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IZA DP No. 12068

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ABSTRACT

Seeking Rent in the Informal Sector

Rent seeking within the vast informal segment of the developing world is a relatively underdexplored topic in the interface of labor market policies and public economics. Moreover, how rent seeking and corruption within the informal segment is affected by economic reforms targeted for the formal sector is rarely discussed in the literature. This paper fills the gap. We identify conditions under which economic reform in the formal segment will increase the rate of corruption or rent seeking in the informal sector and raise the pay-off for those involved in rent seeking activities. When formal sector contracts due to reforms, offsetting forces determine the magnitude of rent seeking in the informal sector. Thus, economic reforms may increase corruption instead of reducing it, as claimed previously.

JEL Classification: D73, E26, M48

Keywords: corruption, rent seeking, reforms, informal sector, regulators

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1. Introduction

A pertinent question in the context of many developing economies has to do with how the incidence and spread of corruption are likely to respond to policies of economic reform. Doubtless, corruption is widely condemned as an obstacle to the process of development, mainly because it distorts prices and raises transaction costs leading to inefficiency in the system. The persistence of petty and mega corruption are mostly reflections of poor rule of law, transparency, accountability and regulations. Popular perception as well as most of the existing research in this area highlights how growth of informal segments in an economy is a consequence of governance failure, excessive regulations in the formal sector and corruption affecting the mainstream economy (Djankov *et al*. 2002, Marjit and Kar, 2011, viz.)[1]. The economic and political implications of the informal sector are of serious magnitude in any developing country, because these create myriad complex conditions for adjustment. And yet, these are often neglected in the development discourse. We try to fill this gap in the literature by developing a structure in which the informal segment pays and collects economic rents.

The extra legal status of many informal activities is naturally at the core of such transactions, which is straightforward and common even in rich countries.[2] But more importantly, the volume and conditions of rent seeking in the informal sector are deeply influenced by changes in the formal sector. As an outcome, this is more compelling for the developing world, since the size of the formal sector is small compared to the larger share of activities and labor force circulating within the informal segment. We develop a model of extra-legal activities within the informal segment, where economic reforms targeted for the formal

[1]See Marjit and Mukherjee (2015) for a case study of a persistently corrupt economy like India.
[2] Hillman and van Long (2017) suggest that rent extraction is less in rich countries due to greater transparency in most economic activities.

sector may raise the pay-off for corrupt public and private agents engaged in extracting rents. In addition, it may also affect the 'rate' of extraction from informal workers and entrepreneurs.

The objective in this paper is to treat rent seeking as a form of corruption, especially when carried out by public monitors. The act of rent seeking by public officials should then be a function of many possible shocks facing the public sector and more generally, the formal sector activities. For example, Ades and Di Tella (1999) shows that with trade liberalization corruption falls as the amount of extractable rent falls due to increased market competition, but as the enforcement adjusts optimally with this new reality, corruption rises. In a similar spirit Baksi *et al* (2009) shows that economic liberalization may have non-monotonic effects on corruption. In their paper, trade liberalization first increases corruption by tempting the bureaucrats to increase the level of conspicuous consumption, and subsequently, enforcement adjusts optimally to reduce corruption. But in both the papers, the impact and enforcement are restricted to the formal sector of the economy, only. It should be made clear that the creation and persistence of informal activities (see Dutta, Kar and Roy, 2013 for evidence from India) in most countries hinges critically on the degree of corruption perpetrated by monitoring agencies, often with passive support from public agencies. Since the rate of industrial job creation in poor countries is normally lower than the rate of growth of the labor force, respective governments accede with many forms of non-criminal informal activities. But, clearly a number of such activities are also not recognized by the governments and neither is there an attempt to legalize these via appropriate licenses. This creates the space (in terms of size and spread, this is non-negligible for poor countries) for corrupt regulators as well as non-formal rent seekers to thrive, in exchange for guaranteeing survival of workers and entrepreneurs in this zone.

However, very few papers, thus far, have engaged with the inner dynamics of the extra-

legal in its process of survival. From a set of equilibrium configurations developed from these specifications, we wish to observe how economic reforms affect the dual act of corruption, returns to factors, output and allocations in such economies. More specifically, we wish to retrace the question: does economic reform reduce rent seeking in the informal sector? To answer this question, we argue that rent seeking and economic reforms are endogenous outcomes of a conscious political process in low-income democracies.

