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Abstract: This paper proposes labour market institutional arrangements as a strategic device to optimally induce exports substituting inward FDI. In this setting, the emergence of inward FDI is considered to be optimal insofar as it does not ensue negative effects on domestic employment relative to exports accommodation. In a union-oligopoly context we show that, if the FDI-associated unit costs (FC) are sufficiently low, inward FDI would optimally emerge, irrespectively to the structure of wage bargaining and the level of the unemployment benefit in the host country. However, for intermediate values of the FC, inward FDI may optimally emerge only if the wage bargaining structure is centralized, a non-compliance tax on union rents is in effect, and the unemployment benefit is sufficiently low. Yet, whatever is the wage bargaining structure, so long as the FC are high enough inward FDI may emerge with a negative effect on domestic employment. The unemployment benefit should be then set high enough to deter FDI, and instead accommodate exports, in equilibrium.

Keywords : Bargaining, Oligopoly, FDI.

JEL Classification : L0, L5, J5, F2.

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1. Introduction

Labour market institutions exhibit substantial variability across countries, mainly regarding the type and structure of labour-management bargaining. In North America and Japan, pay bargaining is typically *decentralized* across firms and/or individuals. In Europe, however, collective contracts over wages are typically struck among the representatives of firms and unions, whilst firm-union bargaining is often *centralized* at the sector-level. Like in Italy, Greece, Spain, France, Portugal, Belgium, Netherlands, Germany, and the Scandinavian countries (Layard *et al.*, 1991; Hartog and Theeuwes, 1992).

On the other hand, the post-war experience on foreign direct investments (FDI) suggests that a persistently high percentage of the global FDI materializes among USA and Europe, as well as within a broad group of European countries (Hood and Young, 2000). This evidence also shows increasing rates of cross-border production, as a substitute to trade, along with limited mobility of labour relative to capital.

Given these facts, it is rather surprising that, with the exception of Bughin and Vannini (1995), the literature had for long no paid attention on whether unionisation and collective bargaining may critically affect entrepreneurial choices regarding home versus foreign production. Whilst, at the same time various contributions have been focused on the significant product and labour market effects of FDI.¹ Quite recently, nonetheless, few papers (see e.g. Leahy and Montagna, 2000, 2003 ; Naylor and Santoni, 2003) brought some new light on the links that may exist between the labour market institutional set-up and FDI. Yet, the latter studies abstain in context from the typical paradigm of transnational production² and, more importantly, their approach is rather *ad hoc*, in assuming instead of questioning the

¹ See Zhao (1998) and the references therein.

equilibrium prospects of alternative structures of collective bargaining in the host labour market.

In this paper we address strategic interaction among all agents (i.e. firms, unions and policy makers) which are explicitly or implicitly involved in cross-border production under labour market unionisation. By that means, an optimal structure of key labour market institutions in the host country is determined in equilibrium. This structure involves the level of wage bargaining (e.g. decentralised *vs* centralised), the value of the unemployment benefit, and non-compliance taxes imposed on union rents.

Our findings reconcile with conventional wisdom, insofar as they suggest that inward FDI may emerge irrespectively of the host labour market institutional set-up; simply because foreign firms may enjoy relative technological advantages over domestic firms, sufficient to outweigh their relative cost disadvantages arising from FDI. Nonetheless, we take few steps forward as our findings moreover suggest that:

First, whatever is the wage-bargaining structure in the host labour market, so long as the unemployment benefit is sufficiently low, inward FDI may emerge even if the foreign firms' unit costs arising from FDI are high enough. However, inward FDI would in this instance ensue a negative effect on domestic employment, relative to exports accommodation.

Second, for intermediate values of the FDI-associated unit costs, wage bargaining centralization may enable foreign firms to profit from FDI, more than from exports, while the reverse case arises under decentralized bargaining. Yet, unless a non-compliance tax on union rents is in effect, the centralized wage-bargaining structure is not endogenously sustainable and, hence, it would not credibly induce FDI in equilibrium. While, if such a tax is provided,

² See Dunning, (1980, 1988), Pitelis and Sugden (1991).

for inward FDI to ensue non-negative effects on domestic employment the domestic unemployment benefit must also be sufficiently low.

