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by

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Abstract

We examine the impact of economic deregulation on employer evasion of union-mandated 'formal' wage-contracts in an import-competing industry. We show that, if the state maintains industrial employment despite import liberalisation, through cheaper credit to firms, then employer evasion will increase, due to a rise in the formal-informal wage gap. Institutional delays in punishment of employer evasion generate this outcome. Greater employer evasion will entail greater diversion of resources to employer-union conflicts. To moderate such waste, the state must attenuate its role as the enforcer of contracts between unions and employers, thereby reducing the total income of workers, and, paradoxically, firms' profits. Our results explain observed trends in developing countries, which are characterised by large informal labour markets.

Outline
1. Introduction
2. The Model
3. Liberalisation and Informalisation
4. Informalisation and Labour Market Deregulation
5. Extensions
6. Conclusion

1. INTRODUCTION

Industrial labour markets in many developing countries exhibit a two-tiered structure. Unions, employers and the government negotiate an industry-wide pay agreement, which then acquires legal sanction. This 'formal', or 'official', wage rate is typically above the market-clearing rate, reflecting the institutionalised influence of the unions at the *apex* level. However, subsequent enforcement of this agreement is partial. Individual employers often employ workers on a lower, competitively determined, 'informal' wage contract. This can be patently illegal, reflecting the failure of government monitoring and non-implementation of labour laws. This can also be legal, reflecting grey areas, loopholes and exceptions in labour laws governing coverage of formal contracts. In any case, the outcome is a dualistic labour market *within* the same industry, with some workers receiving a relatively high remuneration, while others receive a lower, competitively determined, one.[1]

Such dualism in labour markets has been criticised, on standard grounds, as generating low industrial employment and welfare losses.[2] A large wage differential also provides firms an incentive to *evade* formal agreements with unions and violate labour laws. This leads to deployment of resources in activities connected with directly unproductive profit seeking, such as bureaucratic monitoring, litigation, political lobbying, bribery, industrial conflict, etc. Labour market integration is therefore usually considered a key objective of strategies of economic liberalisation.

Economic liberalisation typically entails trade liberalisation and deficit reduction. Import liberalisation is expected to cause a contraction in import-substituting industries, at least in the

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1 For example, by law Indian firms with over ten workers are subject to labour regulations, but in practice most firms with labour forces above this threshold have a substantial casual labour force that is undeclared under the Factories Act and hence not state-regulated. Estimates of unregulated labour in various Indian corporations range from 40% to 85% (Davala (1992), Bhowmik (1998)). A recent study of the garment industry in Ahmedabad found that 50% of workers in all registered firms did not have written contracts and about 10% did not receive any benefits (Jhabvala and Kanbur (2004)). See Agenor (1996) for other developing countries.

2 See, for example, Besley and Burgess (2004) for an analysis of related Indian evidence. However, Aidt and Tzannatos (2002) cast doubt on the claim that economies perform better with non-unionised labour markets.

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short run. Deficit reduction, by reducing interest rates, is supposed to counteract this contraction.[3] These two elements carry a high profile in most, arguably all, deregulation packages, especially those put forward by the IMF. Yet, the nature of their joint impact on the wage differential *within* an industry, and on the extent of *evasion* of union-negotiated formal contracts, does not appear to have received much analytical attention.[4] The empirical literature however suggests that finance-compensated trade deregulation may be associated both with greater informalisation of industrial labour contracts and deregulation of industrial labour markets.[5] Is there a direct causal connection, distinct from the impact of secondary factors such as greater capital mobility, technological change or exogenous ideological shifts in economic policy-making? The purpose of this paper is to address this question.

We set up a static, partial equilibrium model of an industry characterised by price-taking firms facing a union. The union sets an official, or formal, wage rate, and employers hire workers on both this formal contract and a lower, competitively set, 'informal' wage contract. Thus, employers partially evade the payment of the union-mandated wage rate, but have to pay a cost for such evasion due to subsequent government and union sanctions, litigation, etc. Unionised wage–setting combines with employer evasion to generate a two-tiered labour market within the industry. Firms borrow to pay wages. However, an assumed time lag between evasion of formal contracts and the infliction of consequent costs implies that firms can pay their evasion costs out of their realised revenue.

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3 For example, trade liberalisation in India in the 1990s was associated with monetary and financial sector deregulation, which led to a fall in the Prime Lending Rate of banks from about 19% in 1991-1992 to 10.5-11.0% in 2001-2002. The actual lending rates for top-rated borrowers could be even lower. See Reddy (2004). Brazil and Columbia also experienced a phase of declining interest rates in the 90s (Marjit and Maiti (2004)).

4 There is a small but growing theoretical literature on economic reform and informal labour. A common concern is the impact of deregulation of trade and labour laws on the informal wage. Building on Carruth and Oswald (1981) and Agenor and Montiel (1995), Marjit (2003), Marjit, Kar and Sarkar (2003) and Marjit and Maiti (2004) address this issue. Our focus is quite different.

5 See, for example, Dev (2000) and Jenkins (1999) for India, Galli and Kucera (2003) for Latin America, Amin (2002) for Asia, and Xaba, Horn and Motala (2002) for sub-Saharan Africa.

