underline{\Pi}] \} \\ &= \max_l \{ \beta \log l + (1 - \beta) \log [y(a, l, k) - wl] \}, \end{aligned}$$

where the parameter $\beta \in [0, 1]$ is the measure of union relative power in the bargaining over employment. Given this, the wage w is equal to the weighted sum of the average product $af(l, k)/l$ and the marginal product $af_l(l, k)$ of labour, where the weights are the worker's and the employer's relative bargaining power:

$$w = a[\beta f(l, k)/l + (1 - \beta)f_l(l, k)]. \quad (6)$$

Inserting this into (4) and (5) yields the worker's income and profit as follows:

$$\begin{aligned} v &= V(a, l, k, t, \beta) = (1 - t)a[\beta f(l, k) + (1 - \beta)lf_l(l, k)] - bl, \\ \pi &= \widehat{\Pi} = y - wl - ck = (1 - \beta)a[f(l, k) - lf_l(l, k)] - ck, \\ \partial V/\partial l &= (1 - t)a[f_l + (1 - \beta)lf_{ll}] - b, \quad \partial \widehat{\Pi}/\partial l = (\beta - 1)laf_{ll} > 0. \end{aligned} \quad (7)$$

At the sixth stage of the extended game, there is asymmetric Nash bargaining over the wage w . The wage w is then determined by the maximization

of the product $V^\alpha [\widehat{\Pi} - \underline{\Pi}]^{1-\alpha}$ by w , where the parameter $\alpha \in [0, 1]$ is the measure of union relative power in the bargaining over the wage, given the response at the second stage (6). Because there exists a one-to-one correspondence from w to l through (6), then, given (4), (5) and (7), one can equivalently maximize the logarithm

$$\begin{aligned}\Lambda(a, l, k, \alpha, \beta, t) &\doteq \log\{V^\alpha [\widehat{\Pi} - \underline{\Pi}]^{1-\alpha}\} \\ &= \alpha \log V(a, l, k, t, \beta) + (1 - \alpha) \{\log[f(l, k) - lf_l(l, k)] + \log[(1 - \beta)a]\}\end{aligned}$$

by employment l . This yields the first-order and second-order conditions:

$$\frac{\partial \Lambda}{\partial l}(a, l, k, \alpha, \beta, t) = \frac{\alpha}{V} \frac{\partial V}{\partial l}(a, l, k, t, \beta) + \frac{(\alpha - 1)lf_l(l, k)}{f(l, k) - lf_l(l, k)} = 0, \quad \frac{\partial^2 \Lambda}{\partial l^2} < 0. \quad (8)$$

At the fifth stage of the extended game, the MNC maximizes its profit $\pi = \widehat{\Pi}(a, l, k, t, \beta)$ by investment k and employment l , given the equation (8). Given (5) and (7), this maximization yields

$$\begin{aligned}\pi(a, t, \alpha, \beta) &= \max_{l, k} \{\widehat{\Pi} \mid \partial \Lambda / \partial l = 0\}, \quad \pi|_{\beta=1} = -ck < 0, \quad l(a, t, \alpha, \beta), \\ k(a, t, \alpha, \beta), \quad v(a, t, \alpha, \beta), \quad v|_{\alpha=\beta=0} &= 0, \quad w|_{\alpha=\beta=0} = b/(1 - t), \\ \pi|_{\alpha=\beta=0} &= \max_{l, k} [af(l, k) - bl/(1 - t) - ck], \quad (\partial \pi / \partial t)|_{\alpha=\beta=0} < 0.\end{aligned} \quad (9)$$

4 Public policy

We characterize labour market institutions by the set Υ . The nature specifies Υ in some of the following three forms:

- (a) a fully competitive labour market, $\alpha = \beta = 0$;
- (b) bargaining over both wages and employment, $\alpha \in [0, 1]$ and $\beta \in [0, 1]$;
- (c) bargaining over wages only, $\alpha \in [0, 1]$ and $\beta = 0$.