According to the above, we propose that a policy maker can strategically handle labour market institutions in order to induce inward FDI without undermining the domestic employment prospects. To this end, our most striking advice is that the unemployment benefit should occasionally be set high enough in order to protect employment.

The rest of the paper is organized as follows. In Section 2 we develop a simple union-oligopoly model of cross-border production/trade and provide argumentation about the game arising in its context. In Section 3 we investigate the equilibrium prospects of alternative wage-bargaining structures. In Section 4 we propose optimal labour market institutional settlement. Our findings are conclusively evaluated in Section 5.

2. The Model

Consider a -homogeneous good- sector in a host country, where one home (h-) firm and one foreign (f-) firm compete by adjusting their quantities. The f-firm may either produce abroad and sell its output in the host country, then facing a unit cost of exports denoted by x , or produce and sell in the host country, with an FDI-associated unit cost of production denoted by c .³ The h-firm always produces and sells domestically. Assume that production, wherever, exhibits constant returns to scale and requires only labour input to produce the good. To rationalize this, let each firm possess a Leontief technology, always provided that the capital stock is sufficient to produce the good. Let, however, the f-firm enjoy a technological advantage

³ c formally represents *coordination and control costs*, assumed to be constant per unit of production, which are incurred when the f-firm runs local production. These costs arise from cross-border differences in (other than the labour market's) legislation, taxation, language, work ethics, personnel procedures etc. While, for reasons of focus and simplicity, the FDI sunk costs are assumed to be zero. Respectively, x represents (constant) export marketing costs per unit of sales, made up of transport, packaging, insurance, tariffs, etc.

relative to its rival h-firm. Therefore, the production function of the h-firm (f-firm) can be defined as $y^h = N^h$ ($y^f = kN^f$; $k > 1$). Where, y (N) denotes output (employment), and the productivity of labour is normalized to unity. Thus, k is a measure of the relative efficiency of technologies. Since Cournot outcomes remain robust for a variety of demand conditions, the inverse market demand can conveniently assumed to be linear, $P(Y) = a - Y$, where Y is the aggregate output ($Y = y^h + y^f$).

Labour markets are unionised. Following Dhillon and Petrakis (2002) we can reasonably postulate that the union structure is centralized in any separate labour market. Hence, we assume that there is always one union abroad and one union in the host country. Let respectively call them the home and the foreign union. Given risk-neutral fixed membership and immobile labour, let moreover adopt the utilitarian hypothesis (Oswald, 1982 ; Booth, 1995). That is, unions are assumed to maximize rents, $U(w, N) = (w - b)N$, where w and N are the wage and employment arguments, and b is a parameter defining the union's members' alternative wage.⁴ As further regards labour market institutions, if the f-firm produces abroad wage-bargaining is *de facto* decentralized across firms. In case, however, the f-firm locates production in the host country, wage-bargaining may be decentralized, or centralized, across firms, this depending on the labour market legislation. If the latter imposes *wage-bargaining centralization (CB)*, the union is obliged to charge the same wage per each of its employed members in, either the h-firm, or the f-firm. Otherwise, i.e. if the wage-bargaining structure in the host country is *decentralized bargaining (DB)*, the union is free to differentiate, or not, wages across firms. In all instances, unions are assumed to possess a power of one (zero) over the wage (employment) argument, during labour-management negotiations (*monopoly unions*).

⁴ The latter is typically considered to be a weighted average of the competitive wage and the unemployment benefit with weights the probability of being employed, or not, in the competitive sector. Since the sector under consideration is small relative to the aggregate economy, wages are thought to be real arguments. Moreover,