Within this set-up, we model trade liberalisation as a fall in the output price, and deficit reduction (or, more generally, financial deregulation) as a fall in the interest rate. We focus on a situation where the two balance one another, so that industrial employment is maintained at its pre-liberalisation level. This benchmark is motivated by the observation that employment stability in import-competing industries is often enforced on liberalising governments in developing countries as a political-economic constraint. Governments typically find themselves under short run pressure to neutralise job losses stemming from trade liberalisation. Furthermore, employment stability would lead, given growth, to a fall in the share of import-competing industries in total output and employment over time. Such a strategy of gradual reorganisation of the production structure is often politically easier to sustain than one involving a sharp employment contraction in the import-competing sector, and therefore commonly observed in developing countries, especially those which are electoral democracies (see, for example, Edwards (1989) and Ahluwalia (2002) for discussions).

We show that, paradoxically, liberalisation in this sense enables the union to raise the formal wage rate, thereby *increasing* the gap between formal and informal wage contracts. The proportion of the industrial labour force on informal contracts consequently rises, and so does directly unproductive firm expenditure necessitated by its evasion of formal contracts. These conclusions hold even with relatively small reductions in employment in the import-competing industry. Thus, liberalisation increases the size of social losses due to employer-union conflicts over distribution. This happens essentially due to institutional weaknesses that generate delays in punishment of contract evasion.

Such a consequence in turn has important implications for regulatory policies in the labour market. It turns out that, if the state wishes to moderate this rise in social losses, then it must reduce the cost of contract evasion, yet raise the cost of loans. Weaker enforcement of existing labour laws, or creation of large grey areas, loopholes and exceptions in such laws, thus turn out to be deliberate strategies that may be *forced upon* a state which wishes to simultaneously (a) pursue a cheap import regime (b) avoid a sharp contraction in import-competing industries, (c) avoid aggravating social losses stemming from union-employer conflicts, and (d) avoid a politically debilitating open confrontation with institutionalised

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unions. Import liberalisation within existing political-economic constraints therefore appears to be causally connected to labour market deregulation.

Such evasion, if now engaged in by the state, must however reduce the total income accruing to workers in the import-competing industry. Ironically, employers' profits would fall as well. Lenders would be the only beneficiaries. Thus, labour market deregulation, whether *de facto* or *de jure*, would enrich rentiers, at the cost of *both* workers and capitalists.

Section 2 sets up the model. Section 3 studies the impact of credit-compensated import liberalisation on the extent of informalisation of the labour force. Section 4 examines the implications for social losses stemming from union-employer conflict over employer evasion of formal contracts, and the state's responses to such losses. Possible extensions are addressed in Section 5. Section 6 concludes. Proofs are relegated to the appendix.

2. THE MODEL

Consider a small open economy that both produces and imports a single industrial output, using capital and labour. The international price of the output is P, and a tariff rate t is imposed on imports.[6] The (exogenously given) domestic price of the industrial output is thus $p = P(1+t)$. Labour supply to the industrial sector is perfectly elastic at the exogenously given wage rate w_I.[7]

Industrial production occurs in n price-taking firms. Firms are identical: they have identical capital stock and use identical technology, given by the production function $M(l)$, where l is the amount of labour employed. For notational convenience, we normalise the number of firms, n, to 1. A wage rate, w_F, is determined by a union on behalf of all industrial workers.

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6 Note that t can alternatively be interpreted as the rate at which a subsidy is provided to domestic producers.

7 Thus, returns to labour in non-industrial occupations, i.e., agriculture and services, are assumed constant, as in the classical two-sector labour surplus economy of Lewis (1954). See Section 5.

Firms can choose to hire workers at this union determined wage rate. We shall call payment of w_F a *formal sector* (F) contract. Firms can also choose to offer workers the competitive wage w_I. We term such offers *informal sector* (I) contracts.[8] Thus, output is given by $M(l_F + l_I)$, where l_F, l_I are the amounts of labour hired according to F and I contracts, respectively. Marginal product of labour is given by the decreasing function $m(l_F + l_I)$. Let $m^{-1} \equiv N$. Clearly, $N' < 0$; we shall assume that $N'' \leq 0$.

Labour payments are made at the beginning of the production cycle, whereas the firm's revenues are realised at the end of the cycle. The firm therefore has to borrow at a *state determined* interest rate $r > 0$ in order to pay wages: the nominal marginal labour cost for F contracts is thus $w_F R$, where $R = (1 + r)$. If the firm hires l_I amount of labour on I contracts, thereby evading the terms set by the union, then it has to pay an *evasion cost*, $\dfrac{al_I^2}{2}$ at the *end* of the production cycle; $a > 0$.[9] This evasion cost includes possible costs from hiring lawyers and professional union-busters, bribe payments to judges, government inspectors and union officials, loss of scale economies due to subcontracting and outsourcing, consumer boycotts, worker non-cooperation, sabotage and strike action. Nominal marginal labour cost for I contracts is thus, effectively, $[w_I R + al_I]$.

Evasion costs are costs associated with directly unproductive redistributive, or rent-seeking, activities by the firm. The union generates rents for workers by hiking the wage rate above its market-clearing level. The firm then attempts to redistribute these rents away from the workers, by evading the payment of the union determined wage rate. This however requires

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8 This can be *transparently* illegal, or involve exploitation of incompleteness, loopholes, interpretative ambiguities and grey areas in labour laws and/or agreements with unions - actions that are open to subsequent contestation by the union or the government. Common examples of such friction-generating grey areas are clauses allowing limited outsourcing, hiring of apprentices and part-time/temporary workers on lower pay, relocation of part of the production base to a region with lower wage rates, etc. The phenomenon of firms subcontracting out to smaller firms legally free to offer I contracts is also captured through our formulation.

9 At the cost of expositional inconvenience, we can specify the evasion cost function more generally simply as a strictly convex function without affecting our substantive conclusions.

the use of resources, in the form of evasion costs, without directly generating any additional output. Note that, since the firm has complete information and faces no uncertainty, court or state ordained monetary compensation to workers initially paid w_I, which can in principle be imposed with retrospective effect, are captured as F contracts. Such restitution payments are therefore not part of evasion costs.