The structure of the paper is as follows. Section 2 discusses the literature. Section 3 develops the basic model and the general equilibrium mechanism to determine the equilibrium. Section 4 analyzes the impact of trade reform on the rent seeker's pay-off and the rate of extraction in the informal sector. Section 5 concludes.

2. Literature Review

Generally speaking, corruption in the economic literature has a complex relation with development outcomes, including the persistence of large informal sectors in developing countries. For example, Dutta, Kar and Roy (2013) show that for India high level of corruption raises employment in the informal sector, but beyond a threshold per-capita income for respective states, this effect weakens. Earlier, Kaufmann and Wei (1999) argued that 'greasing the wheel' view of corruption is true only in a very narrow sense when the bad regulations and official harassment are taken as exogenous; most of the other conditions lead to obstruction for businesses, instead. In fact, Friedman *et al*. (2000) uses cross-country evidence to show that entrepreneurs go underground not to avoid official taxes but to reduce the burden of bureaucracy and rent seeking activities. Not surprisingly, Tanzi and Davoodi (1997) found that corruption increases the size of public investment at the expense of private investment, skews the

composition of public expenditure away from development priorities towards expenditure on new equipment (also, Klitgaard, 1988). Beyond local investments, Wei (1997) found clear evidence that corruption in a host country is a heavy deterrent for FDI inflows as well. Notwithstanding, presence of corruption leads to diversion of expenditure away from infrastructure, health and education and encourages rent seeking behavior of public officials instead.

Naturally, the evolution and sustenance of informal, unorganized, extra-legal institutions in developing countries have found emphasis in the related literature, as in, Dixit (2003), Marcouiller and Young (1995), Marjit (2003), Marjit and Kar (2011), Rauch (1991), etc. These papers have discussed different policies which can affect the informal or narrowly, the unorganized sector, in a developing economy without explicit discussion of corruption or rent seeking needed to bypass regulatory hurdles. In fact, how such local equilibrium changes following greater openness to international trade and similar shocks, is a matter of contemporary interest. A set of papers by Marjit, Ghosh and Biswas (2007), Mandal and Marjit (2013), etc addresses this question. The introduction of rent-seeking activities in the formal and informal sectors is expected to lend support to empirical observation that economic reforms may not reduce the degree of corruption (Marjit and Mukherjee, 2015) in the context of India and in the case of China (Chen and Quijung, 2015, Congleton et al, 2008) and as reflected by many in Congleton and Hillman (2015). Our work is related to the general problem of failures in regulating the informal sector as discussed by Biswas and Thum (2017). The informal sector typically pays a fee to the corrupt public officials so that their extra-legal activities remain unperturbed. In addition, payments are also made to private agents belonging to powerful

political entities making such 'taxes' multi-dimensional. This is conceptually related, but not similar to well-known works of Konrad and Skepardas (1999).

3. The Structure of the Model

The basic framework is drawn from a class of general equilibrium models dealt with earlier by Carruth and Oswald (1989), Agenor and Montiel (1993), Marjit and Kar (2011) and others. We assume that there are two sectors which produce X and Y. X is produced in the formal sector with labor and capital and with collectively bargained wage $\overline{w}$ paid to the unionized workers.[3] To be consistent with the fact that the major segment of the formal sector is traded, and that the informal segment is non-traded, X is assumed to be a traded sector with its price set in the rest of the world. It may also be conceived of as a composite good. The rest of the workforce which does not find a job in the formal sector moves to the informal sector, Y, where local demand and supply determines the commodity price. Workers find a job at a flexible wage, $w < \overline{w}$. The informal sector produces Y with labor and capital. Production follows constant returns to scale technology, diminishing marginal productivity, and standard neo-classical technology. Since the informal sector is extra-legal, it does not obey labor laws and in order to operate informally they need to engage agents for liaison with the regulators, the public officials, and those providing protection to them. With such support, the extra-legal act goes unpunished. This agent makes payments to cover up such omissions and violations of regulations and mandates. It is possible that there are imperfections in the market for extortion, but we try to highlight the benchmark corruptive structure where rents are spent as returns to factors engaged in the act. Because of its extra-legality, informal units are subject to government auditing which justifies the payment

[3]Standard discussion of how unionized wages are derived is available in many sources, viz. Booth (1995). Including wage determination mechanism in the present model should not change the direction of the results.

