World of Work Report 2013

Repairing the economic and social fabric

INTERNATIONAL LABOUR ORGANIZATION
INTERNATIONAL INSTITUTE FOR LABOUR STUDIES

Role of minimum wages in rebalancing the economy

3

Main findings

- Minimum wages can be a powerful tool for supporting decent work goals and can be a crucial complement to the strengthening of social protection floors and poverty alleviation efforts. This tool has become even more relevant as many of these countries need to boost domestic sources of growth in order to counteract the weakening of exports to crisis-hit advanced economies. Rising minimum wages can help to rebalance sources of growth even with limited fiscal space.
- This chapter shows that, for the above benefits to be reaped in the context of the present crisis minimum wage systems need to be well designed. First, the coverage of minimum wage systems should be improved. About half of the 151 countries for which data exist do not have a comprehensive system of minimum wages. Partial coverage reduces the effectiveness of minimum wages as a demand management tool. It also runs the risk of creating unfair competition between enterprises and sectors.
- Second, the level of minimum wages should be carefully considered. Too low a level reduces the relevance of minimum wages; too high a level runs the risk of firms refusing to comply with minimum wage legislation. Setting the level of minimum wage is a complex matter and this chapter provides interesting insights into recent innovations, such as those employed in Costa Rica and India. These countries have managed to achieve higher compliance rates through regular updates of the system, involvement of social partners and enhanced enforcement institutions.
- Third, good design can help to support the goal of improving incomes in the informal economy and reducing wage inequality. This chapter finds a positive association between minimum wages and earnings in the informal economy in majority of the countries for which detailed analysis could be performed. Countries that have improved compliance were able to reduce wage inequality.

- Fourth, empirical analysis suggests that the direct effect of minimum wages on employment levels in developing countries has tended to be small or insignificant. However, if carefully crafted, minimum wages can have important indirect effects in terms of developing new markets and increased aggregate demand, thus paving the way for new investment opportunities and job growth (see also Chapter 4).

Introduction

In recent years, there has been growing interest in the role of minimum wages in promoting social justice by improving the lives of low-paid workers, and also in rebalancing national economies. In Brazil, a stronger national minimum wage and "Bolsa família" – a conditional cash transfer programme – are two of the most widely credited measures to explain the reduction of poverty, which has fuelled the country's economic engine.[1] In China, coordinated minimum wage increases across Provinces have been a key part of a strategy to reduce inequality and rebalance the economy, encouraging stronger domestic consumption in the face of falling export demand and reduced scope for investment-led growth. In the United Kingdom, where minimum wages were introduced at the beginning of the twentieth century, abolished in the 1980s and reinstated in the 1990s, a survey of political experts has identified the national minimum wage as a successful Government policy.[2] In the United States, too, a higher minimum wage has come to be seen by many as a way to reduce poverty and inequality and provide a stimulus to the economy with potentially favorable fiscal effects, including through reduced costs of anti-poverty programs and increased tax revenue.[3]

The present chapter discusses the potential of minimum wage policies to rebalance domestic economies. It first reviews the linkages between minimum wages and aggregate demand, including recent findings from the literature regarding the effects of minimum wages on inequality, poverty and employment (section A).

The chapter then examines how the impact of minimum wages on aggregate demand depends on the inclusion of specific design features (section B). It analyses the role of minimum wage coverage and provides new estimates of the proportion of workers who are entitled to minimum wages in selected countries, illustrating how widely legal coverage can vary across countries. The section then emphasizes the importance of setting minimum wages at an appropriate level, in a way that balances the needs of workers and their families with economic factors, to avoid counter-productive macroeconomic and employment effects. It compares the level of minimum wages across a diverse group of countries, estimating a set of indicators frequently used in the literature. Section B also highlights how the effectiveness of minimum wages ultimately depends on compliance and enforcement institutions. Finally, section C considers the aggregate demand and employment effects of minimum wages, taking the design features described in the previous section into account.

---

1. See, for example, *The Economist*, 14 Nov. 2009, "A special report on business and finance in Brazil" and de Melo et al., 2012.
2. See http://www.instituteforgovernment.org.uk/pdfs/PSA_survey_results.pdf and http://www.bbc.co.uh/news/uk-politics-11896971?print=true
3. "US minimum wage rise makes sense", *Financial Times*, 20 Feb. 2013.