The assumption that the evasion cost is paid at the end of the production cycle implies it can be paid out of realised revenue, and, is, therefore, independent of the interest rate. This is intended to capture a key institutional feature of industrial relations in developing countries such as India, viz., the pervasiveness of *significant delays* in the launching of punitive proceedings against evasion of labour laws and formal agreements. These delays reflect weaknesses in legal, administrative and union machinery, and high costs of hard information faced by both governments and unions. Courts and labour ministries are typically lethargic, employment records are commonly unavailable, workers are unaware of their legal rights, unions are often barred by law from taking strike action without prior recourse to a complex process of third party arbitration and attempted dispute resolution, and large-scale strike action or consumer boycotts require time-consuming organisational efforts.[10]

We call *a* the *enforcement* parameter. A higher value of this parameter reflects one or more of the following: (a) more stringent laws against violation of agreements with unions, (b) better state machinery for detection and prosecution of such violations, (c) stronger union organisation, (d) legal rights for unions to more completely dictate the hiring practices of firms and (e) greater likelihood of courts and tribunals adjudicating in favour of the union in case of disputes with employers.

Labour demand:

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10 Despite delays, evasion costs should depend on r if fines with retrospective effect, accruing to the state, constituted the major component of such costs. This does not appear to be the case in developing countries.

We now specify the labour demand function. Define:

$$\bar{l}_I(p, w_I, R, a) \equiv \overset{\arg\max}{\underset{l_I}{}} \; pM(l_I) - w_I R l_I - \frac{a l_I^2}{2} . \tag{2.1}$$

Thus, given a price vector (w_I, R, p), and an enforcement parameter a, $\bar{l}_I$ would yield the optimal employment level for the firm, if it did not offer any formal contract. Clearly, the firm would offer F contracts if, and only if, $m(\bar{l}_I) > \frac{w_F R}{p}$, m denoting the marginal product of labour. Now let:

$$\overline{w}_F(w_I, R, a, p) \equiv \frac{pm(\bar{l}_I(w_I, R, a, p))}{R} . \tag{2.2}$$

The firm will offer F contracts if, and only if, the formal wage is less than $\overline{w}_F$. Suppose now that this is indeed the case, i.e., $w_F \in [w_I, \overline{w}_F)$. Then, noting that $N \equiv m^{-1}$, we must have:

$$\text{if } w_F \in [w_I, \overline{w}_F), l_I + l_F = N\left(\frac{w_F R}{p}\right), \tag{2.3}$$

and

$$\text{if } w_F \in [w_I, \overline{w}_F), l_I = \frac{(w_F - w_I)R}{a} . \tag{2.4}$$

Let total evasion cost be given by $K \equiv \frac{a l_I^2}{2}$. It follows from (2.4) that:

$$\text{if } w_F \in [w_I, \overline{w}_F), K = \frac{(w_F - w_I)^2 R^2}{2a} . \tag{2.5}$$

Using (2.4)-(2.5), we find that the firm's profit is given by:

$$\text{if } w_F \in [w_I, \overline{w}_F), \boldsymbol{p} = pM(l_I + l_F) - w_F R(l_I + l_F) + K . \tag{2.6}$$

Remark 2.1. By (2.4), some workers must be on I contracts if w_F is more than w_I.

Summarising our discussion, we get the following specification for labour demand.

Observation 2.2. *Let $D^F(w_I, w_F, R, p, a), D^I(w_I, w_F, R, p, a)$, be the demand functions for F and I contracts, respectively. Then, given any (w_I, R, p, a):*

(i) if $w_F \geq \overline{w}_F(w_I, R, p, a)$, then $D^I = \bar{l}_I(w_I, R, p, a), D^F = 0$; and

(ii) if $w_F \in [w_I, \overline{w}_F(w_I, R, p, a))$, then $D^I = \dfrac{(w_F - w_I)R}{a}, D^F = N\left(\dfrac{w_F R}{p}\right) - D^I > 0.$

Unionised Wage Setting:

We now proceed to analyse the determination of the F wage rate. The union takes the labour demand functions, as specified in Observation 2.2, along with the price vector (w_I, R, p) and the enforcement parameter a , as given, and chooses its optimal F contract. The union's problem is:

$$\underset{w_F}{Max} \; \hat{v} = \boldsymbol{l} w_F D^F + (1 - \boldsymbol{l}) w_I D^I \tag{2.7}$$

where $\boldsymbol{l} \in \left(\dfrac{1}{2}, 1\right]$. Thus, the union maximises some weighted combination of total incomes received by workers with F and I contracts.[11] We assume that the union values additional income received by F workers more than that received by I workers, because its organisational base consists primarily of the former type of workers - a phenomenon commonly encountered in developing countries.