made by the informal units via the agency, Notice that agency generally pays a fraction of the income it receives from informal units. Thus, in turn, this also affects the return to informal producers. So, the activity of such agency is endogenous in our model and has impact on the labor market. The size of such engagement constitutes a measure of corruption in the system.[4]

Presently, we introduce two kinds of payments made by the informal sector. The first is the one that the public officials seek in order to keep the informal activity operational, and the second kind of extortion payments involves collection of rents by the agents of political parties -- a fairly stylized mode of political extortions and display of power in the developing world. This is a new approach that we include in the standard general equilibrium system.

We consider the case of a small open economy with exogenously given prices of goods. But this is an assumption we can do away with easily.

3.1. Rent Seeking Equilibrium

Regulatory reform that targets informal activities is indeed extremely difficult to implement (Biswas and Thum, 2017). At the same time, policy reforms in the formal sector should have an impact on the informal segment via product and factor linkages. While one can envisage many policies that positively or negatively affect the formal sector, we consider a policy such as environmental regulations driving formal firms to informal activities (viz. in Baksi and Bose, 2016).

Our query is how a positive shock that expands the production of X impacts the pay-off of

[4]Such method of modeling corrupt behavior in a general equilibrium was initially discussed in Mandal and Marjit (2013) and Mandal, Marjit and Beladi (2018). Mandal, Marjit and Beladi (2018), in particular, is an important value addition in this line of research which argues why and how economic reform may lead to a decline in the informal wage and return to rent seekers. The current paper, in contrast, indicates the possibility of an increase in the payoff of rent seekers and the rate of rent seeking within the informal sector. We articulate the key conditions for such outcomes.

those that are involved in the activity and the rate at which the rents are extracted. Rent seeking, which according to our definition of corrupt activity as directed towards the informal sector, extracts a portion of the value of commodity Y, i.e., $\lambda P_Y Y$, $0 < \lambda < 1$ being the rate of extraction. Competitive conditions in the two sectors imply:

$$\overline{w}a_{LX} + ra_{KX} = P_X \qquad (1)$$

$$wa_{LY} + Ra_{KY} = P_Y(1-\lambda) \qquad (2)$$

Owners of capital face the probability of being audited (q_K) and payment of a fine F_K for operating in the extra-legal sector. Therefore, the following should hold in equilibrium[5]:

$$R(1-q_K) - q_K F_K = r$$

Such that, $R = \dfrac{r + q_K F_K}{1-q_K} = \dfrac{r}{1-q_K} + \dfrac{q_K F_K}{1-q_K}$ (3)

Thus, even if K is allocated between X and Y, their returns are related by (3), where, deployment of capital between X and Y fetches returns r and R, respectively. a_{ij} defines the input-output coefficient. For example, a_{KX} represents the amount of capital required to produce one unit of commodity X, and likewise for other coefficients.

Full employment conditions in this economy are given by,

$$a_{KX}X + a_{KY}Y = \overline{K} \qquad (4)$$

$$a_{LX}X + a_{LY}Y + \beta Y = \overline{L} \qquad (5)$$

Workers in the informal segment get w, but they are not monitored by the public authority. There is another section of workers, who organize the informal activity and act as rent-seekers, earning

[5]Alternatively we may think of the following situation where F_K is paid out of his income R. Thus, eventually we get $(R - q_K F_K) = r$ with the restriction $R > r$ and $(R - F_K) < r$. Similarly, in case of labor the equation would take the following form $(\widetilde{w} - q_L F_L) = w$ with $\widetilde{w} > w$ and $(\widetilde{w} - F_L) < w$. This modification, however, would not induce any qualitative changes in the basic results of the present model.

