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ABSTRACT

Employer Power and Employment in Developing Countries*

The issue of employer power is underemphasized in the development literature. The default model is usually one of competitive labor markets. This assumption matters for analysis and policy prescription. There is growing evidence that the competitive labor markets assump- tion is not valid for developing countries. Our objective in this paper is to review this evidence, to present theoretical and policy perspectives which follow from it, and to highlight areas for further research.

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1 Introduction

The issue of market power is underemphasized in the development economics literature. In particular as concerns employment, the default model is one of competitive labor markets. But this assumption matters for analysis and policy prescription. And there is growing evidence that the competitive assumption is not valid. Our objective in this paper is to review this evidence, to present theoretical and policy perspectives which follow from it, and to highlight areas for further research.

The idea that employers can have market power over workers is not new in economics. In Book 1, Chapter 8, of the Wealth of Nations, Adam Smith highlights such power and the effect it has on wages:

> "What are the common wages of labour, depends everywhere upon the contract usually made between those two parties, whose interests are by no means the same. The workmen desire to get as much, the masters to give as little as possible....It is not, however, difficult to foresee which of the two parties must, upon all ordinary occasions, have the advantage in the dispute, and force the other into a compliance with their terms. The masters, being fewer in number, can combine much more easily… In all such disputes the masters can hold out much longer…. Masters are always and everywhere in a sort of tacit, but constant and uniform combination, not to raise the wages of labour above their actual rate."

Economic theorizing about employer power took a giant leap forward with Joan Robinson's classic The Economics of Imperfect Competition (Robinson, 1932). She famously coined the term "monopsony" for the case of a labor market with a single employer, and developed the formula linking the elasticity of labor supply to the wage markdown when compared to the competitive equilibrium outcome. We will return to this formula many times in this paper.

Adam Smith also notes that "the law, besides, authorizes, or at least does not prohibit their combinations, while it prohibits those of the workmen." In the history of developing countries, the legal backing from colonial powers to employers strengthening their bargaining power is well recorded. Indentured labor from India was effectively captive labor on plantations throughout the British empire, in Mauritius, South Africa, Fiji, West Indies, Ceylon, etc. The draconian

laws which increased employer power in these colonies is well recorded by Hugh Tinker (1974). Within India, the state notoriously supported European indigo plantation owners against the poor workers and sharecroppers, leading to Mahtama Gandhi's first major agitation, the Champaran Satyagraha in April 1917 (Remesh, 2006). Even without state backing, the burden of debt reduced the bargaining power of peasants against landlords who in many cases were also their creditors, as documented by Sir Malcolm Darling (1928). These concerns on asymmetry in market power between landlords and peasant workers is also present in the history of Latin America and the role of large latifundia estates and landed elites in the political economy of development.

With this background, the literature on labor markets and employer power in developing countries seems to have developed in two directions. One direction continued the focus on the power of landlords as employers, through mainly micro level studies in rural areas. Among the best known studies in this vein are for India, by authors like Beteille (1974) and Srinivas (1987), in sociology and anthropology, and Bardhan (1984), Datt (1996) and Rudra (1982) in economics. The empirical economic investigations were accompanied by theoretical understandings of the nature of power relations and the role of interlinkages across credit and labor markets in sustaining asymmetric market power (Bardhan, 1980; Basu, 1990; Bell and Srinivasan, 1989). These types of studies in development economics went hand in hand with, and sometimes underpinned, policy interventions in credit markets and in land markets.

The second strand of literature in development economics is remarkable for being somewhat separate from, and seemingly uniformed by, the above literature on the nature of labor markets in developing countries. Two classic papers illustrate his strand. Arthur Lewis's (1954) "Economic Development with Unlimited Supplies of Labour", and Harris and Todaro's (1970) paper, "Migration, Unemployment and Development: A Two-Sector Analysis". The first of these papers was cited as a key item in Lewis's Nobel Prize; the second paper has garnered more than 10,000 citations on Google Scholar, and was chosen as one of the top 20 articles published in the American Economic Review for its centenary edition in 2011.

Both of these papers present two sector models, and it is instructive to consider the labor market specifications in each. In the Lewis model, the rural or agricultural sector is famously the source of unlimited supplies of labor. Either because the marginal productivity of labor is zero and there is simply a socially determined wage, or as in subsequent literature because of

household adjustments (Sen, 1966), withdrawl of a unit of labor from the rural sector does not change the supply price of labor to the urban/industrial sector. There is thus no modelling of, and certainly no emphasis on, the rural labor market and market power asymmetries in this market. The modeling of industry is in term of firms facing an infinitely elastic supply curve of labor. There is thus no market power modeled in this sector either. Profits are re-invested and demand for labor increases without an increase in the wage. The process continues till the surplus labor is exhausted and this phase of "dualistic development" comes to an end.

In the Harris-Todaro (1970) model, the labor market is standard competitive with wage equal to the marginal product of labor with a standard production function. The action is in the urban market where there is a formal sector with a minimum wage above the marginal product of labor so that there is urban unemployment. Thus the market power in this model is in the hands of urban formal sector workers. Firms are wage-takers with no market power. The focus of the model, rather, is famously on the migration equilibrium between the rural and urban sector where migrants compare the rural wage to the expected wage in the urban sector, allowing for the probability of actually securing a high paying formal sector job.