At the fourth stage of the extended game, the government takes Υ as given, chooses $(\alpha, \beta) \in \Upsilon$ by labour market regulation, sets the taxes (t, θ) on wages wl and observed profits $(1 - q)\pi$, respectively, and produces a quantity g of

public services from traded goods. Noting this, (6) and (9), we obtain the government's budget constraint as follows:

$$g(a, t, \alpha, \beta, \theta) \doteq twl + \theta(1 - q)\pi. \quad (10)$$

We assume that the economy is on the increasing part of the Laffer curve:

$$\partial g / \partial \theta > 0, \quad \partial g / \partial t > 0. \quad (11)$$

We denote the worker's and the MNC's contributions by R^w and R^f respectively. Subtracting R^w from the worker's total income v yields labour income C^w . Subtracting R^f from the MNC's after-tax profit (3) yields the MNC's net profit C^f . We specify differentiable functions

$$\begin{aligned} C^w(a, t, \alpha, \beta, R^w) &\doteq v(a, t, \alpha, \beta) - R^w, & \partial C^w / \partial R^w &= -1, \\ C^f(a, t, \alpha, \beta, \theta, R^f) &\doteq \varphi(\theta)\pi(a, t, \alpha, \beta) - R^f, & \partial C^f / \partial R^f &= -1. \end{aligned} \quad (12)$$

The worker's utility function is then given by

$$U^w(C^w) + U^g(g), \quad (U^w)' > 0, \quad (U^w)'' < 0, \quad (U^g)' > 0, \quad (U^g)'' < 0. \quad (13)$$

Following Grossman and Helpman (1994), and noting (10)-(13), we obtain the government's objective function as:

$$G(a, t, \alpha, \beta, \theta, R^w, R^f) = R^w + R^f + U^w(C^w) + U^g(g). \quad (14)$$

At the third stage of the extended game, the MNC and the worker (or the labour union representing it) lobby the government for taxation and labour market regulation (i.e., on variables θ , t , α and β). The contribution schedules of the worker and the MNC are given by

$$R^w(a, \theta, t, \alpha, \beta), \quad R^f(a, \theta, t, \alpha, \beta). \quad (15)$$

Let ν be the lower limit of the MNC's net income C^f according to an implicit agreement between the government and the MNC. The government receives contributions from the worker only if C^w is non-negative. Otherwise, the worker refuses to work for the MNC, $l = y = 0$. Hence, the government chooses its policy parameters from the set

$$\begin{aligned} \Gamma \doteq \{ &(\theta, t, \alpha, \beta) \mid (\alpha, \beta) \in \Upsilon, C^f(a, \theta, t, \alpha, \beta, R^c(a, \theta, t, \alpha, \beta)) \geq 0, \\ &C^w(a, \theta, t, \alpha, \beta, R^w(a, \theta, t, \alpha, \beta)) \geq 0, C^f \geq \nu \}. \end{aligned} \quad (16)$$

The government maximizes its welfare (14) by choosing $(t, \alpha, \beta, \theta) \in \Gamma$. Following proposition 1 of Dixit, Grossman and Helpman (1997), a subgame perfect Nash equilibrium for this game is a set of contribution schedules $R^{w*}(a, \theta, t, \alpha, \beta)$ and $R^{f*}(a, \theta, t, \alpha, \beta)$ and public policy $(\theta^*, t^*, \alpha^*, \beta^*)$ such that the following conditions (i) – (iv) are satisfied:

- (i) Contributions are non-negative but less than the contributor's income.
- (ii) The policy $(\theta^*, t^*, \alpha^*, \beta^*)$ maximizes the government's welfare (14) taking the contribution schedules as given,

$$(\theta^*, t^*, \alpha^*, \beta^*) \in \operatorname{argmax}_{(\theta, t, \alpha, \beta) \in \Gamma} \{G(\theta, t, \alpha, \beta, R^w(a, \theta, t, \alpha, \beta), R^f(a, \theta, t, \alpha, \beta))\}; \quad (17)$$

- (iii) The worker (MNC) cannot have a feasible strategy $R^w(a, \theta, t, \alpha, \beta)$ ($R^f(a, \theta, t, \alpha, \beta)$) that yields him (it) a higher level of utility than in equilibrium, given the government's anticipated decision rule,⁷

$$\begin{aligned} (\theta^*, t^*, \alpha^*, \beta^*, R^i(a, \theta^*, t^*, \alpha^*, \beta^*)) &\in \operatorname{argmax}_{(\theta, t, \alpha, \beta) \in \Gamma} U^w(C^w), \\ (\theta^*, t^*, \alpha^*, \beta^*, R^i(a, \theta^*, t^*, \alpha^*, \beta^*)) &\in \operatorname{argmax}_{(\theta, t, \alpha, \beta) \in \Gamma} C^f. \end{aligned} \quad (18)$$