$\widetilde{w}$. These workers, in proportion β, could be under the scanner, facing a penalty F_L with probability q_L. These workers should be indifferent between being a worker or a rent-seeker in the informal sector, as long as,

$$\widetilde{w} = \frac{w + q_L F_L}{1 - q_L} \qquad (6)$$

We also assume that, α is the non-zero proportion of rent seekers belonging to the formal sector, who can monitor and control activities in *Y*, essentially in the form of giving licenses, or purchase orders, and the like, while being fully aware of the extra-legal status of *Y*. These workers could also be monitored by the government. They earn $\widetilde{w}$ as rent seekers.[6] Therefore, the value of *Y* lost in the process is attributed to rent seekers from both formal and the informal sectors of the economy.[7]

$$(\alpha + \beta)\widetilde{w} = \lambda P_Y \qquad (7)$$

With Cobb-Douglas utility function representing preferences over *X* and *Y*, and γ being the share of expenditure for *Y*, demand for *Y* equates supply in the following equilibrium configuration:

$$Y^d = \frac{\gamma P_X X}{(1-\gamma)P_Y} = Y \qquad (8)$$

Equations (1) to (8) determine, $X, Y, P_Y, \widetilde{w}, r, w, R, \lambda$.

The simplest way to understand the model is to follow a two-step method. Let us consider a given P_Y. Then (1), (2) and (3) determine *r*, *w* and *R* given (P_X, P_Y, λ). A rise in λ will reduce *w*

[6]To clarify rent seeking by public officials, consider sector *X* as comprising of workers who can either deliver some facilities or public good effectively, or for a bribe subvert the act, by not working. The lack of formal service/goods opens up private, in our case informal, facilities. This keeps the informal sector viable. The other form of extortion comes from localized agents from within the informal sector who distribute rights to occupy public space owing to political clouts they may enjoy, or via connivance with enforcement agencies and allow violation of regulations. The second kind is more of operational rent that is extracted. The number of such rent seekers is held fixed.

[7] As a reality check, all workers in the formal sector are not extortionists. If we assume that αL_X are extortionists and $(1-\alpha)L_X$ are not, then the results to follow apply to a smaller share of extortionists only (eqn. 6).

and hence $\widetilde{w}$ from (6).

Therefore, $\widetilde{w} = \widetilde{w}_1(\lambda), \quad \widetilde{w}_1' < 0$ (9)

However, from (7) we know, $\widetilde{w} = \widetilde{w}_2(\lambda), \ \widetilde{w}_2' > 0$ (10)

Relations (9) and (10) solve for $(\widetilde{w} \ and \ \lambda)$ in equilibrium as shortly depicted in a diagram. With all factor prices and factor coefficients determined, (4) and (5) determine *X* and *Y*. Given P_Y this is the structure of equilibrium that characterizes two critical elements of this system, i.e., $(\widetilde{w} \ and \ \lambda)$, displaying the wage return and rate of rent seeking from the informal sector.

The second step is to determine P_Y in equilibrium. Note that, as P_Y increases, *w* must increase with $(P_X, \ \overline{w} \ and \ r)$ held fixed. Hence there is no change in (a_{LX}, a_{KX}). However, (a_{LY}, a_{KY}) show reverse directions, with labor's use going down and capital's use rising in *Y*. Effectively, therefore, the capital constraint (4) is more binding now, while the labor constraint is less binding. It follows from Jones (1965) and later Marjit and Mandal (2012). It follows that,

$$\hat{Y} = \eta_Y \hat{P}_Y \qquad (11)$$

Where, $\eta_Y > 0$ iff *Y* is labor intensive, which follows from the usual assumption.

Also, $\hat{X} = -\eta_X \hat{P}_Y$ (12)

$\eta_X > 0$ if *X* is capital-intensive.

Next, from (8) $Y^d(P_Y), \quad Y'^d < 0$. In equilibrium, therefore,

$$Y^d(P_Y) = \ Y(P_Y) \qquad (13)$$

Equation (13) determines P_Y and for any P_Y we can determine all other variables simultaneously for the general equilibrium to hold.

4. Economic Reform and Rate of Rent-Seeking

Our main concern is to analyze how a positive or negative shock in *X*, would affect $(\tilde{w}\ and\ \lambda)$ via changes in P_Y. We first deal with a positive price shock. Reforms can reduce complexities of regulations and make the formal sector more productive and vibrant. This can be captured through an exogenous technological progress or growth in efficiency, or even a positive demand shock from abroad. All of these effectively raises *r*, given $\overline{w}$ (as if P_X is increasing). A converse of this may follow if *X* is conceived of as a composite good with some goods (relative prices frozen for aggregation) not being protected any longer or a withdrawal of price support leading to contraction of *X* following a decline in *r*.