The informal sector, where the urban unemployed congregate, is not modeled in detail in Harris and Todaro (1970), but subsequent literature essentially treats the urban informal sector in a competitive frame with no market power on either side, even when it models the process of transition from unemployment to employment in more sophisticated fashion (Fields, 1975, Basu et. al. 2019). The idea of the informal sector being competitive has become deeply ingrained, and the wage being above marginal product in the formal sector is then seen as a distortion which leads to inefficiency. But this notion of perfect competition in the informal labor market does not sit well with those who work at the ground level with these workers, especially women. The experience of organizations like SEWA (www.sewa.org) is that these workers need to be protected from employer power in their labor markets. Basu, Chau and Kanbur (2015) provide a theoretical analysis where contracting difficulties in the informal sector labor market end up delivering market power in the hands of employers, in the very sector in which it is though competition reigns supreme.

Thus, in contrast to the tradition of microeconomic analysis of rural sector labor markets, in which market power of employers is emphasized, such asymmetry in market power is largely

missing in the broad macro level multisector analysis literature in development economics, following the lead of its classic progenitors. Indeed, in one of these departure from competition is identified as being in the direction of worker power. This tradition leads naturally to a policy stance of deregulation of labor markets, starting from removal of minimum wage laws, as the basis of a vibrant employment and development strategy. A competitive view of developing country labor markets also leads to a corresponding stance on the distributional consequences of trade liberalization. A standard "Stolper-Samuelson" perspective says that trade liberalization will benefit the abundant factor of production which in developing countries would be labor, so that the distributional consequences would be egalitarian on standard assumptions. But the Stolper-Samuelson theorem depends on competitive factor markets and in particular competitive labor markets. Thus it becomes important to establish whether labor markets in developing countries are indeed competitive.

Recent years have seen an increase in research on questions of employer power in developed country labor markets, and in economics in general (see for example the review by Manning, 2021). In the wake of this, there has been a reawakening of research interest in the topic in developing countries, where policy issues such as the minimum wage have been and are being hotly debated (see, for example, Bhorat, Kanbur and Stanwix, 2021; and Bhorat, Kanbur and Shi, 2016). Section 2 of this paper provides a review of the growing but still limited empirical literature on employer power in developing countries. Section 3 builds on this evidence to present some theoretical perspectives on labor markets in developing countries. Section 4 considers the policy implications and Section 5 concludes.

2 Empirical Evidence on Employer Power in Developing Countries

The basic theory as developed by Robinson (1932) says that the wage markdown in monopsony is inversely related to the elasticity of labor supply. The empirical studies investigating monopsony power follow two broad methods. First, studies directly measure the labor supply elasticity. The lower (higher) the elasticity, the higher (lower) the monopsony power. The main challenge in estimating elasticity is in overcoming the problem of wages being endogenously determined through both supply and demand changes. An exogenous variation in wages is required to elicit

supply elasticities, separately from demand elasticities. Second, without necessarily estimating the supply elasticity, studies indirectly illustrate the presence of market power, for example, using rent pass-through to wages, measuring differences between wages and marginal revenue product, and understanding changes in wages as a result of mergers and acquisitions. Below, we present an overview of both type of studies, with a focus on developing markets, but also covering key insights from developed countries.

2.1 Direct Measures

In developed country settings, monopsony has been traditionally measured by exploiting changes in wage and employment regulation. For example, studies exploit exogenous wage changes among school teachers (Falch, 2010; Ransom and Sims, 2010) or nurses (Staiger et al., 2010), and exploit minimum employment requirement restrictions for nurses and find elasticity estimates close to zero. Other studies utilized randomized control trial designs in online labor markets (Dube et al. 2020) or instrumental variables regressions for faculty hiring (Goolsbee and Svyverson, 2019) to estimate low supply elasticities. The estimated elasticities in these studies range from 1.4 to 5. Studies show that supply elasticities for women are smaller than for men indicating that employers exert higher market power on female workers (Ransom and Oaxaca, 2010; Hirsch et al., 2010).[1]

For developing countries, a variety of methodologies have been used to estimate labor supply elasticities. Amodio and De Roux (2021) exploit pre-determined variation across plants in sales export destination combined with exchange rates variation to generate plant-specific shocks in Colombian manufacturing. Due to a positive marginal revenue shock, while employment would increase under all types of labor markets, wages will increase under perfect competition but not under monopsony. Following this approach, they demonstrate the presence of monopsony and estimate a firm-level labor supply elasticity of around 2.5. Dal Bo et al. (2013) randomized wages through a public program in Mexico called the Regional Development Program (RDP). Different salaries were announced randomly across recruitment sites, with the following job offers also subsequently randomized. Experimental estimates of labor supply elasticity was measured to be around 2.15. Brummund (2011) uses the production function approach to compute labor

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[1]See Naidu and Posner (2022) for an overview of the literature of monopsony in developed country labor markets.

supply elasticities in Indonesian manufacturing plants and find that over half of the manufacturing establishments have a significant amount of market power, with the median firm facing a labor supply elasticity of 0.52. Notably, the interval of elasticities estimated for developing countries are lower than those for developed countries.