- (iv) The worker (MNC) provides the government at least with the level of utility that it could get when the worker (MNC) offers nothing $R^w = 0$ ($R^f = 0$), and the government responds optimally given the MNC's (worker's) contribution function,

$$\begin{aligned} &G(\theta, t, \alpha, \beta, R^w(a, \theta, t, \alpha, \beta), R^f(a, \theta, t, \alpha, \beta)) \\ &\geq \sup_{(\tilde{\theta}, \tilde{t}, \tilde{\alpha}, \tilde{\beta}) \in \Gamma} G(\tilde{\theta}, \tilde{t}, \tilde{\alpha}, \tilde{\beta}, R^w(a, \tilde{\theta}, \tilde{t}, \tilde{\alpha}, \tilde{\beta}), 0), \\ &G(\theta, t, \alpha, \beta, R^w(\theta, t, \alpha, \beta), R^f(a, \theta, t, \alpha, \beta)) \\ &\geq \sup_{(\tilde{\theta}, \tilde{t}, \tilde{\alpha}, \tilde{\beta}) \in \Gamma} G(\tilde{\theta}, \tilde{t}, \tilde{\alpha}, \tilde{\beta}, 0, R^f(a, \tilde{\theta}, \tilde{t}, \tilde{\alpha}, \tilde{\beta})). \end{aligned} \quad (19)$$

⁷Here, the utility of the worker (MNC) is independent of his/her contribution schedule.

5 Taxation and labour market regulation

Given differentiable functions (12) and (13), conditions (18) take the form

$$\begin{aligned}
& (\theta^*, t^*, \alpha^*, \beta^*, R^w(a, \theta^*, t^*, \alpha^*, \beta^*)) \\
& \in \operatorname{argmax}_{(\theta, t, \alpha, \beta) \in \Gamma} U^w(C^w(\theta, t, \alpha, \beta, R^w(a, \theta, t, \alpha, \beta))), \\
& = \operatorname{argmax}_{(\theta, t, \alpha, \beta) \in \Gamma} C^w(\theta, t, \alpha, \beta, R^w(a, \theta, t, \alpha, \beta)), \\
& (\theta^*, t^*, \alpha^*, \beta^*, R^f(a, \theta^*, t^*, \alpha^*, \beta^*)) \\
& \in \operatorname{argmax}_{(\theta, t, \alpha, \beta) \in \Gamma} C^f(\theta, t, \alpha, \beta, R^f(a, \theta, t, \alpha, \beta)) \tag{20}
\end{aligned}$$

and

$$\frac{\partial C^w}{\partial i} = \frac{\partial R^w}{\partial i} \quad \text{and} \quad \frac{\partial C^f}{\partial i} = \frac{\partial R^f}{\partial i} \quad \text{for } i = \theta, t, \alpha, \beta, \tag{21}$$

which suggests that in equilibrium the change in the worker's (MNC's) contribution due to a change in the instrument is equal to the change in labour income (net profit) due to this same fact. Thus, the contribution schedules are locally truthful. As in Bernheim and Whinston (1986), or in Grossman and Helpman (1994), this concept can be extended to a globally truthful contribution schedule. This type of schedule represents the preferences of the worker (capitalist) at all policy points. From (12), (19) and (21) it follows that the truthful contribution functions take the form

$$R^w = \max[0, v - v_0], \quad R^f = \max[0, \pi - \nu], \tag{22}$$

where v_0 (π_0) is the worker's (the owner of the MNC) income when he does not pay contributions but the government chooses its best response given the MNC's (worker's) contribution schedule. Evidently, $v_0 = 0$ and $\pi_0 = \nu$.

Assume that the nature has chosen the labour market as competitive or fully deregulated, $\alpha = \beta = 0$. Because then $\partial\pi/\partial t < 0$ by (9), the government can press profit π down to $\pi_0 = \nu$ by increasing t . This implies $R^f = \max[0, \pi - \nu] = \pi - \nu$, $C^f = \nu$ and the following result:

Proposition 1 *With a competitive labour market, the government presses the MNC's net profit to the minimum $C^f = \nu$ through labour taxation t .*

This result is in distinct contrast with the conventional wisdom that MNCs should prefer a fully deregulated (or non-unionized) labour market.