Suppose, *r* increases due to a positive shock. Given P_Y we know from (4) and (5) that *X* will expand as a combination of demand responses in (14). The impact on *Y* is analogous (15):

$$\hat{X} = \varphi_X \hat{P}_X - \eta_X \hat{P}_Y \qquad (14)$$

$$\hat{Y} = -\varphi_Y \hat{P}_X + \eta_Y \hat{P}_Y \qquad (15)$$

$\varphi_X, \varphi_Y > 0$

Since, from (8),

$\hat{P}_X + \hat{X} - \hat{P}_Y = \hat{Y}$

Substituting from (14) and (15), $\hat{P}_X + \varphi_X \hat{P}_X - \eta_X \hat{P}_Y - \hat{P}_Y = -\varphi_Y \hat{P}_X + \eta_Y \hat{P}_Y$

We get, $\hat{P}_Y = \dfrac{(1 + \varphi_X + \varphi_Y)\hat{P}_X}{\eta_X + \eta_Y + 1}$

$$= \sigma_X \hat{P}_X, \qquad \sigma_X > 0 \qquad (15a)$$

Now, recalling competitive conditions in the informal sector,

$$\hat{w}\theta_{LY} + \hat{R}\theta_{KY} = \hat{P}_Y - \hat{\lambda}\frac{\lambda}{(1-\lambda)} \qquad (16)$$

Since the wage premium from illegal activities takes the following form(using 3), $\widetilde{w} = \frac{w}{A} + B$ adjustments in such wages, leads to,

$\frac{d\widetilde{w}}{\widetilde{w}} = \frac{dw}{w}\frac{1}{A}\frac{w}{\widetilde{w}}$, where $\varepsilon = \frac{w/A}{\widetilde{w}}$ leads to $\hat{\widetilde{w}} = \varepsilon.\hat{w}$ (17)

Similarly, the change in return to capital deployed in illegal activities (from 6) leads to:

$\hat{R} = \chi.\hat{r}$, because, $R = \frac{r}{c} + D$, where, $\chi = \frac{r/c}{R}$ (18)

Using the above,

$$\hat{\widetilde{w}}\theta_{LY}.\varepsilon + \hat{r}\theta_{KY}.\chi = \hat{P}_Y - \hat{\lambda}\frac{\lambda}{1-\lambda}$$

Or, $\hat{\widetilde{w}}\theta_{LY}.\varepsilon + \frac{\hat{P}_X}{\theta_{KX}}\theta_{KY}.\chi = \hat{P}_Y - \hat{\lambda}\frac{\lambda}{1-\lambda}$

or, $\hat{\widetilde{w}}\theta_{LY}.\varepsilon = \hat{P}_X(\sigma_X - \frac{\theta_{KY}}{\theta_{KX}}.\chi) - \hat{\lambda}\frac{\lambda}{1-\lambda}$ (19)

We already know from (7), that, $\hat{\widetilde{w}} = \hat{\lambda} + \hat{P}_Y$ (20)

Or, $\hat{\lambda} = \hat{\widetilde{w}} - \sigma_X\hat{P}_X$ (21)

Rearranging (19) and (21), we get

$$\hat{\widetilde{w}}\theta_{LY}.\varepsilon + \hat{\lambda}\frac{\lambda}{1-\lambda} = \hat{P}_X(\sigma_X - \frac{\theta_{KY}}{\theta_{KX}}.\chi)$$

And $\hat{\widetilde{w}} - \hat{\lambda} = \sigma_X\hat{P}_X$

Solving the above two equations,

$$\hat{\tilde{w}} = \frac{1}{\Delta}\begin{bmatrix} \hat{P}_X(\sigma_X - \frac{\theta_{KY}}{\theta_{KX}}\chi) & \frac{\lambda}{1-\lambda} \\ \hat{P}_X\sigma_X & -1 \end{bmatrix}, \text{ where } \Delta = \begin{vmatrix} \theta_{LY}\varepsilon & \frac{\lambda}{1-\lambda} \\ 1 & -1 \end{vmatrix} = \left(-\theta_{LY}\varepsilon - \frac{\lambda}{1-\lambda}\right) < 0$$

Such that, $\hat{\tilde{w}} = -\frac{\hat{P}_X}{\Delta}\left[\left(\sigma_X - \frac{\theta_{KY}}{\theta_{KX}}\chi\right) + \sigma_X\frac{\lambda}{1-\lambda}\right]$ (22)

If, P_X increases, as argued earlier, $\hat{\tilde{w}} > 0$ *iff*, $\left[\sigma_X > \frac{\theta_{KY}}{\theta_{KX}}\chi(1-\lambda)\right]$ (23)

Following similar method and a solution via Cramer's rule as above,

$$\hat{\lambda} > 0 \text{ } \textit{iff}, \left[\sigma_X > \frac{\theta_{KY}}{\theta_{KX}}\frac{\chi}{(1-\theta_{LY}.\varepsilon)}\right] \quad (24)$$

Based on (23) and (24), the following proposition can be proved.