It follows from Observation 2.2 and (2.7) that, for the union, setting $w_F = w_I$ must dominate setting $w_F \geq \overline{w}_F$. Hence, using Observation 2.2 and (2.7), the union's problem can be rewritten as:

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11 It is likely that the union itself would incur significant costs from imposing evasion penalties on the firm. Our formulation involves, in effect (a) modelling these as a fixed cost (e.g. costs of employing permanent union staff, running union offices, etc.) and (b) normalising this fixed cost to 0. More complicated cost schedules for the union, while compatible with our analysis, make the exposition cumbersome without adding any insights.

$$Max_{w_F} v = \left[\mathbf{1}w_F N\left(\frac{w_F R}{p}\right) - (\mathbf{1}w_F - (1-\mathbf{1})w_I)\frac{(w_F - w_I)R}{a} \right] s.t. w_F \in [w_I, \overline{w}_F). \quad (2.8)$$

Now,

$$\frac{\partial v}{\partial w_F} = \left[\mathbf{1}N + \mathbf{1}w_F\left(\frac{R}{p}\right)N' - \mathbf{1}\frac{(w_F - w_I)R}{a} - (\mathbf{1}w_F - (1-\mathbf{1})w_I)\frac{R}{a} \right]. \quad (2.9)$$

(2.9)

Noting that, since $N' < 0$, $\mathbf{1} > \dfrac{1}{2}$ and $N'' \leq 0$ by assumption, we then have from:

$$\text{Forall } w_F \in [w_I, \overline{w}_F), \frac{\partial^2 v}{\partial w_F^2} = \left[\frac{2\mathbf{1}RN'}{p} + \frac{\mathbf{1}w_F R^2 N''}{p^2} - \frac{2\mathbf{1}R}{a} \right] < 0. \quad (2.10)$$

To make the problem in (2.8) both non-trivial and well defined, we need to assume the following.

A1. $\dfrac{\partial v}{\partial w_F}\big|_{w_F = w_I} > 0, \dfrac{\partial v}{\partial w_F}\big|_{w_F = \overline{w}_F} < 0.$

Observation 2.2, (2.8)-(2.10), and A1 together yield the following.

A1. $\dfrac{\partial v}{\partial w_F}\big|_{w_F = w_I} > 0, \dfrac{\partial v}{\partial w_F}\big|_{w_F = \overline{w}_F} < 0.$

Observation 2.2, (2.8)-(2.10), and A1 together yield the following.

Observation 2.3. *There exists a unique* w_F^* *which solves (2.7); furthermore,* $w_F^* \in (w_I, \overline{w}^F).$

Thus, by Observation 2.3, the union sets the F wage at some level above the competitive rate w_I, and firms employ workers on *both* types of contracts. Union power and management evasion combine to generate a two-tiered labour market. The situation is depicted in Figure 1 below.

<u>Figure 1</u>
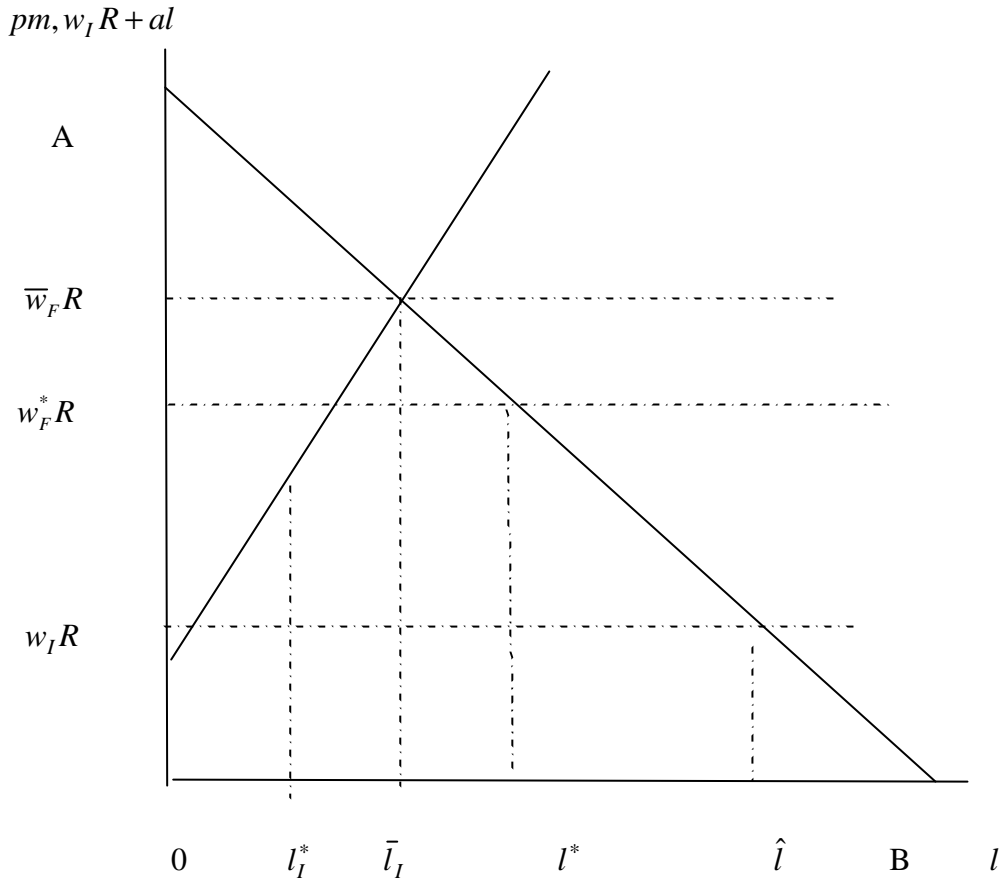
The schedule AB represents the value of the marginal product. At the union-chosen F wage rate w_F^*, the firm employs l^* workers, of whom l_I^* receive I contracts, while the remaining number, $\left(l^* - l_I^*\right)$, receive F contracts. The competitive employment level is $\hat{l}$.

We now note two properties of the model, which are easy to check. First, the higher the weight put by the union on F workers, the lower the formal-informal wage gap. Second, total income accruing to workers is higher under unionisation, regardless of the relative weight that the union puts on F workers. Unionised wage setting makes workers as a group better-off, even if unions only care about workers on F contracts, i.e., even if $l = 1$. We specify these properties formally below.