2.2 Indirect Measures

Studies have also tested the presence and extent of monopsony power using indirect means without necessarily measuring labor supply elasticity. In developed country markets, for example, studies understand the deviation between wages and marginal revenue product (Isen, 2013), find the effect of patent rents on additional earnings (Kline et al., 2017), and use fiscal stimulus shocks from American Recovery and Reinvestment Act (ARRA) contracts to examine wage changes (Cho, 2019). Others explore the relationship between employer concentration (HHI) and wages and show a negative relationship. Higher concentration is associated with lower wages (Azar et al., 2022), and that the relationship between productivity and wage levels is weaker when labour markets are more concentrated (Abel et al., 2018; Benmelech et al. 2022). Further, if mergers increase local labor market concentration, earnings and wage growth fall for M&A workers (Arnold, 2019; Prager and Schmitt, 2021).

In developing country contexts, Naidu et al. (2016) exploited relaxation of visa restrictions of migrant worker movements across employers in United Arab Emirates (UAE). Before the reform, workers needed to obtain permission from employers to switch to new contracts once current contract expire. The reform allowed workers to transition to new employers without approval. The results indicate that real earnings and labor retention improved for incumbent workers after the reform, and that firms paid workers 51% of the marginal product before the reform, but paid workers 72% after. Brooks et al. (2021) find that building transportation infrastructure, specifically the Golden Quadrilateral highway in India disrupted local monopsony power. Labor markdowns reduced among firms near newly constructed highways relative to firms that remain far from highways. Highway construction increased the labor share of income by 1.8 to 2.3 percentage points. Using firm-level data and variations in tariff reductions across industries in China, Kondo et al. (2021) find that input tariff liberalization is associated with lower labor markdowns across firms. The decline in labor markdown after trade liberalization is

more pronounced for skill-intensive firms compared to non skill-intensive firms.

2.3 Monopsony and the Minimum wage

Textbook theories indicate that an introduction of the minimum wage or an increase in the minimum wage has a negative effect on employment. These results presuppose that labor markets are competitive. However, if the labor markets are monopsonistic, minimum wage does not adversely affect employment, and in some conditions also improve employment outcomes (Stigler, 1946). In the presence of imperfect enforcement and imperfect competition, Basu et al. (2010) predict that employment responses to introducing a minimum wage can be negative, positive, or muted depending on the level of enforcement and the minimum wage.

Owing to these clear predictions, and the popularity of the minimum wage laws, plenty of studies empirically investigate the effect of minimum wage of employment. In developed countries, there is emerging evidence in favor of monopsony (Card and Krueger, 1994; Dube et al., 2010), but studies also continue to show negative employment effects illustrating that labor markets are competitive (Machin et al., 2003; Burkhauser et al., 2000), especially among very low-skilled workers – in particular, for teens. (Neumark et al. 2014).

In developing countries, null employment effects were observed by Hohberg and Lay (2015) in the case of Indonesia and El-Hamidi and Terrell (2002) in the case of Costa Rica, across both formal and informal workers. No adverse employment effects were observed in South Africa, except in the case of agriculture (see Dinkleman and Ranchhod (2012) for domestic workers, Bhorat et al. (2013) for a variety of sectors). Effect of minimum wage on construction workers in India suggests evidence in favour of monopsonistic labor markets (Soundararajan, 2019). The study exploits variation in enforcement, and hence the probability of prevailing minimum wage being enforced. Results indicate that higher enforcement of minimum wage laws increases both market wages and employment. Further, null or positive employment effects are observed in districts with higher employer concentration.

Bhorat et al. (2017) provides an overview of the results in the minimum wage literature on developing countries. The study examines 98 papers reviewed in Neumark and Wascher (2007), along with 17 recent studies focused on lower-middle-income (LMI) countries. They find that 55% of the employment elasticities are not significantly different from zero, and that the median

elasticity is -0.08. This meta study suggests that the minimum wage has either benign or slightly negative employment effects taken together across many settings. Broecke et al., (2017) review evidence on minimum wage effects in 14 major emerging economies (Argentina, Brazil, Chile, China, Colombia, India, Indonesia, Mexico, Poland, the Philippines, the Russian Federation, South Africa, Thailand and Turkey), and find minimal impact on employment. Vulnerable groups, such as, youth and the low-skilled are more negatively affected.

3 Theory from a Developing Country Perspective

Monopsony power and wage markdowns are inextricably interlinked via a simple elasticity formula in this fast growing literature on employer power. The canonical model features a profit maximizing producer faced with an upward sloping labor supply schedule. Profit maximization prescribes a markdown on wages – a proportionate wage shortfall relative to the marginal value of product of labor – to equal the the elasticity of the inverse labor supply schedule as the employer internalizes the wage consequences of hiring at the margin. The competitive case, at the limit, optimally sets the markdown at zero as the elasticity goes to zero. The intermediate case of Cournot labor market competition yields predictions that are consistent with developed country evidence as well – the higher the Herfindahl Index of labor market concentration, the steeper the wage markdown (e.g. Azar et al. 2020a, Azar, Marinescu and Steinbaum 2022).

Naidu and Posner (2022) and Manning (2021) expand on the definition of the wage elasticity of labor supply and observe that high labor supply elasticities and steep wage markdowns are associated with concentration and non-concentration drivers. Drawing an analogue from a product market power model driven by random utility (Gabaix et al. 2016), Naidu and Posner (2022) points out that wage markdowns can persist even in labor markets with many employers, for example in multinomial choice models with heterogeneous worker preferences (e.g. Card, Cardoso, Kline and Heining 2018). Alternatively, search friction can also give rise to wage markdown in the presence of many competing firms, particularly when job offer arrival rates to job destruction rates are low (e.g. Burdett and Mortensen 1998, Manning 2003).

