Minimum Wage Enforcement in the Developing World

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The Development Policy Research Unit (DPRU) specialises in socio-economic research with a core focus on the areas of labour markets, poverty and inequality.

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Drawing on evidence from developing country studies, this paper considers several key issues. We discuss the impact of minimum wages in the developing world based on a selection of recent studies and highlight non-compliance with minimum wage laws as an important research and policy issue. We then briefly review the existing empirical evidence on non-compliance, which reveals relatively high levels of violation in the cases for which data are available. Reflecting on this evidence we have suggested a new Index of Violation to measure absolute and relative levels of minimum wage violation. Arguably such a measure is a potentially powerful policy tool for guiding where enforcement resources need to be channelled. Yet we also understand very little about the various factors which impact on violation of the minimum wage. We identify individual, institutional, firm and local labour market characteristics as a composite set of dependent variables, which may explain non-compliance with the law. While the evidence is scant, it does support the notion that these factors are critical as 'inputs' in understanding the 'output' of minimum wage violation. Based on the assembled evidence, a comparison of policy approaches regarding enforcement are discussed – with a view to suggesting an optimal policy intervention matrix for minimum wage enforcement in developing countries.

I Introduction

Legislated minimum wages now exist in almost all developing countries around the world, and there is a growing empirical literature which examines the impacts of this policy intervention. Much of the literature focuses on the extent to which regulation affects employment and wages, revealing that while there are generalizable lessons, the successful use of minimum wage laws as a tool for social protection often depends on a range of factors specific to each labour market. Crucial to any work on minimum wages in the developing world, however, is the fact that most formal enforcement mechanisms are weak and relatively high levels of non-compliance with labour regulations are commonplace. The existence of widespread non-compliance has important implications for policy makers and researchers. Until very recently, the issue of violation or non-compliance has received relatively little policy attention and is often overlooked in studies that try to assess the impact of minimum wage laws. Indeed, for ease of analysis much of the literature implicitly assumes that minimum wage laws are adequately or perfectly enforced. Nonetheless it is increasingly clear from recent work that while there has been a growth in regulatory regimes attempting to protect workers from

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exploitation, there remains a substantial gap between legal stipulations and their actual outcomes in most developing country labour markets. As a consequence then, enforcement remains central to debate over the impact of minimum wages, and labour regulation more generally. Confining itself to minimum wage legislation, this paper reviews the emergent research on enforcement and compliance in the developing world.

II The Impact of Minimum Wages

Well-known studies on the impact of minimum wages in the United States were the first to suggest that the theoretical wage-employment trade-off does not always hold in practice: An increase in the minimum wage is not always synonymous with a decrease in employment[2]. The ensuing work focused on developing countries has shown that the impact of introducing, or increasing, a minimum wage can have mixed impacts, with studies providing evidence of negative employment effects in some cases but also evidence of no significant declines in employment in others. For instance, a study by Lemos (2006) found that minimum wages in Brazil had no significant effect on either formal or informal employment. At the same time the minimum wage in Vietnam has been shown to have had an insignificant impact on overall employment but a significant negative employment effect in the formal sector, where workers who lost their jobs secured employment in the informal sector instead (Nguyen, 2010). The Vietnamese study concluded that attention to low wage workers in the formal sector was needed in order to protect them from the negative impacts of the minimum wage. Maloney and Nuñez (2003) found negative employment effects resulting from minimum wage increases in Columbia, as did a recent study by Bhorat, Kanbur, and Stanwix (2012) on minimum wage laws in the South African Agricultural sector. Notably, in the South African case, no employment decreases were found for other minimum wage sectors, including the Retail, Domestic work, Forestry, Security and Taxi sectors (Bhorat, Kanbur, and Mayet, 2013a).