Proposition I: $\hat{\tilde{w}} > 0$ and $\hat{\lambda} > 0$ iff, $\sigma_X > \frac{\theta_{UY}}{\theta_{KX}}.\frac{\chi}{1-\theta_{LY}.\varepsilon}$

$\hat{\tilde{w}} > 0$ *and* $\hat{\lambda} > 0$ *iff*, $\sigma_X > \frac{\theta_{KY}}{\theta_{KX}}\frac{\chi}{(1-\theta_{LY}.\varepsilon)}$

Proof: From the above specifications, it follows that,

For $\hat{\tilde{w}} > 0$ and $\hat{\lambda} > 0$, $\quad \sigma_X > \text{Max}\left[\frac{\theta_{KY}}{\theta_{KX}}.\frac{\chi}{(1-\theta_{LY}.\varepsilon)}, \ \frac{\theta_{KY}}{\theta_{KX}}.\chi(1-\lambda)\right]$

Note that since, $\varepsilon < 1$, therefore, $\theta_{LY}.\varepsilon < 1$. Consequently, $\frac{1}{(1-\theta_{LY}.\varepsilon)} > (1-\lambda)$.

It follows that if $\left[\sigma_X > \frac{\theta_{KY}}{\theta_{KX}}\frac{\chi}{(1-\theta_{LY}.\varepsilon)}\right]$, then $\left[\sigma_X > \frac{\theta_{KY}}{\theta_{KX}}\chi(1-\lambda)\right]$.

This implies that, $\hat{\tilde{w}} > 0$ and $\hat{\lambda} > 0$ iff, $\left[\sigma_X > \frac{\theta_{KY}}{\theta_{KX}}.\frac{\chi}{(1-\theta_{LY}.\varepsilon)}\right]$.

To reiterate, this shows that with economic reforms, the wage premium received by the informal rent-seekers will always go up, although the rate at which the rent is extracted may fall. For the rate of rent extraction to rise we need a stronger condition. We explain this argument further with

the help of the following diagram.

When P_X goes up, the impact on P_Y can take effect through both demand and supply changes, as shown by equation (15a). A rise in activity in Y shall raise both $\widetilde{w}$ & λ and hence a positive relation between the two is observable from equation (7) given the exogenous and unchanged shares of rent seekers in the system, as well as P_Y. The extraction-based positive relation is depicted as *EE'* in figure 1. Simultaneously, equation (9) for a given P_Y shows a negative relation as given by the line *II'* in figure 1, where a rise in λ must lower $\widetilde{w}$. These jointly determine $\widetilde{w}_1$ & λ_1 in figure 1. We consider possible changes in this equilibrium subject to increase in P_X. We continue to assume that the number of rent seekers is proportional to the level of activity in the informal sector and fixed exogenously. Note that, when P_X rises, P_Y may not increase if (i) it is assumed to remain unchanged, or in the more likely event of (ii) η_X, η_Y both being very high rendering $\sigma_X \approx 0$. A rise in P_X without an appreciable change in P_Y shifts *II'* to the right along *EE'*, such that $\widetilde{w}_1$ & λ_1 are both expected to go up. However, as discussed above, for a given rent extraction level, rise in $\widetilde{w}$ must be associated with a fall in λ, along *II'*. Therefore, instead of rising λ might fall (viz. λ_2) or remain at the prior equilibrium level, depending on the extent to which *EE'* shifts leftward. In other words, a rise in $\widetilde{w}$ does not guarantee a rise in λ although the converse is proven above.