This elasticity-centric story of the wage markdown glosses over many developing country labor market characteristics, leaving important questions unanswered. For example, how appropriate are standard prescriptions of antitrust actions as a cure for steep wage markdowns

in developing country labor markets?[2] Beyond the perceived labor supply schedule, are there worker-level, institution-specific, and policy related drivers of the wage markdown? In this section, we present insights from three models that respectively showcase three sets of oft noted features of developing country labor markets:

- formal sector wages are often regulated via minimum wage laws, although full enforcement of the minimum wage is the exception rather than the rule (Basu, Chau and Kanbur 2015);

- even when a formal wage anchor (e.g. minimum wage) is absent, workers may nonetheless harbor fair wage concerns and penalize employers by undercutting effort when fair wage demands are not met (Basu, Chau and Soundararajan 2019);

- when wage contracts are not fully enforced by third party to different extents depending, for example, on the formality of the job, self-enforcement of open-ended employment relationships are subject to non-reneging constraints (Basu, Chau and Kanbur 2015).

In what follows, we briefly describe the three models. We then show the corresponding revision in wage markdown formulae in relation to the canonical prescription, discuss potential causes that drive compression or magnification in the markdown, and point out the role of labor market policies in the determination of the markdown.

3.1 Wage Markdown, Imperfect Enforcement and the Minimum Wage

We present a simple setup in which wage markdowns are outcomes of (i) monopsony power, (ii) minimum wage and (iii) imperfect enforcement of the minimum wage. $aR(\ell)$ denotes a downward sloping and continuously differentiable revenue schedule of an monopsonistic employer hiring ℓ workers, and $aR_\ell(\ell)$ is the associated marginal revenue product of ℓ. a denotes a Hicks neutral parameter of monopsony productivity. Let $w(\ell)$ denote an upward sloping and continuously differentiable inverse labor supply schedule with elasticity $d \log w(\ell)/d \log \ell \equiv \epsilon$.

Let a minimum wage policy be a wage, enforcement intensity combination $\{\bar{w}, \lambda\}$ where $\lambda \in [0,1]$ denotes the probability of inspection. In response, the employer has three options:

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[2]A host of other policies studied in the developed country context continue to be open questions in developing country context (Naidu and Posner 2022). These include means-tested transfers (Posner and Weyl 2018), tacit agreements on no-poaching rules and non-compete contracts (Ashenfelter et al. 2021), and mergers and acquition policies (Benmelech, Bergman and Kim 2018) .

over-compliance, exact compliance, and non-compliance. An overcomplying employer sets the wage at $w > \bar{w}$. Total cost of employing ℓ workers is just

$$W(\ell) = w(\ell)\ell, \ \ w(\ell) > \bar{w}.$$

For an employer in exact compliance, total cost is

$$W(\ell) = \bar{w}\ell.$$

Finally, for a non-complying employer, total wage cost is:

$$
\begin{aligned}
W(\ell) & = & (1 - \lambda)w(\ell)\ell + \lambda\left(\bar{w} + \delta(\bar{w} - w(\ell))\right)\ell, \ \ w(\ell) < \bar{w} \\
& = & w(\ell)\ell + \lambda(1 + \delta)(\bar{w} - w(\ell))\ell,
\end{aligned}
$$

where δ is the transaction cost of transferring back wages amounting to $(\bar{w} - w(\ell))\ell$ to workers when non-complying employers are discovered. Taken together, the marginal labor cost schedule is piece-wise continuously differentiable, and given by:

$$
W_\ell(\ell) \ = \ \left\{
\begin{array}{ll}
w(\ell)(1 + \epsilon) & \text{at } \ell > \bar{\ell} \\
w(\ell)(1 + \epsilon) + \lambda(1 + \delta)(\bar{w} - w(\ell)(1 + \epsilon)) & \text{at } \ell < \bar{\ell},
\end{array}
\right. \tag{1}
$$

where $\bar{\ell} = \{\ell | w(\ell) = \bar{w}\}$ is the level of labor supply consistent with full payment of the minimum wage.

Figure 1 illustrates this upward sloping marginal labor cost schedule in bold as $W_\ell(\ell)$, showing the standard marginal labor cost equalling $w(\ell)(1 + \epsilon)$ for over-compliers. For non-compliers, the marginal labor cost curve is a weighted average of the minimum wage $\bar{w}$ and the original marginal labor cost $w(\ell)(1 + \epsilon)$ in the absence of the minimum wage policy. Being a weighted average, this revised marginal labor cost pivots at $\hat{\ell}$ – the level of employment at which the original marginal labor cost $w(\ell)(1 + \epsilon)$ intersects the minimum wage. In particular, $W_\ell(\ell)$ lies below the original marginal labor cost curve whenever $\bar{w}$ is less than $w(\ell)(1 + \epsilon)$ or when $\ell > \hat{\ell}$, and above the original marginal labor cost curve whenever $\bar{w}$ is greater than $w(\ell)(1 + \epsilon)$, or when $\ell < \hat{\ell}$. Finally, at $\bar{\ell}$ – the level of employment consistent with the minimum wage, there is a sharp drop in the marginal labor cost schedule to reflect a sharp drop in the marginal labor cost in the transition from over-compliance to non-compliance, as

$$w(\bar{\ell})(1 + \epsilon) + \lambda(1 + \delta)(\bar{w} - w(\bar{\ell})(1 + \epsilon)) < w(\bar{\ell})(1 + \epsilon)$$

because $\bar{\ell} > \hat{\ell}$.