This heterogeneity of outcomes suggests that particularly when there is imperfect enforcement, that is, both compliant and non-compliant employers are present in a labour market, the employment effects of a minimum wage hike are unpredictable; a result for which Basu, Chau, and Kanbur (2009) provide a theoretical basis. In most cases the question of impact is one which requires careful empirical investigation both at the country and sectoral level. In the developing country context the levels of compliance should therfore not be overlooked.

III Minimum Wage Non-Compliance: Evidence for Developing Countries

While there is no general consensus on the impact that minimum wage laws will have on a specific labour market, the literature does achieve some consensus on the current state of enforcement (and compliance) with minimum wage laws in the developing world. It is generally accepted that enforcement and compliance in most developing countries is low. The small but growing literature shows that formal enforcement efforts are weak and a substantial portion of workers still receive sub-minimum wages (Ronconi, 2008; Gindling, Mossadd & Trejos, 2013; Basu, Chau, and Kanbur, 2009; ILO, 2008). Moreover, the main reason for this is not a lack of the required legislative frameworks. Indeed Piore and Schrank (2008) emphasise the 'regulatory revival' that has taken place across the developing world and many countries now have an extensive web of labour regulations which include minimum wage laws. In some cases regulatory frameworks are so detailed that countries have multiple minimum wages that differ across sectors. This is the case in Kenya and Costa Rica, as well as in South Africa where statutory minimum wages vary not only by sector but in certain cases by occupation and location, resulting in over 36 different wage minima (Grindling and Terrel, 2004; Andalón and Pagés, 2008). Thus, as Ronconi (2008) points out, it is generally not the lack of labour regulation in these countries that is of concern, but rather a lack of compliance with existing regulations due to imperfect enforcement.

Several recent studies provide empirical evidence on compliance levels and reveal that a large proportion of workers in developing countries earn wages below the legal minimum. For example, in Argentina, only half of the workforce receives legally mandated benefits, which includes wages above the legal minimum, hours worked below the legal maximum, and compensation for work related injuries (Ronconi, 2008). In Kenya, Andalón and Pagés (2008) report that minimum wage non-compliance rates soar to nearly 70 percent in higher skilled occupations in urban areas. The authors partly attribute lack of compliance to the many categories of minimum wages which make compliance and enforcement more difficult. In South Africa, Bhorat, Kanbur, and Mayet (2012a) estimate that just under half of the workforce received wages below the legal minimum, but there was large sectoral variation within this. A range of other studies find similarly high levels of non-compliance in developing countries such as Trinidad and Tobago (Strobl and Walsh, 2001), Brazil (Lemos, 2006), Chile (Kanbur, Ronconi and Wedenoja, 2013) and several other Latin American countries (Maloney and Nuñez, 2003; Gindling, Mossadd & Trejos, 2013). However, not all developing countries have such high levels of non-compliance. In Vietnam, for example, just over three percent of formal and private sector workers earned sub-minimum wages in 2006, and the estimate is slightly higher for public and informal sectors, at 4.2 and 6.8 percent, respectively (Nguyen, 2010).

[2] The seminal work being Card and Krueger (1994); see Nuemark and Wascher (2007) for a detailed discussion of the literature.

IIIa A Note on Measuring Non-Compliance

A practical issue that concerns work on enforcement and compliance is one of measurement, and in particular how to calculate non-compliance rates. In general non-compliance is simply measured as the percentage of workers in a country who are paid below the appropriate minimum wage. However, this is a fairly blunt measure as it does not provide an estimate of the extent of the underpayment. Therefore, workers earning fractionally less than the legislated minimum are equated with cases where there are gross violations of the minimum wage law. A paper by Bhorat, Kanbur and Mayet (2013b) develops a convenient method for measuring non-compliance that solves this problem. The authors apply the well-known Foster-Greer-Thorbecke (FGT) poverty measurement technique[3] to minimum wage analysis and so create an Index of Violation. Table 1, below, shows how the index is applied to measure non-compliance in Chile; where, for example, in 2009 15.3 percent of workers earned sub-minimum wages. The index not only measures the standard headcount ratio (V_0, or the percentage of workers earning below the minimum) but also the depth of violation (V_1, or the gap between the minimum wage and each worker's wage), and finally the depth of violation squared (V_2, a measure that weights those at the bottom of the distribution more heavily). Additionally, V_1/V_0 denotes the percentage shortfall of the average wage of violated workers from the minimum wage. Put differently, violated workers earn on average V_1/V_0 below the minimum wage.