First principles suggest that wage differentiation is always optimal for a monopoly union. However, as regards the home union such a choice is effective only if the f-firm has definitely decided to settle production in the host country. Naturally, nonetheless, the latter decision is taken before any wage determination process takes place, anywhere. Hence, unless a union commitment mechanism exists, FDI would rather prove to be time inconsistent under the *CB* regime. Therefore, a policy maker handling labour market legislation in the host country must always consider that, for *CB* to be an effective institution, it has to be escorted by a union-compliance device. On the other hand, it is not clear from the outset whether *DB* or *CB* is a superior arrangement, nor that FDI accommodation is superior to foreign exports, as regards production and employment in the host country. Whilst, at least in sectors facing high structural unemployment, it seems that in setting up labour market legislation a policy maker's primary interest would be to maximise domestic employment prospects. As the evidence suggests, nonetheless, the stimulation of pro-competitive attitudes and the dissemination of knowledge and technology in the host country may be better served with inwards FDI than with exports accommodation⁵. Hence, so long as FDI would at least secure the same level of domestic (aggregate) employment, a preference (*Pr*) for export substituting inwards FDI can be reasonably attributed to the policy maker's goal.

Summarizing the above, a four-stage game can be formally addressed.

Stage 1

A policy maker settles, or reforms, labour market institutions in the host country, according to the following lexicographic objective:

$$\zeta \max\{y^h + (y^{fh}/k)\} \tag{1a}$$

stressing the unemployment issue in the host country, it is assumed that the domestic value of the alternative wage is closely approximated by the unemployment benefit.

⁵ See Dimelis and Louri (2002) and the references therein.

Where:

- Domestic production-employment can be materialized, either by both the h-firm ($y^h > 0$) and the f-firm ($y^{fh} > 0$), or by the h-firm only ($y^h > 0, y^{fh} = 0$).

- Labour market institutions may be comprised of :

wthe wage-bargaining structure (*DB* or *CB*).

wthe level of the unemployment benefit.

w taxes (or subsidies) to the labour market agents.

Stage 2

Given the labour market institutional resolutions, the f-firm decides to serve the home market, via either exports ($y^{fh} = 0$), or FDI ($y^{fh} > 0$).

Stage 3

Wage Determination : given the f-firm's decision at Stage 2 and the labour market set-up, optimal wages are determined as follows.

$$\text{Exports} \quad w^{fe} : \max [(w^{fe} - b^f)(y^{fe}/k)] \quad ; \quad w^{he} : \max [(w^{he} - b^h)y^{he}] \quad (2)$$

$$\text{FDI under CB} \quad w_c^h : \max \{ (w_c^h - b^h)[y_c^{hh} + (y_c^{fh}/k)] \} \quad (3)$$

$$\text{FDI under DB} \quad (w^{hh}, w^{fh}) : \max \{ (w^{hh} - b^h)y^{hh} + (w^{fh} - b^h)(y^{fh}/k) \} \quad (4)$$

Where in the *FDI* cases, $w^{hh}, w^{fh}, (w_c^h)$ denote wages paid in the host country, differentiated (or not) across the home and the foreign firm, and $y^{hh}, y^{fh}/k, (y_c^{hh}, y_c^{fh}/k)$ respectively stand for the employment levels. In the *Exports* case, w^{fe}, w^{he} , define *de facto* differentiated wages across firms/countries, and $y^{fe}/k, y^{he}$ stand for the respective employment levels. In all cases, $b_f (b_h)$ stands for the foreign (host) country alternative wage (unemployment benefit).

Stage 4

Cournot competition : given any output level of its rival firm, each firm adjusts its output so that to maximize its own profits:

$$\Pi^{h(f)} = P(Y)y^{h(f)} - C^{h(f)}(y^{h(f)}) \quad (5)$$

Where, the costs functions, $C^{h(f)}$, are explicitly defined according to the outcomes of the previous stages.

3. Equilibrium Wage - Bargaining Structures and Inward FDI

In this section the *FDI case* is addressed as a prospective equilibrium strategy for the f-firm, under alternative wage-bargaining structures in the host country. If it subsequently proves that, neither the f-firm, nor the home union, have an incentive to deviate from the suggested contingency, its institutional component (e.g. *DB* or *CB*) can be characterized as part of the Nash equilibrium, and it is only then that FDI would be accommodated in the host country under the particular wage-bargaining structure. Otherwise, the *Exports case* would emerge in equilibrium.

To proceed along these lines of reasoning, let first assume that the wage-bargaining structure is *DB* and, using backwards induction, let first consider the 4th Stage of the game: in the subgame perfect equilibrium (*spe*) each firm chooses employment-output to maximize its own profits, given the wage deal resulting from Stage 3, and the f-firm's decision at Stage 2. Using (2)-(4) to specify profits in (5), the derived output reaction functions appear to be as follows.