Consider therefore a profit maximizing monopoly that sets employment ℓ^* at a level that implicitly solves $aR_\ell(\ell^*) = W_\ell(\ell^*)$. we make the following observations:

Changes in the Wage Markdown Formula

Since the marginal labor cost schedules contains three distinctive segments, the markdown formula in fact changes depending on the productivity of the firm. For sufficiently high productivity monopsonies (e.g. A_1), the minimum wage is non-binding and as such the markdown is independent of the minimum wage policy. The corresponding wage markdown consistent with profit maximization is given by:

$$\frac{aR_\ell(\ell) - w(\ell)}{w(\ell)} = \epsilon$$

for employers that operate in this range.

For the next range of productivities (e.g. A_2), there is a clustering of employers who exactly comply with the minimum wage policy. These are employers that find it profit maximizing to pay the minimum wage, hiring exactly $\bar{\ell}$. The wage markdown consistent with profit maximization is given by:

$$\frac{aR_\ell(\ell) - \bar{w})}{\bar{w}} = \frac{aR_\ell(\bar{\ell}) - \bar{w}}{\bar{w}}$$

for the cluster of employer productivity types with exact compliance and $\ell = \bar{\ell}$ is labor supply consistent with the minimum wage. This markdown is higher the higher the firm-level productivity. Furthermore, the markdown is also strictly decreasing in the minimum wage $\bar{w}$, but completely independent of the enforcement intensity λ.

Now, for productivity levels that are lower still the employer is a non-complier (e.g. A_3 or A_4). The equilibrium wage markdown can be written as[3]

$$\frac{aR_\ell(\ell^*) - w(\ell^*)}{w(\ell^*)} = \epsilon - \lambda(1 + \delta)(1 + \epsilon)\frac{aR_{\ell^*} - \bar{w}}{aR_\ell(\ell^*) - \lambda(1 + \delta)\bar{w}}.$$

Evidently, here the wage markdown once again depends on the elasticity of labor supply, but with an adjustment that depends on firm level productivity, the minimum wage, along with the enforcement intensity λ, and the transaction cost associated with being fined for incurring back pay.

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[3]Note that we have taken the $w(\ell^*)$ at equilibrium employment ℓ^* as the baseine wage in the markdown formula to capture wage markdown among workers receiving subminimum wages.

Markdown Compression or Magnification

A natural question at this point is whether an imperfectly enforced minimum wage can compress the wage markdown, in an effort to achieving a more equitable division of surplus between employer and workers. As it turns out, the answer to this question is nuanced, and highly non-uniform depending specifically on the productivity of the monopsony.

To start, note that the wage markdown each level of employment ℓ in the end depends on the marginal labor cost, for by profit maximization:

$$\frac{aR_\ell(\ell) - \bar{w})}{\bar{w}} = \frac{W_\ell(\ell) - \bar{w}}{\bar{w}}$$

By inspection of Figure 1, which displays the marginal labor cost curve before and after the minimum wage policy, the minimum wage policy has no effect on the wage markdown, clearly, on over-compliers, as both employment and wages are independent of the policy for this group of employers. The minimum wage policy does indeed compress the wage markdown for intermediate productivity employers, however, who hire $\ell^* > \hat{\ell}$ but less than $\bar{\ell}$ for the minimum wage policy $W_\ell(\ell)$ around $\hat{\ell}$. Finally, the minimum wage policy has the opposite effect of magnifying the wage markdown amongst the lowest productivity producers, for who $\ell^* < \hat{\ell}$.

To sum up, the effect of the minimum wage policy on wage markdown runs the gamut from unchanging, to a compression, and then further to a magnification effect across firm types.

Interplay between Wage Markdown and Labor Market Policies

The case of an imperfectly enforced minimum wage offers a particularly nuanced view on how labor market policies can impact the markdown. The lesson is simple – any policies combinations that give rise to a reduction in the marginal labor cost will compress the equilibrium wage markdown. However, what remains underappreciated in the literature is that observed wage markdowns should be understood case-by-case as the joint outcome of the interaction between labor market policy and firm-level characteristics. To give two examples based on our simple model, a gradual magnification of the wage markdown can be a symptom of rising monopsony wage setting power, or a change in labor market policies consistent with an increase in the marginal labor cost at constant labor supply schedule $w(\ell)$. Meanwhile, an increase in enforcement intensity may reduce markdown among some employers (higher productivity), but increase it among others

(lower productivity).

3.2 Wage Markdown and Fair Wage Considerations

When enforcement of wage contracts cannot be assured, what options do workers have to guarantee a living wage? In a seminal paper, Akerlof and Yellen (1990) posits the fair wage-effort hypothesis, in which worker reprisal in the form of a reduction in work effort takes place in the event wages are below a level that workers deem fair – the fair wage. There is emerging empirical evidence supporting this. For example, see Breza, Kaur, and Shamdasani (2018) for India; Verhoogen, Burks, and Carpenter (2014) and Dube, Guiliano, and Leonard (2019) for the United States.[4] The proportional reduction in work effort is taken to be equal to the wage short-fall relative to the fair wage in such a way that the employer is naturally incentivized to pay just the fair wage to reap the full effort from worker. Worker reprisal implies an upward sloping labor supply at the worker level, where the effort of each worker e is a function of the wage received w relative to the fair wage w^f:

$$e(w) = \min\{\frac{w}{w^f}, 1\}.$$

As shown, effort is bounded above at the maximal effort level per worker at unity.