Table 1: Absolute and Relative Compliance in Chile, 1990-2009: An Index of Violation

Year	Minimum Wage Violations			
	V_0	V_1	V_2	V_1/V_0
1990	0.148	0.039	0.018	0.263
1992	0.163	0.043	0.018	0.261
1994	0.141	0.036	0.015	0.253
1996	0.161	0.039	0.015	0.239
1998	0.163	0.037	0.013	0.227
2000	0.201	0.048	0.018	0.241
2003	0.214	0.049	0.018	0.230
2006	0.293	0.071	0.028	0.241
2009	0.153	0.038	0.016	0.246
Total	0.182	0.044	0.018	0.245

Notes: Real minimum wage is calculated using the CPI from the Chilean Central Bank. Average wage is the average hourly wage for prime aged workers (25-55) subject to the minimum wage.
Source: Kanbur, Ronconi and Wedenoja (2013).

The index is a valuable tool for subsequent work on compliance as it allows researchers to analyse the level and depth of non-compliance. Given the large number of countries for which such information remains unknown, this method of measurement would also aid policy makers.

IV Models of Minimum Wage Enforcement

The Standard Economic Approach

For some time economists have been developing models of enforcement and compliance in an attempt to understand more clearly the incentives facing employers, and the policy options open to policy makers. Early work in the minimum wage enforcement literature includes Ashenfelter and Smith (1979), Grenier (1982), Chang and Erlich (1985), and all build on work by Becker (1968) and Stigler (1970) who tried to create equilibrium models of law enforcement more generally. Essentially this literature views the long term role of the law as being a deterrent to potential offenders. Consequently higher penalties and better inspection pave the way to greater levels of compliance. The compliance decision of every firm is viewed as one of a rational choice in which the firm calculates whether they stand to gain more by complying or violating the minimum wage law.

In this paradigm a higher probability of being inspected, and the application of larger penalties for violation, increase the expected cost of non-compliance and thus should induce more firms to adhere to the minimum wage law. Where the

[3] The FGT formula is given by: $FGT_\alpha = \frac{1}{N}\sum_{i=1}^{H}(\frac{z-y_i}{z})^\alpha$,

where z is the poverty line, N is the total population, H is the number of poor (those with incomes at or below z), y_i are individual incomes and α is a sensitivity parameter.

benefits of underpaying workers exceed the expected costs – conditional on the probability of being inspected – firms are more likely to violate the law. The policy implications which flow from such a model are clear. Governments should increase the costs of violation by increasing the quantity and quality of inspections (allocate greater resources to enforcement) and increase the scheduled penalties and fines for non-compliance. The benefit of a quantitative cost-benefit approach is that it provides a standard measure of the financial incentives facing the average firm. In this way it gives policy makers a basic indication of how effective their existing enforcement framework is. However, this approach does not account for the various non-financial factors influencing a firm's compliance decisions which may include: the influence of unions, peer-effects, workplace productivity effects and so on. Particularly in developing countries the reasons for non-compliance are often more complicated than a rational financial calculation of the part of employers. There are also a range of policy choices that can influence compliance, in addition to inspection and penalties, which the standard model of compliance cannot cope with. We attempt to cover some of these omissions in what follows below.