Assume that the nature has chosen bargaining over wages and employment. The government can then freely choose relative union power $\beta \in [0, 1]$ in the bargain over employment. If the MNC does not pay contributions, $R^f = 0$, then, given (9), the government sets β high enough to press profit π down to $\pi_0 = \nu$. This implies $R^f = \pi - \nu$, $C^f = \nu$ and the following result:

Proposition 2 *With a bargain over the wage and employment, the government uses labour market regulation (i.e. the parameter β) as a non-distorting income transfer between the worker and the MNC. With this transfer, it presses the MNC's net profit to the minimum $C^f = \nu$.*

Finally, assume that the nature has chosen bargaining over wages only, $\beta = 0$. Propositions 1 and 2 then yield the following corollary:

Proposition 3 *Right-to-manage bargaining with $\alpha > 0$ and $\beta = 0$ protects FDI best against expropriation and allows the MNC's net profit to exceed the minimum level ν .*

6 The political equilibrium

According to (18), the government's objective function (14) must be maximized by θ , t , α and β subject to the set (16). Given (13) and (15), this is equivalent to maximizing the function

$$\mathcal{L} = R^w(a, \theta, t, \alpha, \beta) + R^f(a, \theta, t, \alpha, \beta) + U^w(C_*^w) + U^g(g(a, \theta, t, \alpha, \beta)) \quad (23)$$

by $(\theta, t, \alpha, \beta)$, where, by (20) and the envelope theorem, C_*^w can be taken to be independent of $(\theta, t, \alpha, \beta)$. The worker's and MNC's total revenue $C \doteq C^w + C^f$ is equal to output y minus capital cost ck minus the worker's opportunity wages bl minus the government's tax revenue g . Given (9) and (10), we then obtain

$$C(a, \theta, t, \alpha, \beta) \doteq C^w + C^f = y(l, k) - bl - ck - g. \quad (24)$$

Noting (21), (23) and (24), we obtain the first-order conditions for taxes:

$$\begin{aligned}\frac{\partial \mathcal{L}}{\partial i} &= \frac{\partial R^w}{\partial i} + \frac{\partial R^f}{\partial i} + (U^g)' \frac{\partial g}{\partial i} = \frac{\partial C^w}{\partial i} + \frac{\partial C^f}{\partial i} + (U^g)' \frac{\partial g}{\partial i} \\ &= \frac{\partial C}{\partial i} + (U^g)' \frac{\partial g}{\partial i} = 0 \text{ for } i = \theta, t.\end{aligned}\quad (25)$$

These conditions yield the following rule:

Proposition 4 (*Ramsey rule*) *A government sets taxes t and θ to minimize the deadweight loss of public finance so that the decrease in total consumption C is in the same proportion to the increase in tax revenue g for the marginal increases of all of them, $\frac{\partial C}{\partial \theta} / \frac{\partial g}{\partial \theta} = \frac{\partial C}{\partial t} / \frac{\partial g}{\partial t}$.*

There are two sources of the deadweight loss of public finance: a lower profit leads to lower investment and there is an opportunity wage b . These sources make the tax revenue elastic with respect to the labour and investment taxes.

With right-to-manage bargaining $\alpha > 0$ and $\beta = 0$, noting (23) and (24), we obtain the first-order conditions for union power α as follows:

$$\frac{\partial \mathcal{L}}{\partial \alpha} = \frac{\partial R^w}{\partial \alpha} + \frac{\partial R^f}{\partial \alpha} + (U^g)' \frac{\partial g}{\partial \alpha} = \frac{\partial C}{\partial \alpha} + (U^g)' \frac{\partial g}{\partial \alpha} = 0 \text{ for } \alpha > 0 \text{ and } \beta = 0.\quad (26)$$

In the model, the partial derivative of C with respect to α is unfortunately ambiguous. We make however the plausible assumption that the increase in union power in wage bargaining (i.e. a higher α) reduces total consumption, $\partial C / \partial \alpha < 0$, but increases the worker's consumption, $\partial C^w / \partial \alpha > 0$. This and the definition (24) imply $\partial C^f / \partial \alpha < 0$. If $\partial g / \partial \alpha \leq 0$, then from (26) it follows that $\partial \mathcal{L} / \partial \alpha < 0$. In the remaining case $\partial g / \partial \alpha > 0$, there is $\partial C / \partial \alpha + (U^g)' \partial g / \partial \alpha = 0$. We summarize these results as follows:

Proposition 5 (*Extended Ramsey rule*) *Assume that there is bargaining only over wages, $\beta = 0$. As long as deregulation (i.e. a decrease in α) does not reduce tax revenue g , $\partial g / \partial \alpha \leq 0$, it is optimal for the government to weaken union power α . Otherwise, there exist a political equilibrium in which the government maintains union power by regulation to minimize the deadweight loss of public finance. The government then increases union power α until the decrease in total consumption C is in the same proportion to the increase in tax revenue g for union power and taxes taken together, $\frac{\partial C}{\partial \alpha} / \frac{\partial g}{\partial \alpha} = \frac{\partial C}{\partial \beta} / \frac{\partial g}{\partial \beta} = \frac{\partial C}{\partial t} / \frac{\partial g}{\partial t} = \frac{\partial C}{\partial \theta} / \frac{\partial g}{\partial \theta}$.*