Given this incentive structure associated with the fair wage-effort relationship where employers are incentivized to pay exactly w^f, the associated wage markdown naturally departs from the canonical formula, depending instead only on the determinants of the fair wage. In this regard, Akerlof and Yellen (1990) furthermore posits a fair wage to be given by the weighted average of the marginal value product of a worker at full effort, p, and the wage the workers can expect if she opts out of the fair wage contract, w_o respectively.[5]

$$w^f = \beta p + (1 - \beta)w_o \tag{2}$$

where $\beta \in [0, 1]$ is a fairness preference parameter indicating workers' desire for pay commensurate with productivity p. The wage markdown is thus simply:

$$\frac{p - w^f}{w^f} = (1 - \beta)\left(\beta + \frac{w_o}{p - w_o}\right)^{-1}.$$

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[4]Wage disparity is important in both developed and developing country labor markets. See Duman (2019) for a review of the literature and estimates from various studies. This disparity presents a departure from the canonical labor market model of monopsony power on a homogeneous workforce.

[5]There are alternative specifications as well, including specifications that put weight on the wages of others in the same establishment in the definition of fairness, for example

Naturally, the wage markdown is strictly decreasing with respect to the fairness preference parameter β. Furthermore, the wage markdown reflects the gap between the marginal value product of labor p and the opt out wage w_o.

To that end, Basu, Chau and Soundararajan (2019) introduces more structure to the model to consider the profit maximization problem of the employer. Specifically, assume simply that the relationship between labor input and output as one for one. The employer in question selects a price p, equivalently the marginal value product of labor, to maximize profits subject to a weakly downward sloping demand curve $x(p)$ with elasticity of demand $-d\log x(p)/d\log p = \rho$:

$$\pi(w,p) = \max_{p,w} \left(p - w/e(w)\right) x(p). \tag{3}$$

subject to the fair wage-effort relationship

$$e(w) = \min\{\frac{w}{w^f}, 1\}.$$

Changes in the Wage Markdown Formula

The solution to (3) above reiterates the familiar output pricing solution to the firm's maximization problem as

$$p^* = w_o/\rho > w_o,$$

which implies that the fair wage in equilibrium is ultimately determined by the opt out wage w_o, the preference parameter β, in addition to the product market power of the employer parameterized by the demand elasticity ρ. Substituting this solution to p^* into the fair wage markdown, we have:

$$w^* = \beta p^* + (1-\beta)w_o = w_o(1 + \beta(1-\rho)/\rho).$$

The corresponding wage markdown can simply expressed as a function of two parameters of the model β and ρ.

$$\frac{p^* - w^*}{w^*} = (1-\beta)\left(\beta + \frac{\rho}{1-\rho}\right)^{-1}.$$

Markdown Compression or Magnification

Contrary to the canonical prescription that the wage markdown is a function only of labor market power, the current setup presents an alternative view when wage contracts are enforced by threat of worker reprisal. The drivers of the corresponding wage markdown are: the fairness preference

parameter β, and the monopoly power of the employer as given by ρ. Naturally, markdown compression occurs when the fairness preference parameter swings in favor of giving a higher share of the workers' marginal product as wages. Meanwhile, the more potent the monopoly power (a lower ρ), the more magnified the wage markdown will be.

Interplay between Wage Markdown and Labor Market Institutions

An important takeaway is that in the absence of third party enforcement of wage contracts, the wage markdown is held in check by workers' fairness preference, conditional on employers' ability to manipulate the value of a workers' effort. This form of tacit agreement is not universal, and indeed there are multiple ways to further extend this path of reasoning. Basu, Chau and Soundararajan (2019) makes the argument that employers are incentivized to pay more if they are sure that the workers are direct beneficiaries of the higher wage. This direct employment relationship can be severed when workers are hired indirectly through subcontractors. Basu, Chau and Soundararjan (2019) ascertains the determinant of the wage markdown for subcontracted workers, who are paid by contractors, and not employers. It is shown that the payment of the fair wage to subcontracted workers is no longer guaranteed. This gives rise to effort and wage cost implications that employers must then take into account when making subcontracting decisions. What is important to note here is that labor market institutions enter into the markdown debate through a composition effect – in this case the share of regular versus contract workers – that can potentially new light in the research on the drivers of the economy-wide labor share.

An alternative extension can involve endogenizing the opt out wage w_o as a function of the labor demand of the employer. This of course takes us back to the cannonical territory of wage markdown in the presence of monopsony power. The precise ways in which the elasiticity of labor supply through w_o interacts with fairness preference in the determination of a wage markdown is an interesting question for future research.

3.3 Wage Markdown and the Self-Enforcement Constraint

Beyond the threat of worker reprisal, credibility in labor contracting can also be achieved by ensuring that any wage promise made will be kept via a self-enforcing constraint. Basu, Chau and Kanbur (2015) examines the nature of self-enforcing wage contracts in the formal and the informal

sectors, where minimum wage enforcement differ in intensity. A no-reneging constraint in this context gives the maximal wage that workers can demand such that employers are incentivized to pay as promised in order to maintain a long term employment relationship with the same worker. The alternative is to terminate employment after reneging on the contract. The extent to which employers can expect to get away with the practice is taken to depend on the extent to which wage minimum wages are enforced. Assume henceforth that workers can find employment either in the formal (f) or the informal (i) sector, where minimum wage enforcement intensities are q_f and q_i respectively where $1 \geq q_f > q_i \geq 0$.