An Alternative Approach

An alternative strand of literature that is smaller in size but perhaps broader in scope, moves away from a focus on the financial incentives of individual employers and studies the different institutional structures that shape enforcement efforts, including the role of labour inspectors and the different approaches to compliance. Much of this work draws on insights from sociology and institutional economics, with important contributions from Oliver (1980), Bardach & Kagan (1982), Ayres & Braithwaite (1992), Hawkins (2002), Piore & Schrank (2008), Pires (2008) and Piore (2010). Central to this literature is the idea that effective enforcement must take country-specific factors into account. Piore and Schrank (2008) identify and characterise two different 'styles' of minimum wage enforcement that apply in different contexts and assess the applicability of each, with a particular focus on the developing world.

The authors characterise a 'Latin' model and an 'Anglo-American' model of enforcement as two distinct approaches to the problem of enforcement and non-compliance. The Anglo-American approach to enforcement, identified most clearly in North America, views non-compliance as the result of rational, utility-maximising calculations by individual firms and thus adopts a punitive approach to violations in order to encourage compliance. This is the axiomatic model adopted by most economists in the literature described above, where penalties and deterrence are the key policy levers. Within this approach, labour inspectors generally have very little leeway when faced with a case of non-compliance; they are expected to simply enforce the law. If an employer violates the law they are fined accordingly. The appeal of this approach for policymakers is that it generally requires a less-skilled inspectorate and it limits the potential for corruption and bribery. However, the concern is that in developing countries a strict punitive approach risks driving emerging firms into the informal sector and potentially has significant disemployment effects.

The Latin model, on the other hand, is an approach applied in many Latin American countries where enforcement agencies tend to treat non-compliance as less of a 'calculated firm decision' but rather as an outcome resulting from a range of possible factors, including limited capabilities on the part of the employer. Here the response to non-compliance takes on a more "conciliatory and tutelary" approach, aiming to assist non-compliant firms to become compliant over time (Piore and Schrank, 2008:5). In the Latin model inspectors are generally charged with a broader mandate of improving compliance levels, rather than enforcing a law, and are given more freedom to approach each situation differently in order to achieve this. This approach requires skilled inspectors who have a comprehensive knowledge of the various labour laws and can weigh up infringements on a case-by-case basis. It also faces greater risks of bribery and corruption on the part of inspectors. Nonetheless, the Latin approach can allow for a more effective evolution toward compliance over time, encouraging sustainable compliance without hurting employment or overburdening new firms. In practice, however, most countries apply some combination of the Anglo and Latin approaches to enforcement, and while careful planning of enforcement strategies is necessary, it is often a lack of skills and resources that tend to dictate enforcement policy.

V The Impact of Enforcement on Non-Compliance: Early Evidence

There have been several studies that measure the levels of noncompliance in various developing countries but only a small number of these provide empirical evidence on the causal effect that existing enforcement efforts have on compliance. The question of how enforcement efforts influence compliance is crucial for policymakers, and there are two likely explanations for the dearth of work exploring this causal link. Firstly, data on enforcement and compliance is scarce and finding appropriate measures for both enforcement and compliance is problematic, as Ronconi (2010) points out. Secondly, there is a problem of endogeneity due to the potentially simultaneous relationship between enforcement and compliance, which makes any causal analysis difficult. Enforcement is likely to increase compliance as firms are more likely to comply if their probability of being caught is higher, but at the same time a government agency is likely to increase the number of inspectors or enforcement resources in response to low compliance levels. The difficulty of trying to disentangle the effect of enforcement on compliance is clear. To date, the preferred proxy for measuring enforcement is the number of labour inspectors per country (or region), which is useful as an aggregate measure but struggles to overcome the problem of endogeneity, in the absence of appropriate instruments.

The recent literature on enforcement has focused on determining the various factors that are influencing compliance (or non-compliance) in developing countries. This approach can be loosely framed as the 'determinants of violation' approach from which several basic insights have emanated. Ronconi's (2008) study on Argentina constitutes one of the first attempts to empirically estimate the effect of government enforcement efforts on compliance in a developing country. The study uses the number of labour inspectors working in provincial public enforcement agencies as a proxy for enforcement activity and finds that the intensity of enforcement is a significant determinant of adherence to the law. Ronconi (2008) shows that a higher concentration of inspectors is correlated with increased fines for violation and suggests that this is one channel through which enforcement effectively influences compliance.