FDI case

$$y^{hh}(w^{hh}, w^{fh}) = \frac{a + [c + (w^{fh} / k)] - 2w^{hh}}{3} \quad (6a)$$

$$y^{fh}(w^{hh}, w^{fh}) = \frac{a + w^{hh} - 2[(w^{fh}/k) + c]}{3} \quad (6b)$$

Exports case

$$y^{he}(w^{he}, w^{fe}) = \frac{a + [x + (w^{fe}/k)] - 2w^{he}}{3} \quad (7a)$$

$$y^{fe}(w^{he}, w^{fe}) = \frac{a + w^{he} - 2[(w^{fe}/k) + x]}{3} \quad (7b)$$

As expected, in either the *FDI* or the *Exports* case, unit costs are strategic substitutes from the rival firms' point of view. In particular note that, since $\Pi^{h(f)} = (y^{h(f)})^2$, the h-firm's marginal profitability of a wage cut always decreases with k . This implies that the f-firm's relative technological advantage (k) renders it the necessary incentive to serve the home market, despite the incurred extra costs, c (or x), relative to its rival h-firm. On the other hand, it depends on the w^f contract whether the f-firm's cost, per efficient unit of labour: $[w^{fh}(w^{fe})/k + c(x)]$, would decrease so that to make *FDI* (*exports*) the optimal strategy.

Let, therefore, proceed to Stage 3. By virtue of (6) and (7), from the *focs* of (2) and (4) the following wage configuration is derived.

FDI case

$$w^{hh*} = \frac{a + b_h}{2} \quad (8a)$$

$$w^{fh*} = \frac{k(a - c) + b_h}{2} \quad (8b)$$

Exports case

$$w^{he*} = \frac{(5a + x) + 8b_h + 2(b_f/k)}{15} \quad (9a)$$

$$w^{fe*} = \frac{k(5a - 7x) + 8b_f + 2kb_h}{15} \quad (9b)$$

Hence, the following inequalities arise.

$$(i) \quad [(w^{fe*} / k) + x] - w^{he*} < 0 \Leftrightarrow k > \frac{b_f}{b_h - x}$$

$$(ii) \quad w^{fn*} - w^{hh*} > 0 \Leftrightarrow k > \frac{a}{a - c}$$

$$(iii) \quad [(w^{fn*} / k) + c] - w^{hh*} < 0 \Leftrightarrow k > \frac{b_h}{b_h - c}$$

As it can be now confirmed from (i) and (iii), the f-firm will find profitable to serve the home market (with either exports or FDI), so long as it enjoys a sufficiently high technological advantage relative to the h-firm (e.g. if $k \gg 1$).

Further, (ii) and (iii) suggest that, since $b_h < a$ (e.g. the sectoral product market in the host country exists) $\Rightarrow \frac{b_h}{b_h - c} > \frac{a}{a - c}$, in the *FDI case* the f-firm will pay a higher wage than the h-firm ; as expected, the home (monopoly) union will find optimal to differentiate wages across existing firms so that to enjoy the same marginal revenue from employment everywhere.

More importantly, (i) and (iii) suggest that, given $k > 1$, the higher is b_f (relative to b_h), and the lower is c (relative to x), the more probable is, at Stage 2, the f-firm to choose the FDI strategy in the *spe*.

Let, hence, compare Π^{f*} versus Π^{fe*} . Substituting (8) and (9) into (6) and (7) and squaring, the f-firm's profits configuration is as follows.

$$(y^{f*})^2 = \frac{[k(a - 2c) - b_h(2 - k)]^2}{36k^2} \quad (10)$$

$$(y^{fe*})^2 = \frac{4[k(5a + 2b_h) - 7(kx + b_f)]^2}{2025k^2} \quad (11)$$

Where, $c < \frac{a}{2}$; $[(b_f / k) + x] < \frac{5a + 2b_h}{7}$, for (non-trivial) interior solutions respectively to

exist. It can be then checked that *Condition (I)* arises.

$$\frac{\Pi^{f*}}{\Pi^{fe*}} = \frac{(y^{f*})^2}{(y^{fe*})^2} > 1 \Leftrightarrow c < \bar{c}_1$$

$$\bar{c}_1 = \frac{28[(b_f / k) + x] - (b_h / k)(30 - 7k) - 5a}{30}$$

Note that \bar{c}_1 , and therefore the FDI prospect, behave as expected with b_f , b_h and x .