A self-enforcing wage contract in this context is the maximal wage satisfying a no-reneging constraint. Let $V_k(w^*, a)$ denote the value function of an employer who hires a worker with marginal value product a, and who promises to pay w every period in sector $k = f, i$ in an open ended employment relationship. Contracts are terminated at an exogenous rate δ every period. Thus, in a steady state at discount factor $\beta \in (0, 1)$,

$$V_k(w^*, a) = a - w - b(1 - \delta)V_k(w^*, a) = \frac{a - w^*}{1 - b(1 - \delta)}, k = i, f.$$

Alternatively, the expected profits of a reneging employer in sector k is:

$$V_k^o(w, a) = a - q_k \bar{w}.$$

The non-reneging constraint in k requires that paying the promised wage w^* is the better option:

$$V_k(w^*, a) = \frac{a - w^*}{1 - b(1 - \delta)} \geq a - q_k \bar{w}.$$

Equivalently, the highest possible wage consistent with the no-reneging constraints implies strictly positive wage markdowns, with:

$$w_k^{NR}(a, \bar{w}) = \max\{w | V_i(w, a) \geq a - q_k \bar{w}\} = b(1 - \delta)a + (1 - b(1 - \delta))q_k \bar{w}. \tag{4}$$

Interestingly, the application of a minimum wage raises w_f^{NR} disproportionately more than w_i^{NR}, since the lowest expected wage that a reneging employer will be enforced by law to pay is $q_f \bar{w}$ in the formal sector, and $q_i \bar{w}$ otherwise. The key observation here is thus that the potential wage savings from reneging, all else equal, is strictly less severe in the formal sector thanks to government enforcement of the minimum wage for the same promised wage.

Changes in the Wage Markdown Formulae

Using (4), the wage markdown formulae are:

$$\frac{a - w_f^{NR}}{w_f^{NR}} = (1 - b(1 - \delta)) \left(b(1 - \delta) + q_f \bar{w}/(a - q_f \bar{w})\right)^{-1} \tag{5}$$

$$\frac{a - w_i^{NR}}{w_i^{NR}} = (1 - b(1 - \delta)) \left(b(1 - \delta) + q_i \bar{w}/(a - q_i \bar{w})\right)^{-1}. \tag{6}$$

Thus, in the context of a self-enforcing constraint, the wage markdown offers the employer just enough surplus to reject reneging on the wage contract. These prescriptions bear close resemblance with that of the fair wage setting in our earlier discussion. Here, the contract termination risk adjusted discount rate, $b(1 - \delta)$, takes the place of the fairness preference parameter in the fair wage setting. $q_k \bar{w}$ is of course just the expected level of third party enforced wage payment, which now takes the place of the opt out wage in the fair wage setting.

Markdown Compression or Magnification

The rationale behind a wage markdown in the current context is to set wages low enough so that employers choose voluntarily to maintain an open-end employment relationship. As long as formal sector employers are faced with a better-enforced minimum wage, their wage savings from reneging is restricted relative an informal employer promising the same wage. One would thus expect that the self-enforcing wage markdown in the formal sector is a compressed version of the wage markdown in the informal sector. And this is exactly what we find in (5) - (6), all else equal.

The wage markdowns are driven by firm- and worker-level considerations as well. Specifically, uncertainty in operating a formal establishment, as parameterized by δ, has the effect of magnifying the wage markdown by making open-ended employment relationships less attractive, while an increase in the productivity of the worker a increases the wage markdown by raising the profitability of a fly-by-night employer. These considerations once again depart from the canonical elasticity-based markdown formula, bringing together policy-, firm- and worker-level considerations.

Interplay between Wage Markdown and Labor Market Institutions

Informal employment is a ubiquitous feature of developing country labor markets. Yet, our

understanding about the determinants of wage markdown here is notably scant. The current setting is a first step in this direction, although useful extensions abound. Suppose that informal employment feeds into formal production by acting as an intermediate input supplier (e.g. Chen 2007), what is the nature of the interlinkage between wage markdowns in the two sectors when employers can cross-substitute between labor input providers? In addition, worker self-selects into formal and informal sector employment (Basu, Chau and Kanbur 2015) since their productivities naturally feeds into wages in the two sectors as in (5) and (6). Worker productivity thus gives rise to another systematic driver of observed wage markdowns in the formal and the informal sector. Specifically, the informal wage markdown falls with minimum wage enforcement, but the same markdown increases if relatively high productivity workers simultaneously self-select to work in the informal sector because better enforcement of formal wages gives rise to formal job rationing. These two drivers have opposite effects on the informal sector wage markdown. Which one of these tendencies dominate in aggregate wage markdown observations? These and other related questions related to composition effects are promising areas for future research.

4   Conclusion: Policy and Analytical Implications for Developing Countries

Conceptual and analytical perspectives matter for policy. A world view that is based on the assumption of competition everywhere will be inclined against intervention and regulation. When empirical evidence stacks up against such a position, it opens up questions on appropriate public policy to enhance social welfare. It also opens up analytical perspectives which are founded on features of the real world, including constraints on policy implementation.