Observation 2.4. *(i)* $\dfrac{\partial w_F^*}{\partial l} < 0$, *and (ii) total income accruing to workers is higher under* $w_F = w_F^*$, *than under* $w_F = w_I$.

Remark 2.5. It is often simultaneously claimed that unions (a) ignore the interests of workers in the informal sector, and (b) generate and maintain a large formal-informal wage gap. Observation 2.4(i) casts doubt on the internal consistency of such a two-part claim. Intuitively, higher formal wage implies greater 'leakage' of labour income to the lower paid segment of the workforce. This is costlier to a union leadership reflecting the interests of the 'labour aristocracy', compared to one that can balance such losses with gains for its membership among the poorer section of the workforce.[12]

Comparative Statics:

We now specify the comparative static properties of our model. We shall combine these properties to generate our substantive conclusions in the subsequent sections.

Observation 2.6.

(i) w_F^* is increasing in both p and a, and decreasing in R..

(ii) Let $q^*(p,a,R) \equiv \dfrac{w_F^* R}{p}$. Then q^* is decreasing in p, and increasing in both a and R.

(iii) l_I^* is increasing in p and decreasing in R.

Proof: See the appendix.

By Observation 2.6, a rise in the output price leads to the union hiking up the formal wage. The real cost to the firm of hiring a worker on an F contract nevertheless falls, leading to an expansion in total employment in the new equilibrium. Conversely, an increase in the interest rate contracts total employment, despite the union reducing the formal wage in response. The union also raises the formal wage in response to more stringent enforcement of labour laws, i.e., a rise in *a*. This increases the real cost of an F contract, contracting total

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[12] In a general equilibrium setting, one can show, following Marjit *et al.* (2003), that whether a higher unionised wage will increase the informal wage depends on the degree of capital mobility across sectors.

employment. A rise in the output price, by increasing the F wage rate, induces firms to hire more workers on I contracts. A rise in the interest rate generates a fall in the F wage, which is sharp enough to induce firms to replace some I contracts with F ones.

Remark 2.7. The impact of a rise in the enforcement parameter on informal employment is ambiguous: the direct effect reduces it, but the associated rise in the formal wage increases it.

3. LIBERALISATION AND INFORMALISATION

We now proceed to analyse the impact of liberalisation on the extent of informalisation of the labour market. To fix ideas, we think of a state that has two objectives: (a) implementing a given reduction in tariff protection (exogenously determined, say, by World Trade Organisation norms), and (b) maintaining employment in the import-competing industry at its pre-liberalisation level. The state's problem is to choose an interest rate that permits both objectives to be attained simultaneously.

Consider first trade liberalisation via a tariff cut. This would lower the price of the industrial output.[13] By Observation 2.6, industrial employment would consequently contract, despite the union lowering the formal wage. Now suppose the state also reduced the fiscal deficit, thereby lowering the firm's cost of borrowing. By Observation 2.6, this fall in the interest rate, by itself, would generate an industrial expansion, despite the union hiking up the formal wage. Suppose the interest rate exactly counteracted the tariff reduction, so that industrial employment remained at its pre-liberalisation level. What would be the net impact of these two conflicting moves on the extent of informalisation?

It turns out that, if the state counteracts the trade-liberalisation induced contraction through a cheap credit policy, then the union will find it optimal to hike up the formal wage.

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13 Alternatively, such a fall could reflect a cut in industrial subsidy. See footnote 6.

Consequently, the formal-informal wage gap will rise. This hike will be large enough to induce firms to *replace* formal contracts with informal contracts, despite a fall in the nominal cost, $w_F^* R$, of offering F contracts. The liberalisation process, if successful in maintaining the level of industrial employment, must also have the unintended consequence of expanding both the extent of wage dualism and the size of

the low-paid segment in the industrial labour force. Total income accruing to workers will however increase, despite greater informalisation.[14] We summarise these results in Proposition 3.1 below.

Proposition 3.1. *Suppose the government compensates a fall in the output price through a reduction in the interest rate, so as to keep total industrial employment invariant. Then:*

(i) the formal wage rate must increase,

(ii) the proportion of the industrial workforce employed on informal contracts must increase, and

(iii) total income of workers must increase.

Proof: See the appendix.

Remark 3.2. Proposition 3.1 is essentially generated by the *time lag* between wage payments and the payment of evasion costs. Due to this time lag, while the present discounted value of the gain from the marginal evasion is $\left[w_F^* - w_I \right]$, that of the marginal cost of evasion in equilibrium is $\left[\dfrac{al_I^*}{R} \right]$. A credit-compensated tariff reduction increases the former more than the latter, generating greater informalisation. Now suppose instead that both wage payments and evasion payments had to be made simultaneously. Then the present discounted value of the gain from the marginal evasion would remain at $\left[w_F^* - w_I \right]$, but that of the marginal cost of

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14 Note, from (2.6), that the firm's profit measured in *output* units, $\left[M - q^* N + \dfrac{al_I^{*2}}{2p} \right]$ must rise as well.

However, the direction of change in the firm's *monetary* profit is indeterminate. The firm's total cost, $\left[w_F^* RN - \dfrac{al_I^{*2}}{2} \right]$, must fall, but the price reduction will reduce the firm's revenue as well.

evasion in equilibrium would simply become al_I^*. It can be checked that, in this case, a credit compensated tariff reduction, which keeps total employment invariant, must also keep the formal wage rate, and thus the marginal gain from evasion, invariant. Consequently, the distribution of the labour force between formal and informal contracts will remain unchanged as well. Total labour income will likewise remain invariant. Thus, it is the *delay* in punitive response to evasions in developing countries, reflective of weaknesses in legal, administrative and union machinery, and of high information costs, which generates greater informalisation and wage dualism as an unintended consequence of the liberalisation process.