While, to interpret the negative sign of $\partial \bar{c}_1 / \partial a$, note (from (ii)) that $k > 1 \Rightarrow \partial(w^{fh*} - w^{hh*}) / \partial a > 0$. Is, however, $c < \bar{c}_1$ sufficient so that under *DB* the f-firm will choose the FDI strategy in equilibrium? The answer would be clearly positive if it proves that the home union has no incentive to deviate from *DB*, once the f-firm has located production at home. To check for that, the home union's maximum rents under *DB* are first obtained by means of (11) and (8).

$$U^{h*} = \frac{[a - b_h][(a + c) - (b_h / k)(2k - 1)] + [(a - (b_h / k) - c)][(a - 2c) - (b_h / k)(2 - k)]}{12}$$

Set next, $w^{hh} = w^{fh} \equiv w_c^h$, and substitute (8) into (3). Solving the latter expression's *foc* w.r.t

w_c^h and substituting back into (8), the following wage and output levels are derived.

$$w_c^{h*} = \frac{k[a(k + 1) - c(2 - k)]}{4[k(k - 1) + 1]} + \frac{b_h}{2} \quad (15)$$

$$y_c^{f*} = \frac{a[5 - \frac{3}{k(k - 1) + 1}] - c[7 + \frac{k - 1}{k(k - 1) + 1}] - (b_h / k)[4 - 2k]}{12} \quad (16)$$

$$y_c^{h*} = \frac{a[1 - \frac{3(k-1)}{2(k(k-1)+1)}] + c[1 + \frac{3k}{2(k(k-1)+1)}] - (b_h/k)[2k-1]}{6} \quad (17)$$

Therefore, in case of *ex post* deviation to *CB* (or whenever wages are centralized in the equilibrium), the home union's maximum rents become:

$$U_c^{h*} = \frac{\{[a(k+1) - c(2-k)] - 2(b_h/k)[k(k-1)+1]\}^2}{24[k(k-1)+1]}$$

It can be then checked that the following rent differential arises.

$$R \equiv U^{h*} - U_c^{h*} = 3k^2[a(k-1) - ck]^2$$

Since $a > c$, R is positive. Therefore, the home union has no interest to centralize wages. Hence, provided that $c < \bar{c}_1$ (e.g. the f-firm would definitely locate production in the host country), *DB* proves to be an equilibrium wage-bargaining structure sustaining inward FDI.

Let, in turn, explore the *FDI case* relative to the *Exports* one, under *CB*. By virtue of (16) and (13), *Condition (II)* is derived.

$$\frac{\Pi_c^{f*}}{\Pi^{fe*}} = \frac{(y_c^{f*})^2}{(y^{fe*})^2} > 1 \Leftrightarrow \bar{c}_1 < c < \bar{c}_2$$

$$\bar{c}_2 = \frac{56[(b_f/k) + x] - 2(b_h/k)(30 - 7k) + a[35 - (45/(k(k-1)+1))]}{105 + (45/(k(k-1)+1))}$$

This condition reveals that, as the rival firms are paying the same wage, the f-firm fully enjoys its technological advantage relative to the h-firm. Hence, even if c exceeds \bar{c}_1 , the f-firm may find profitable the FDI strategy relative to the exports one. The reason is that, via wage centralization, the f-firm is made capable to raise its rival firm's unit labour cost disadvantage, enough to compensate a higher FDI-associated unit cost of its own. Still, however, FDI is not an equilibrium strategy for the f-firm under *CB*. As we saw already (recall (18)), in the absence of

a union-compliance device to wage-centralization the home union would *ex post* differentiate wages. Therefore, $\bar{c}_1 < c < \bar{c}_2$ would not be enough for the f-firm to secure the higher relative profitability of the FDI strategy (recall *Condition (I)*). Under these circumstances, it proves that *CB* is not an equilibrium wage-bargaining structure sustaining inward FDI.