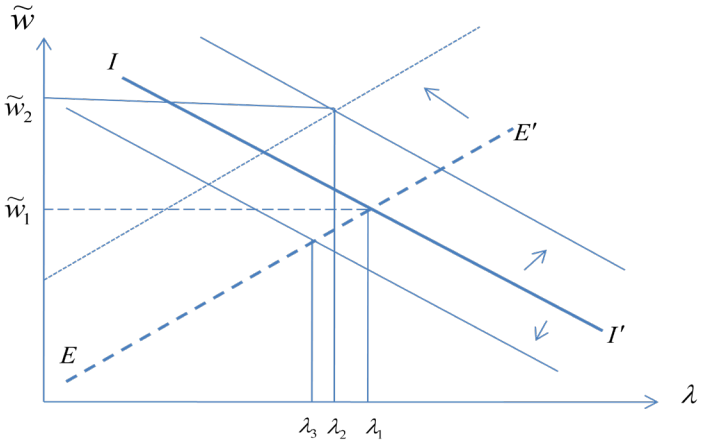

Figure 1. Wage Premium and Extraction Rate in the Informal Sector

4. Concluding Remarks

Rent seeking by public officials is fairly common in many countries. Individuals in developing countries face further problems trying to access public good through the distribution mechanisms, typically because the procedures are complex and the quantities are rationed. This allows substantial opportunities among public officials to seek rent. Unfortunately, the dual labor market in developing countries adds to another source of rent seeking by similar officials. Typically a large contingent of semi-skilled or unskilled workers does not find formal sector jobs in developing countries. The dependence of such workers on public resources, often amounting to encroachment of public space and infringement of property rights, are common instances offering regulators further avenues to seek rent.

This paper considers a model economy, drawing from observations similar to developing countries in Asia, Africa and Latin America, where unavailability of formal sector jobs in adequate numbers drives a significant number of workers to informal activities. These include own account enterprises and working for such businesses, usually without proper registration. The establishments engaged in these activities do not pay taxes and do not abide by labor

regulations or environmental strictures. Consequently, it opens up possibilities of punitive measures coming from public regulators. The situation, for all practical purposes, gets more complicated when powerful political entities show interest in the formation and sustenance of such business under the veil of populist concerns for poor citizens. Eventually, this takes the form of *quid pro quo* interactions, where political power influences regulators to maintain *status quo*, i.e., allow these extra-legal businesses to thrive, and thereby create opportunities for bribes. This is a known and common story. However, the problem of informal business is not restricted to bribing of public regulators alone. Direct political endorsement of these activities comes at an additional cost where the private extortionists working independently or for political parties, also start extracting rents.

We accommodated both these possibilities in determining the wage rate and the rate of extortion. Subsequently, we investigated if economic reform affects this equilibrium and influences the rate of extortion. A rise in the price of the formal sector commodity lowers informal wage and the premium received by those in the informal sector as rent seekers. At the same time, it raises the rate of extraction per unit. The rise in price of the formal commodity also has substitution effects in consumption, which may drive demand towards the non-traded informal good and raise the opportunity to seek higher rents. We showed that if the rent extraction rate rises, the condition associated with it is sufficient to raise the wage premium received by rent-seekers, although the converse is not true. Overall, economic reform creates a strong possibility under which both the pay-off of rent seekers and the rate of rent seeking increase. This is also evident when the economic reform has adverse impact on the formal sector and leads to contraction of output. A rise in wage and a fall in rent extraction are direct impact of such changes. In future, it should be interesting to investigate empirically or numerically, if the

rate of change in prices between the traded and non-traded goods lead to validation of the conditions derived in this paper.

References

Acemoglu, D., Robinson, J. A., and Verdier, T., (2017), Asymmetric Growth and Institutions in an Interdependent World, *Journal of Political Economy,* 125(5), pp1245-1305.

Ades, A. and Di Tella, R (1999), Rents, Competition, and Corruption, *American Economic Review*, 89 (4), pp. 982-993.

Agenor, P. R., and Montiel, P. (1996). *Development Macroeconomics*. New Jersey: Princeton University Press.

Baksi, S and Bose, P (2016), Informal sector, regulatory compliance, and leakage, *Journal of Development Economics*, vol. 121(C), pp 166-176.

Baksi, S., Bose, P., Pandey, M. (2009), The impact of liberalization on bureaucratic corruption, *Journal of Economic Behavior and Organization*, volume 72, Issue 1, pp. 214-224.

Biswas, A. and Thum, M (2017). Corruption, environmental regulation and market entry, *Environment and Development Economics*, vol. 22, 1, pp. 66-83.