We have already alluded to the profound influence of the "Harris-Todaro" perspective where the departure from competitive labor markets is assumed to occur in the formal sector through the power of labor unions, in other words employee power. This reduces employment in the formal sector and displaces labor to the informal labor market which is assumed to be competitive with no market power on either side. The policy conclusion follows straightforwardly. Since the "distortion" away from perfect competition lies in the power of labor unions, this power needs to be dismantled—a policy which has indeed bene followed in recent years. A similar trajectory from a competitive world view, to what is considered then to be an inappropriately instituted minimum

wage in the formal labor market, to reduction of employment and displacement of labor towards the informal sector, is to be found in critiques of minimum wage policies which are widespread in developing countries.

But what if labor markets are not competitive and, far from labor unions having power, it is employers who have such power? As reviewed in this paper, the evidence is certainly accumulating that this is the case. The case against regulation, and the case for intervention, then needs to be rethought. Specifically for the minimum wage, employer power justifies its use as a device to increase efficiency and equity. The argument now turns on context and detail of labor market structure, and on the level and structure of minimum wages. Nothing said so far precludes a critique of actual minimum wages as set—they may be too high or not well structured—but a blanket negation of this policy instrument is no longer warranted (Bhorat, Kanbur and Stanwix, 2021). Detailed economic analysis is indeed needed, and necessary.

Let us then accept that the need for state intervention cannot be blocked out a priori by the assumption that labor markets are competitive. But this still leaves open the question of implementation of interventions when state enforcement capacity is weak, as it is generally recognized to be in developing countries. The intensity of enforcement is a key factor in determining the efficacy of a minimum wage in delivering its efficiency and equity gains (Basu, Chau and Kanbur, 2010). At one extreme, zero enforcement means in effect there is no intervention. But intermediate levels of enforcement interact with different levels of the minimum wage in intricate ways. Apart from the empirical difficulties in making inferences from the variation in employment as minimum wage varies, when enforcement can vary as well, this raises the conceptual question of how is the enforcement intensity chosen and why? And how does the ability or inability to commit to enforcement (rather than to "turn a blind eye") play into the choice of the minimum wage? Such issues are highlighted in the previous section.

Thus while the competitive labor markets presumption is too simple and empirically invalid, so is the presumption of easily implemented policy correctives to employer power in labor markets. The difficulty of enforcing minimum wages is but one example. More generally, there is no easy transference of an "anti-trust" frame, very well developed for product markets in developed countries, to labor markets in developing countries. Defining the boundaries of a labor market with prevalence of informality, and then identifying measures and limits to concentration in the

way it is done in conventional anti-trust regulation for product markets in developed countries, will be extremely difficult in developing countries.

If directly addressing employer power in developing country labor markets can only be a partial answer, is there an alternative, or a supplement? We get a clue from the basic wage markdown formula in the elasticity-centric framework. The lower the elasticity, the greater the markdown. In simple terms, the more workers are bound to supply labor no matter what the wage, the greater the power employers have over them. Thus raising the elasticity lowers the markdown. The attention then shifts analytically to the factors underlying the elasticity of labor supply, and from a policy perspective to interventions which can raise this elasticity. What might such interventions look like?

In the empirical section we have already alluded to the role of transport infrastructure. As developed in Basu, Chau and Kanbur (2010) for example, transportation costs are a key determinant of the responsiveness of labor supply to changes in wage. And the empirical evidence reviewed in Section 2 suggests that development of transport infrastructure can lower the degree of employer power. But transportation is just a start. Other economic, social, cultural and institutional barriers to labor force participation can have the same effect, and prompt us to investigate these features of developing countries more closely as underpinnings of employer power. The specific models of Section 3 are a start on such an exercise.

In sum, employer power is a feature of labor markets in developing countries. Taking this on board changes our policy perspective significantly on labor market interventions, and it opens up interesting and important areas of empirical and theoretical research

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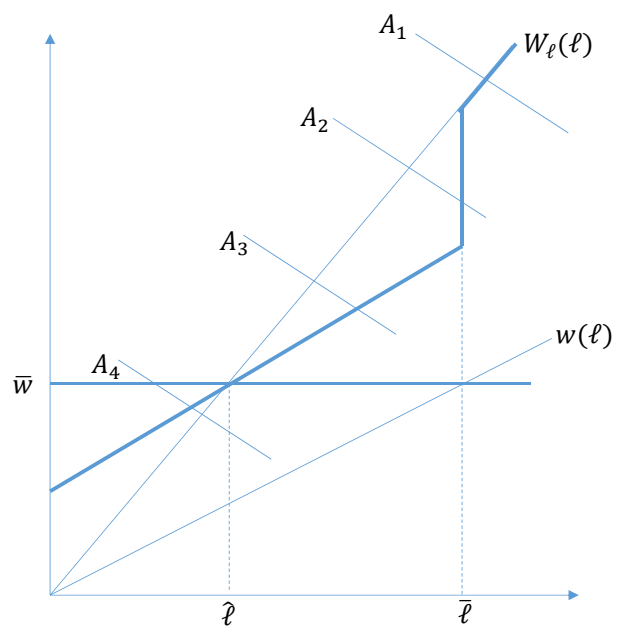
Figure 1
The Analytics of a Minimum Wage
with Monopsony Power and
Imperfect Enforcement