Our findings so far are summarized in the following proposition.

Proposition 1

- a. Given $k > 1$, if the f-firm locates production in the host country under DB, it pays a higher wage than the h-firm. However, under either DB or CB, the f-firm firm faces a lower cost per efficient unit of labor relative to the h-firm. Hence, so long as DB (CB) proves to be a Nash Equilibrium Wage-Bargaining Structure, inward FDI may emerge if c is lower than \bar{c}_1 (\bar{c}_2).*
- b. DB (CB) always (never) proves to be a Nash Equilibrium Wage-Bargaining Structure. Therefore, and given that \bar{c}_1 is always lower than \bar{c}_2 , unless a union - compliance device to CB exists inward FDI would emerge only if c is lower than \bar{c}_1 .*

4. Optimal Labor Market Institutions

In this section attention is turned to Stage 1, where we consider the choice of a policy maker driven by the (1a)-(1b) lexicographic objective. The latter effectively dictates that the labour market institutions should be settled (or reformed) to induce FDI, so long as their accommodation would, at least, secure the same level of domestic (aggregate) employment with the case of exports. Otherwise, exports should be better emerge in the host country and, therefore, the labour market institutional resolutions should target to deter FDI in equilibrium.

Let, hence, first derive the domestic aggregate employment level in the *FDI case*, under *DB* and *CB*. By means of (8a) - (11b) and (16), (17), it turns out that:

$$[y^{hh*} + (y^{fh*} / k)] = [y_c^{h*} + (y_c^{f*} / k)] \equiv \tilde{L}$$

$$\text{Where, } \tilde{L} = \frac{a(k+1) - c(2-k) - (2b_h / k)[k(k-1) + 1]}{6k}.$$

Interestingly, if both *CB* and *DB* were sustainable FDI-accommodating wage bargaining structures, the ensuing domestic aggregate employment would be of the same level (\tilde{L}), under either structure. The interpretation of this result is that, as it can be readily checked from (8) and (15), the centralized wage set by the home union under *CB* “averages” the optimal decentralized wages of the *DB* regime (i.e., $w^{hh*} < w_c^{h*} < w^{fh*}$), so that the employment gain from lowering the wage in the efficient f-firm to compensate union rents for the employment loss from raising the wage in the inefficient h-firm.

$$\text{Is, however, } \tilde{L} \geq y^{he*} ?$$

To find out, let first define a *c*-upper bound,

$$\tilde{c} = \frac{5a(3-k) + (2b_h / k)[k(15-k) - 15] - 8(b_f + kx)}{15(2-k)},$$

$$\text{such that if } c \leq \tilde{c} \Rightarrow \tilde{L} \geq y^{he*}.$$

Let further define, a *b_h*-upper bound,

$$b_c = b_f[34k(k-1) + 28] + x \left\{ \frac{34k(k-1)}{k[29k(k-1) + 8]} + 28 \right\} - 5ka[k(k-1) + 4],$$

$$\text{such that if } b_h \leq b_c \Rightarrow \bar{c}_2 \geq \tilde{c}.$$

Then, the answer and reasoning of whether export substituting inward FDI may not ensue a negative effect on domestic employment is as follows.

Assume for a moment that *CB* as well as *DB* are sustainable wage bargaining structures. Then, as the labour-saving f-firm locates production in the host country, domestic employment would not be negatively affected if the f-firm’s production is materialized at a sufficiently large

scale of output. For that to happen, however, the f-firm's unit cost arising from FDI must be sufficiently low (e.g. $c \leq \tilde{c}$). On the other hand, in the FDI case the f-firm's wage is always positively related with the domestic unemployment benefit. Hence, as the latter decreases the c upper value (e.g. \bar{c}_2) for FDI being the f-firm's optimal strategy becomes less binding. In effect, whenever $c \leq \tilde{c}$ and, hence, export substituting FDI would not ensue a negative effect on domestic employment, the unemployment benefit must be sufficiently low (e.g. $b_h < b_c$) so that $c \leq \tilde{c} < \bar{c}_2$ and FDI to be induced in equilibrium. Yet, if $\bar{c}_1 < c$, FDI would emerge only under *CB*. On the contrary, in case that $c > \tilde{c}$ and, therefore, exports substituting FDI would bring a negative effect on domestic employment, it simply needs the unemployment benefit to be equal to its upper bound (e.g. $b_h = b_c$), so that $\bar{c}_2 = \tilde{c} < c$ and FDI to be deterred in equilibrium, even under *CB*.