Another study which also uses the number of labour inspectors as a measure of the intensity of enforcement is that of Bhorat, Kanbur, and Mayet (2012a) on South Africa. According to their results, however, the impact of the number of labour inspectors on compliance was insignificant and the level at which the minimum wage was set had more marked effects. Despite this, in both the Argentinean and the South African studies, local labour market characteristics (notably the unemployment rate) were found to have a significant impact on enforcement, where a higher unemployment rate was associated with lower levels of compliance. A cross-country study by Almeida and Ronconi (2012) presents a series of stylised facts on the incidence of enforcement, showing that in addition to labour market characteristics, other factors such as firm size, the skill-level of the workforce, and the degree of product market power can all influence the likelihood of being inspected and as a result, the incentives to comply. Gindling, Mossadd and Trejos (2013) find that a state programme to increase compliance with minimum wages in Costa Rica, increased average wages and complaince levels – with no significantly negative impact on employment. Almeida & Carneiro (2011) find that increase enforcement in a sample of cities in Brazil, raised the level of formal employment, reduced self-employment levels and reduce wage inequality. Finally, Almeida & Susanli (2012) and Almeida & Carneiro (2009) show that firing and other labour market regulations, when stringently applied, reduced average employment in firms.

Based on this emergent literature, we could argue that there are four composite sets of variables which remain important in understanding the various factors shaping and influencing minimum wage violation in the developing world. There are firstly, institutional factors such as the penalty structure for non-compliance, the number of minimum wage schedules in an economy, the resources allocated to enforcement services, and the existence of awareness campaigns. All play a role in shaping the levels of violation, but their importance will vary based on the specific country and labour market context. Secondly, the individual characteristics of inspectors, including their level of education, gender and experience, can influence the extent to which they are effective at achieving compliance. Thirdly, firm characteristics such as the size of the firm, the distance from the enforcement agency, the number of previous violations, and the level of foreign ownership, would again to varying degrees impact on the observed levels of enforcement and violation in an economy. Finally, local labour market characteristics such as the unemployment rate, the average wage rate relative to the minimum wage, and the levels of unionisation also play a role. For the research community there is still much work to be done on these four sets of variables; we need improved descriptive and econometric work which generates a comprehensive set of stylised facts to explain the various factors influencing firms' compliance decisions, and the relative importance of each. Further than this, the challenge is to gather these different variables into some sort of a production function approach which estimates the impact of these various input variables noted above, on non-compliance levels within an economy.

VI Towards an Optimal Enforcement Policy

There are two initial decisions facing policymakers: Firstly, to set the level of the minimum wage, and secondly, to choose the intensity of enforcement. Setting the minimum wage should balance potential wage gains against the risks of decreasing employment, while taking account of the extent to which wage laws can be enforced. Evidence shows that minimum wages in developing countries tend to be set fairly high relative to the median wage in several sectors, and often they are set above the median wage for unskilled workers. Andalón and Pagés (2008) find that minimum wages in Kenya are set high relative to the median wage (above 70 percent of the median wage in salaried employment) and thus non-compliance levels in the country are also high. Interestingly, sectors and occupations with a high Kaitz index[4] are also found to have a higher percentage of non-compliance and vice versa (Andalón and Pagés, 2008). Bhorat, Kanbur, and Mayet (2012b) find similar results for South Africa. High minimum wages paired with lax enforcement may engender high levels of non-compliance in many developing countries.