Remark 3.3. Since all the relevant functions are continuous in R, it can be seen that Observation 2.6 and Proposition 3.1 together imply that the consequences of import liberalisation noted in Proposition 3.1 will all continue to hold even if total employment falls, provided such a fall is not too drastic. Thus, the employment stability constraint facing the government can be relaxed to permit a relatively small magnitude of job losses without altering any of our conclusions.

4. INFORMALISATION AND LABOUR MARKET DEREGULATION

Suppose now that the government has largely offset a trade-liberalisation induced contraction through financial liberalisation. As discussed in Section 3, this would be associated with greater informalisation, and hence (noting (2.4)) greater unproductive firm expenditure on evasion.[15] The state may therefore wish to implement further changes in order to reduce the extent of this waste, while maintaining both the magnitude of tariff reduction and the level of employment in the industry.

To fix ideas, we now think of the state's problem, *post-liberalisation*, as that of reducing total evasion expenditure by firms to its pre-liberalisation level, subject to (a) the employment

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15 Greater employer evasion of formal contracts, and the consequent increase in conflict between the union and firms, may also force the government to extend its adjudicating and enforcing activities through the courts, labour bureaus, industrial tribunals, police etc., thereby imposing additional pressure on the public exchequer.

stability constraint, and (b) an exogenously given tariff rate. Clearly, this would require the simultaneous use of credit and enforcement policies. What would be the nature and consequences of such policies?

Given an output price, if employment is to remain invariant despite changes in the interest rate and the enforcement parameter, then unit nominal cost of a formal contract, $w_F^* R$, must remain invariant as well. Recall now that this effective nominal cost rises both with the interest rate, R, and the enforcement parameter, a (Observation 2.6(ii))). It follows that credit policy and enforcement policy must now move in opposite directions. But should the enforcement parameter rise or fall?

Since the marginal cost of evasion, al_I, rises with the enforcement parameter, it might appear, at first glance, that the enforcement parameter should rise. However, once the impact, on the marginal gain, of the union's response is taken into account, the opposite turns out to be true.

Proposition 4.1. *Given the output price, suppose the government compensates a change in the enforcement parameter through a change in the interest rate in the opposite direction, so as to keep total industrial employment constant, while reducing total evasion cost incurred by firms. Then:*

(i) the enforcement parameter, the formal wage rate and the proportion of the industrial workforce employed on informal contracts must all fall, while the interest rate must rise;

(ii) total income of workers must fall, and

(iii) firms' profits must fall.

Proof: See the appendix.

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Proposition 4.1 implies that, if the government wishes to reduce total resource wastage due to evasion activities, while keeping employment constant, then it must reduce the marginal cost to firms of evading formal contracts, yet increase the cost of credit. The reduction in the enforcement parameter, by making it cheaper for firms to substitute informal contracts for formal contracts, will force the union to reduce the formal wage. This will expand total employment. The interest rate will have to rise in order to counteract this expansion. The net consequence will be an expansion in the proportion of the industrial workforce employed on F contracts, as well as a fall in the formal wage rate. Thus, there will be a rise in the proportion of the workforce on relatively higher pay. However, this will be more than negated by the fall in the absolute level of such higher pay, in that total income accruing to workers as a group will go down. Paradoxically enough, despite the reduction in total labour income and evasion costs, and despite their revenue staying constant, firms will be *worse* off. This will happen simply because their interest costs will go up more than commensurately.

Remark 4.2. A fall in the enforcement parameter alone need not reduce evasion expenditure, since I employment may go up in response (note Remark 2.7). A rise in the interest rate alone would reduce evasion expenditure (Observation 2.6(iii)), but at the cost of a contraction in employment.

Propositions 3.1 and 4.1 can be directly combined into the following conclusion.

Corollary 4.3. Suppose the government compensates a fall in the output price through changes in both credit and enforcement policies, so as to keep total industrial employment invariant without increasing total evasion expenditure by firms. Then the enforcement parameter must fall.

Note that the implications, for the interest rate, the formal wage rate, total labour and profit incomes and the distribution of the industrial labour force between formal and informal contracts, of the scenario considered in Corollary 4.3, are all ambiguous.

In light of Corollary 4.3, one expects a process of import liberalisation to endogenously generate incentives for regimes to reduce the enforcement parameter, i.e., opt for labour market deregulation. Notice that these incentives, operating through the intensification of industrial conflict, would impact even regimes that find the standard economic case for labour market deregulation unpersuasive, once they sign up for import liberalisation. What would be the likely forms such deregulation would assume in democratic developing countries with strong industrial unions?

Major changes in labour laws are difficult to implement, at least in the short run. Direct attempts to strip workers of rights granted by the law would involve open confrontations with unions that can be politically debilitating for governments. One would instead expect a hollowing away, gradual deactivation and weakening of the state machinery for detection and prosecution of employer evasion. Such weakening is often ascribed to administrative inefficiency. Our analysis suggests, in contrast, that it can be viewed as a deliberate, effective response to a liberalisation-generated rise in distributive conflicts, within existing political constraints. One would also expect an increasing tendency for courts, labour tribunals and government arbitrators to adjudicate in favour of employers in case of industrial disputes involving grey areas of contract interpretation, and to define the scope of existing loopholes and discretionary exceptions in pro-union legislation more expansively.[16]

While non-discretionary governance is often considered a critical component of economic liberalisation, our analysis therefore suggests that the liberalisation process may itself generate outcomes that create governmental incentives to expand the scope of discretionary decision-making. One cannot hollow away the substantive content of legal rights conferred upon organised labour, while maintaining their formal shell, without utilising the power of selective

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16 See Jenkins (1999, pp. 188-194) for a number of telling examples from India in the 1990s.