Under this light, our suggestions for optimal labour market institutional settlement (or reform) can be summarised in the following proposition.

Proposition 2

- a. Whenever $c > \tilde{c}$, the optimal labour market institutional set-up in the host country should be shaped in order to deter (accommodate) FDI (exports). For that, simply, w/the unemployment benefit must be set at a level $b_h = b_c$.*
- b. Whenever $c \leq \tilde{c}$, if:*
 - (i). $c < \bar{c}_1 < \bar{c}_2 \leq \tilde{c}$, FDI would optimally emerge, irrespectively of the structure of wage bargaining and the level of the unemployment benefit in the host country.*
 - (ii). $\bar{c}_1 < \bar{c}_2 < c \leq \tilde{c}$, or $\bar{c}_1 < c < \bar{c}_2 \leq \tilde{c}$, the optimal labour market institutional set-up in the host country should be shaped to induce exports substituting inward FDI. For that,*

W the unemployment benefit must be set at a level $b_h < b_c$ ⁶.

W the official wage-bargaining structure must be CB.

W a legal provision must be issued, imposing a lump-sum tax $T \geq R$ on union rents whenever unions do not comply with CB.

5. Conclusions

This paper proposes sector-level labour market institutional arrangements that may prove to be optimal for a policy maker facing a trade-off between efficiency-enhancing inward FDI and domestic employment prospects. As it is so far inherent in modelling union-oligopoly interaction, our analysis is based on rather restrictive functional forms. Yet, in the future our findings may prove to share more generality, whilst at the moment they help to better understand the endogenous links that they may exist among (various dimensions of) the labour market institutional set-up and inward FDI.

In particular, our findings show that, if the FDI-associated unit costs are low enough then, irrespectively of the structure of wage bargaining and the level of the unemployment benefit in the host country, exports substituting FDI may emerge without reducing domestic employment. Yet, even if those costs are high enough, inward FDI may emerge ensuing a negative effect on domestic employment relative to exports accommodation. Thus, strikingly, an increase in the domestic unemployment benefit may, through FDI deterrence, protect domestic employment. Last, but not least, for intermediate values of their intrinsic unit costs,

⁶ The exact value of the unemployment benefit would of course be determined according to additional criteria, which are not considered in the present analysis. Yet, what we argue is that, in order to conform with the policy

exports substituting FDI may emerge without reducing domestic employment, so long as the wage bargaining structure is centralised and the unemployment benefit is sufficiently low. However, in this case the labour market institutional set-up must also retain its credibility, via a lump-sum tax on union rents that would subtract all that the union may gain by (*ex post*) deviating to decentralized bargaining.

In effect, we suggest that a policy maker in a technologically deficient country, possibly for that reason opting for exports substituting inward FDI, may promote this interest without undermining domestic employment, either by manipulating the factors that affect the FDI-associated unit costs, or by properly adjusting the labour market institutional set-up. Given, both, the limited possibilities for the former option, and the relative simplicity of the latter task, the value-added of our findings is significant.

Several inquiries are still left open for further research. For instance, note that we have examined the equilibrium prospects of the centralised wage bargaining structure, however, given a centralised union structure in the host country. Still, nonetheless, we have ignored the possibility that home workers may *ex post* be organised into separate unions and, thus, be able to differentiate wages despite the existence of a non-compliance tax on (a single) union rents. On the other hand, coalition formation and/or lobbying activity among firms, unions and policy makers may also significantly affect the labour market institutional resolutions. More interestingly, the context of our analysis can be broadened by considering relative bargaining, as well as technological, asymmetries across countries and, thus, exploring optimal labour market institutional settlement under the possibility of cross- shipping in FDI.

maker's particular objective, this value should be lower than b_c .

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