Regarding enforcement policy, while many factors which influence compliance are beyond the policy control of government, the state can influence the intensity and structure of formal enforcement efforts. For example, more labour inspectors could be allocated to sectors and areas where compliance rates are lowest. However, as noted above, increasing the size of the inspectorate may not always increase

[4] The Kaitz ratio is estimated as the ratio of the mean minimum wage relative to the median wage in each sector-occupation-location group.

compliance, and the style of enforcement should be aligned with overall policy goals (Bhorat, Kanbur, and Mayet, 2012b; Piore and Schrank, 2008). Other issues such as the penalty structure and the level of education of inspectors are also important policy choices. However, it must be noted that in developing countries effective enforcement is often overwhlemingly a problem of a lack of resources and inadequate skills (ILO, 2005).

Reports from the ILO suggest that a simple minimum wage system contributes to greater levels of enforcement, where the setting of wage schedules should be commensurate with resource availability (ILO, 2009). Benassi (2011) offers a number of key insights from different enforcement strategies and regimes across the globe. The author suggests that public campaigns can be used to build support for, and knowledge of, minimum wage laws, and in this way encourage employers to comply voluntarily. To supplement this, capacity building measures such as information sessions and training seminars can help to inform and equip both employers and workers. This takes into account the observation from Piore and Schrank (2008) that in many cases developing country employers violate the law due to lack of knowledge or weak capacity to implement changes. Naming and shaming those who violate the law can also be a cheap and effective way of encouraging compliance. This has been used to some extent in Indonesia (Rama 1996:868) and in Brazil a blacklist exists where non-compliant firms can, for example, be barred from acquiring credit (Benassi, 2011). On the subject of penalties Benassi (2011) contends that sanctions should be structured such that they constitute a real deterrent to non-compliance. In the economics literature this means that the cost of sanctions should be higher than the benefits (to employers) of underpaying their workers. While it should be accepted that in certain cases non-compliance is not the result of a rational calculation on the part of the employer, there is evidence to suggest that clear and focused pecuniary fines do have an effect. In Columbia, fines for minimum wage violation can be up to 100 times the minimum wage and in Venezuela, refusal to pay workers can even lead to imprisonment.

A further measure that can improve compliance is a comprehensive wage-setting process that includes relevant stakeholders and where the level of the minimum wage is carefully decided upon. Benassi (2011) also recommends that complaint procedures be made accessible to workers and their representatives, so that individual workers who fear reprisal for taking individual action can appeal to representatives that will act of their behalf. In this regard it may be important for unions be given access to information on workers' wages where possible. In addition, Benassi (2011) notes that a comprehensive monitoring system in which regular labour inspections are carried out is vital, especially in the sectors at risk. The literature shows that a higher ratio of inspectors to workers is generally associated with greater levels of compliance over time, as evidence from Brazil indicates, although we do not have sufficient information and data to determine the optimal number of inspectors to ensure effective compliance (Almeida and Carneiro, 2009:7). Finally, public-private partnerships are a possible way to help resource-constrained governments encourage compliance. In the Dominican Republic, work by Amengual (2010) and Ang et al. (2010) shows how private companies and in particular Multinationals that comply with international standards, often help improve to compliance levels in both up and downstream dealings.

VII Conclusions

The paper has traversed a range of issues, with a focus on minimum wage violation in the developing world. It is evident though that both the data and the research in this area are at a very early stage. Whilst the minimum wage impact literature is fairly mature, our understanding of the levels of enforcement, the measurement of enforcement, and ultimately the determinants of enforcement is still emerging. We have reflected here on some of the evidence, and in doing so have suggested a new Index of Violation to measure absolute and relative levels of minimum wage violation. Arguably, such a measure is a potentially powerful policy tool for guiding where enforcement resources need to be channelled. Yet we also understand very little about the various factors which impact on violation of the minimum wage. We identify individual, institutional, firm and local labour market characteristics as four sets of variables. While the evidence is scant, it does support the notion that these factors are critical as 'inputs' in understanding the 'output' of minimum wage violation. In alluding to new measurement approaches and early evidence on enforcement, we hope this will enrich the engagement between enforcement officials and researchers in developing country labour markets.

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