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application.[17] Somewhat ironically, employers might have an incentive to resist such creeping labour market deregulation, which would, in employment-invariant equilibrium, benefit only lenders.

5. EXTENSIONS

While we have focused on the import-competing sector, trade liberalisation may also involve removal of export restrictions on globally competitive sectors. We then have a fall in the interest rate and a *rise* in the output price. By Observation 2.6, total employment, the formal wage rate, informal employment and evasion expenditure must all go up. Thus, social losses from industrial conflict over employer evasion must rise in this case as well. Proposition 4.1 and the subsequent discussion (except, clearly, Corollary 4.3) would continue to be applicable. However, in developing countries, these sectors are often in agriculture or services, with negligible union presence to begin with.

We have assumed that the informal wage rate, w_I, is invariant with respect to industrial employment. Intuitively, this abstraction amounts to assuming that short run variations in employment in the import-competing sector impinge on a relatively small proportion of the total workforce in the economy, or that other factors counteract these variations. This appears to be a reasonable approximation for many developing countries. However, one may extend our analysis, by assuming that the informal wage is determined according to, for example, the function $\left[w_I = \underline{w}_I + \boldsymbol{h} N\left(\dfrac{w_F R}{p} \right) \right]$, where $\underline{w}_I > 0, \boldsymbol{h} \geq 0$, and that the union takes into account its impact on the informal wage when choosing the formal wage.

Evidently, the analysis in this paper would then constitute the special case where $h = 0$. It can be shown that, *if*: (i) the union completely ignores informal workers (i.e. $l = 1$) and (ii) a rise in the interest rate contracts the industry, then our conclusions, as presented in Propositions 3.1 and 4.1, would hold even under this extended scenario. [18]

We have modelled the objective of the government simply as the simultaneous satisfaction of three constraints: (a) implementation of an exogenously given tariff reduction, (b) employment stability in the import-competing industry, and (c) maintenance of social losses due to employer-employee conflicts at the pre-liberalisation level. We have already noted that (b) and (c) are to be interpreted broadly, in that they can be partially relaxed without altering our conclusions. One can derive these intuitively and empirically plausible objectives endogenously from a prior specification of the state's utility function, where the income distribution figures explicitly. This however comes at the cost of a major increase in notational complexity, and provides little or no additional insight.

6. CONCLUSION

This paper has examined the impact of trade liberalisation on the extent of wage dualism and evasion of formal, union-mandated, wage-contracts by employers in an import-competing industry. We have shown that, if the government largely maintains the employment level in the industry despite greater import competition, by reducing the cost of credit to firms, then the extent of employer evasion of formal contracts will increase, in response to a rise in the formal-informal wage gap. Thus, liberalisation may causally exacerbate existing labour market distortions. These effects are generated essentially by institutional delays in punitive response to employer evasion. Greater employer evasion will entail greater diversion of resources to socially wasteful employer-union distributive conflicts. This in turn may generate incentives for the state to moderate such social waste. To do so, however, the state will be forced to (a) evade or attenuate its own responsibilities as the enforcer of contracts between

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18 With $h > 0$, and given (ii), $l = 1$ is sufficient, but not necessary, to maintain our conclusions. One can do

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unions and employers and (b) thereby reduce the total income of workers, as well as profits of firms, while benefiting rentiers. Identical conclusions will follow if the initial price reduction is instead caused by, say, a cut in industrial subsidy. Our results provide theoretical comprehension of observed trends in industrial labour markets in developing countries such as India.

The political-economic and distributive implications of finance-compensated import liberalisation (or subsidy reduction) that we have highlighted need to be subjected to greater empirical scrutiny. Furthermore, our theoretical investigation has been carried out within a static, partial equilibrium context. Extension of this investigation to dynamic and general equilibrium contexts, with investment and capital mobility, can constitute a fruitful avenue of future research.

Our objective has been to highlight some logical implications of liberalising policies, not to generate policy prescriptions from deregulatory first principles. This exercise may contribute towards a better understanding of distributive tensions and conflicts emerging in developing countries as consequences of the liberalisation process. It does not, by itself, directly translate into technocratic policy advice in any straightforward way. Yet, it also appears to raise concerns that neither students nor practitioners of the political art of economic policy-making can quite afford to ignore.

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so even with $l < 1$, but at the cost of imposing additional, intuitively opaque, restrictions.

APPENDIX

Proof of Observation 2.6:

(i) Using (2.9), since $w_F^* > w_I$, noting that by assumption, $N'' \leq 0, \mathbf{l} > \dfrac{1}{2}$, we get:

$$\frac{\partial^2 v}{\partial w_F \partial p}\bigg|_{w_F = w_F^*} = -\mathbf{l}\left[2\left(\frac{w_F R}{p^2}\right)N' + \left(\frac{1}{p}\right)\left(\frac{w_F R}{p}\right)^2 N''\right] > 0; \tag{N1}$$

$$\frac{\partial^2 v}{\partial w_F \partial a}\bigg|_{w_F = w_F^*} = \left[\mathbf{l}\frac{(w_F - w_I)R}{a^2} + (\mathbf{l}w_F - (1-\mathbf{l})w_I)\frac{R}{a^2}\right] > 0; \tag{N2}$$

and

$$\frac{\partial^2 v}{\partial w_F \partial R}\bigg|_{w_F = w_F^*} = \left[2\mathbf{l}\left(\frac{w_F}{p}\right)N' + \mathbf{l}R\left(\frac{w_F}{p}\right)^2 N'' - \mathbf{l}\frac{(w_F - w_I)}{a} - \frac{(\mathbf{l}w_F - (1-\mathbf{l})w_I)}{a}\right] < 0. \tag{N3}$$

Together, (2.10) and (N1)-(N3) yield Observation 2.6(i).