Booth, A. (1995), *The economics of the trade union*, Cambridge University Press, Cambridge.

Carruth, A and A Oswald (1981), The Determination of Union and Non-union Wage Rates, *European Economic Review*, vol. 16, (2/3), pp. 285-302.

Chen, K and Qijung, L (2015). Economic development and corruption in Chinain the shadow of rent seeking. In: Roger D. Congleton andArye L. Hillman(eds.), *Companionto the Political Economy of Rent Seeking*, Edward Elgar, Cheltenham UK, pp. 395-409.

Congleton, R and Hillman, A (2015, eds), *Companion to the Political Economy of Rent Seeking*, Edward Elgar, Cheltenham UK.

Congleton, R, Hillman, A and Konrad, K (Eds.) (2008), *40 Years of Research on Rent Seeking*, Springer-Verlag, Berlin, Heidelberg.

Dixit, A., (2003), Some lessons from transaction-cost politics for less-developed countries, *Economics and Politics*, 15(2), pp 107-133.

Djankov, S, La Porta, S, Lopez-De-Silanes, Fand Shleifer, A(2002), The Regulation Of Entry, *The Quarterly Journal of Economics*, vol. 117, 1, pp. 1-37.

Dutta, N, Kar, S and Roy, S (2013), Corruption and persistent informality: An empirical investigation for India, *International Review of Economics & Finance*, vol. 27(C), pp. 357-373.

Friedman, E, Johnson, J, Kaufmann, D and Zoido-Lobaton, P (2000), Dodging the grabbing hand: the determinants of unofficial activity in 69 countries, *Journal of Public Economics, vol.* 76, pp. 459–493.

Hillman, Arye L. and Long, Ngo Van (2017), Rent Seeking: The Social Cost of Contestable Benefits, *CESifo Working Paper Series No. 6462*, Munich.

Jones, R W (1965), The Structure of Simple General Equilibrium Models, *Journal of Political Economy*, vol. 73, 6, pp. 557-572.

Kaufmann, D and Wei, Shang-Jin(1999), "Does "Grease Money" Speed Up the Wheels of Commerce?," *NBER Working Papers # 7093*, Cambridge, Mass.

Klitgaard, R (1988), *Controlling Corruption*, Berkeley, University of California Press.

Konrad, K and Skaperdas, S (1998), Extortion, *Economica,* vol. 65, 260, pp. 461-477.

Mandal, B. and Marjit, S. (2013), Trade reform, intermediation and corruption, *Economic Modelling*, vol. 33(C), pp. 741-746.

Mandal, B., Marjit, S., and Beladi, H. (2018), Reform, informal sector, and extortion, *Economics and Politics,* vol. 30, 1, pp. 106-123.

Marcouiller, D and Young, L (1995), The black hole of graft: the predatory state and the informal economy, *American Economic Review*, vol. 85, 3, pp. 630-46.

Marjit, S. (2003), Economic reform and Informal wage – A General Equilibrium Analysis, *Journal of Development Economics*, vol. 72, 1, pp. 371-378.

Marjit, S., Ghosh, S., and Biswas, A. (2007), Informality, corruption and trade reform, *European Journal of Political Economy*, vol. 23, 3, pp. 777–789.

Marjit, S., and Kar, S (2011), *The Outsiders: Economic Reform and Informal Labor in a Developing Country*. New Delhi: Oxford University Press, 2011.

Marjit, S and Mandal, B (2012), Domestic trading costs and pure theory of international trade, *International Journal of Economic Theory*, vol. 8, 2, pp. 165-178, The Legacy of Lionel W. McKenzie: Special Issue 2.

Marjit, S. and Mukherjee, V. (2015), Market Liberalization and Rent Seeking in India in R. D. Congleton and A. L. Hillman (ed.) *Companion to Political Economy of Rent Seeking*, Edward Elgar, UK, pp. 410 – 420.

Rauch, J (1991), Modelling the informal sector formally, *Journal of Development Economics*, vol. 35, 1, pp. 33-47.

Tanzi, V and Davoodi, H (1997), Corruption, Public Investment, and Growth, *International Monetary Fund Working Paper,* 97/139, Washington DC.

Wei, S.-J. (1999), How taxing is corruption on international investors? *Review of Economics and Statistics*, vol. 81, 4, pp. 1-12.