This proposition can be explained as follows. Because labour market deregulation (the decrease in α) decreases union power and wages but increases the MNC's and worker's total revenue C , it is in the government's best interest to implement deregulation as long as this does not decrease tax revenue, $\partial g/\partial\alpha \leq 0$. If regulation (i.e., the increase in α) increases tax revenue g , then the government uses regulation in combination with taxes t and θ as a means of evening out the deadweight loss of public finance. Then, in equilibrium, the decrease in total revenue C must be in the same proportion to the decrease in tax revenue g for a marginal increase of any of the three policy instruments θ , t and α .

7 The implicit agreement

At the second stage of the extended game, the MNC and the government make an implicit contract on the minimum level of the MNC's income, ν . For such a contract to form a subgame perfect equilibrium, it must satisfy the following two conditions:

- (i) The government must be better off letting the MNC to earn $C^f = \nu$ and to choose action $a = \bar{a}$ rather than expropriating the entire profit (i.e. $C^f = 0$) and letting the MNC to choose action $a = \underline{a}$.
- (ii) The MNC must be better off choosing $a = \bar{a}$ and accepting net profit $C^f = \nu$ rather than choosing $a = \underline{a}$ and accepting expropriation $C^f = 0$.

Noting (12) and (23), we define the government's maximum welfare \mathcal{W} after the exercise of public policy as follows:

$$\mathcal{W}(a, \nu) \doteq \max_{\theta, t, \alpha, \beta} \mathcal{L}, \quad \partial\mathcal{W}/\partial a > 0, \quad \mathcal{W}(a, \nu) < \mathcal{W}(a, 0). \quad (27)$$

Because higher total factor productivity a increases all income in the same proportion, it must raise the government's welfare, $\partial\mathcal{W}/\partial a > 0$. Because expropriation ($\nu = 0$) means higher revenue for the government, its elimination decreases the government's welfare when total factor productivity a is kept constant, $\mathcal{W}(a, \nu) < \mathcal{W}(a, 0)$. Given (27), the government can credibly commit itself to the minimum profit ν which satisfies $\mathcal{W}(\bar{a}, \nu) = \mathcal{W}(\underline{a}, 0)$.

Hence, if \underline{a} is close enough to zero, there exists $\nu > 0$. With $\nu > 0$, conditions (i) and (ii) both hold and there exists an implicit contract between the government and the MNC over the minimum level of the MNC's profit.

8 Conclusions

This paper compares MNC's investment risk in the presence of (a) the competitive or fully deregulated labour market, (b) "efficient" bargaining over both wages and employment, and (c) "right-to-manage" bargaining over wages only. The main characteristics of the model are the following. The government sets taxes to finance public services and regulates the labour market, and lobbies representing the workers and the MNC influence government policy. If the government protects union power, then the MNC bargains over wages and employment with a labour union representing its workers.

When there are sunk costs associated with FDI, but the MNC can at the occurrence of expropriation punish the host country by leaving its assets unproductive, the government and the MNC can implicitly agree on some minimum profit of FDI. In order to maintain efficiency, it is not in the government's interest to decrease profits below this minimum. It depends on the specification of labour market institutions (e.g. (a) – (c) above) whether the MNC is able to raise its profit above this minimum.

Conventional wisdom has said thus far that labour market deregulation improves the competitiveness of the economy as regards attracting FDI. In contrast, this document suggests that deregulation presents a potential risk for FDI. When wages are competitively determined, the government can use taxation as a non-distorting instrument to press the profit from FDI to the minimum level specified by the implicit contract. On the other hand, when wages are determined by "right-to-manage" bargaining, employment is elastic with respect to the tax rates and taxation involves a social cost. In such a case, the MNC is able to raise its profit from FDI above the minimum.

When there is bargaining over both wages and employment, the government can use taxation and labour market regulation together to produce a non-distorting income transfer between the MNC and workers. It can also use this transfer to press the MNC's profit from FDI to the minimum level.

Hence, only right-to-manage bargaining as an institution truly protects FDI from excessive expropriation and predicts higher profits for foreign investors.

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