(ii) Since a rise in a must raise w_F^* (Observation 2.6(i)), it follows trivially that $\mathbf{q}^*$ must rise. Note now that, from (2.9), the union's first-order condition implies: .

$$\mathbf{l}\left(N(\mathbf{q}^*) + \mathbf{q}^* N'(\mathbf{q}^*)\right) = \frac{\left(w_F^* - w_I\right)R}{a} + (2\mathbf{l} - 1)\frac{w_F^* R}{a}. \tag{N4}$$

Since $\mathbf{l} > \dfrac{1}{2}$, Observation 2.6(i) implies that the RHS of (N4) must rise with an increase in p. Since the LHS is decreasing in $\mathbf{q}^*$, it follows that $\mathbf{q}^*$ must be decreasing in p. Now rewrite (N4) as:

$$\mathbf{l}\left(N(\mathbf{q}^*) + \mathbf{q}^* N'(\mathbf{q}^*)\right) - 2\mathbf{l}\frac{\mathbf{q}^* p}{a} = -\frac{w_I R}{a}. \tag{N5}$$

Since the LHS is decreasing in $\mathbf{q}^*$, it follows from (N5) that $\mathbf{q}^*$ must be increasing in R

(iii)That l_I^* must increase with a rise in p follows from (2.4) and Observation 2.6(i).

Observation 2.6(ii) implies that the LHS of (N4) must fall with an increase in R, and that $w_F^* R$ must rise. Noting $\mathbf{l} > \dfrac{1}{2}$, it follows from (N4) that l_I^* must fall with a rise in R.

Proof of Proposition 3.1:

From (2.4) and (N4) we get:

$$\mathbf{l} N\!\left(q^*\right) + \mathbf{l}\, q^* N'\!\left(q^*\right) = l_I^* + (2\mathbf{l} - 1)\frac{w_F^* R}{a}. \tag{N6}$$

Noting that $\mathbf{l} > \dfrac{1}{2}$, and that, given q^*, a fall in p must be matched by a fall in $w_F^* R$, we get parts (i) and (ii) of Proposition 3.1 from (N4) and (N6). Now consider equilibrium total income of workers:

$$V^* = \left[w_F^* N\!\left(q^*\right) - \left(w_F^* - w_I\right)^2\!\left(\frac{R}{a}\right) \right]. \tag{N7}$$

Let the F wage rates in the post and pre-liberalisation equilibria be w_{F1}^*, w_{F2}^* respectively.

Let R_1, R_2 be the corresponding interest rates. Consider the post-liberalisation equilibrium.

From (2.9):

$$\frac{\partial v}{\partial w_F}\Big|_{w_F = w_{F1}^*} = \left[\mathbf{l}\!\left(N + q^* N' - \frac{2(w_F - w_I)R_1}{a} \right) + (1 - 2\mathbf{l})w_I \frac{R_1}{a} \right] = 0 .$$

Then, since $\mathbf{l} > \dfrac{1}{2}$, noting that N is held constant by assumption, and using (N7), we get:

$$\frac{\partial V^*}{\partial w_F^*}\Big|_{w_F^* = w_{F1}^*} = \left(N - \frac{2\!\left(w_F^* - w_I\right)R_1}{a} \right) > 0.$$

Since, given N, $\dfrac{\partial^2 V^*}{\partial w_F^{*2}} < 0$ for any $w_F^* > 0$, and by Proposition 3.1(i), $w_{F,1}^* > w_{F,2}^*$, we thus get:

$$\left[w_{F1}^* N\!\left(q^*\right) - \left(w_{F1}^* - w_I\right)^2\!\left(\frac{R_1}{a}\right) \right] > \left[w_{F2}^* N\!\left(q^*\right) - \left(w_{F2}^* - w_I\right)^2\!\left(\frac{R_1}{a}\right) \right].$$

Noting that $R_1 < R_2$, and using (N7), part (iii) of Proposition 3.1 follows.

We shall prove Proposition 4.1 via the following Lemma, which follows directly from (N6).

Lemma N1. *Given the output price, suppose the government compensates a change in the enforcement parameter through a change in the interest rate in the opposite direction, so as to keep total industrial employment constant. Then the proportion of the industrial workforce employed on informal contracts will increase if, and only if, the enforcement parameter rises.*

Proof of Proposition 4.1:

Part (i) of Proposition 4.1 follows directly from Lemma N1 and (2.4). The proof of part (ii) of Proposition 4.1 is analogous to that of part (iii) of Proposition 3.1 and is therefore omitted. Note now that, using (2.4) and (N7), the firm's total profit is:
$\left[pM\left(N\left(\boldsymbol{q}^{*} \right) \right) - p\boldsymbol{q}^{*} N\left(\boldsymbol{q}^{*} \right) + \dfrac{al_{I}^{2}}{2} \right]$. Noting that p and $\boldsymbol{q}^{*}$ remain constant by assumption, part (iii) of Proposition 4.1 is immediate.

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