A. Minimum wages and jobs: A review of the literature

Minimum wages can help to rebalance the economy…

As noted in Chapter 1, the global crisis has had significant negative repercussions for labour markets in many parts of the world and recovery has been uneven. Chapter 2 shows that inequalities including wages has increased in the majority of advanced countries for which data are available, and in developing and emerging economies they remain relatively high, suggesting that the benefits of recovery may be unevenly shared. At the same time, in many economies average real wages have been stagnating or declining (ILO, 2012). These recent changes have taken place in the context of two longer term trends: namely, the growing inequality in the personal distribution of wages and the decline in the share of labour compensation in national income in a majority of countries for which data are available. Previous issues of the *World of Work Report* have documented how the labour income share – the share of domestic income that goes to labour – has declined over the long term, with the exception of a temporary counter-cyclical increase in 2009 (ILO, 2011).

In many instances, these trends have contributed to weakening domestic aggregate demand, though the effects in some countries were mitigated by debt-financed consumption, with household debt becoming a substitute for higher wages as a source of consumption demand. This has been the case in the United States, for example, where consumption increased rapidly prior to the crisis in spite of stagnating median wages and where strong private consumption was accompanied by trade deficits and capital inflows. Other countries, such as China, Germany and Japan compensated for the stagnant domestic demand with export-led growth strategies and current account surpluses. These two models were naturally interconnected as the debt-driven growth of some countries was the facilitating factor in the export-led growth of other countries (Hein and Mundt, 2012). The crisis, however, showed that such internal and global imbalances were unsustainable. To enable a sustainable recovery, it is imperative that, in the future, countries with an export surplus rebalance their economies from external to internal sources of demand, while countries with an export deficit that are reliant on household debt will need to base their recovery on income-led consumption and investment rather than debt-led consumption and investment.

In such a context, minimum wages, if set and operated effectively, can play a useful role in weathering the crisis, as they can help to reduce inequality and support aggregate demand by transferring resources to low-paid workers. Such redistribution can have a positive demand effect because the marginal propensity to consume out of wages is greater than the marginal propensity to invest out of profits.[4] Higher wages can also encourage investment, as enterprises will only invest if they anticipate adequate demand from consumers (see Chapter 4). Higher income from minimum wages among the low- and middle-income groups can lead to a virtuous cycle of greater consumption and investment and also create more employment opportunities.

It must be borne in mind, however, that this positive scenario is not the only possible outcome. The overall macroeconomic impact of a minimum wage depends not only on how it affects consumption and investment, but also on how

4. Herr, et al., 2009; Lavoie, 2009; Stockhammer, 2012; Stockhammer, et al., 2007.

it affects competitiveness and whether it affects net exports and if so by how much. The net effect therefore depends on country-specific circumstances. The strategy of raising the minimum wage may be more challenging for small open developing economies that derive most of their demand from abroad, if their exports are very sensitive to prices, that is, if they compete primarily on price rather than quality. In countries where domestic consumption is a large part of the economy or where export industries are moving up the value-added chain the environment is likely to be more permissive.

The role of minimum wages in boosting domestic demand in times of crisis can be illustrated by the case of the Latin American economies. Many of these economies raised minimum wages, which not only supported consumption but also boosted investment and growth (ECLAC, 2012). In many of these economies the rise in minimum wages also contributed to the creation of a middle class, thus creating room for autonomous growth and enhancing social cohesion. It is worth noting in this context that Latin America is one of the few regions where the risk of social unrest has abated (Chapter 1).

…because they can reduce inequality…

Recent research traces the channels through which minimum wages can act to boost demand. First, there is the redistributive effect of minimum wages towards low-paid workers with a high propensity to consume. Minimum wages have been shown to reduce wage inequality in the lower tail of the earnings distribution in a number of advanced economies.[5] In the United Kingdom, for instance, minimum wage increases during the period 1999–2007 were associated with a systematic annual reduction in lower tail wage inequality (Dolton et al., 2010), while in the United States the erosion of minimum wages has actually resulted in a rise in inequality in the lower tail of the wage distribution (Autor et al., 2010).

Research also lends support to the premise of the equality-enhancing role of minimum wages in developing economies.[6] In Indonesia minimum wages have helped to reduce wage inequality at the bottom end of the wage distribution, while in Colombia minimum wages benefited those households in the 25th and 80th centiles of household income distribution. In Brazil minimum wage increases translated into greater improvements for middle-income groups than for their low-income counterparts. Most of these studies also show that the low-paid, low-skilled and women benefit from minimum wages to a greater extent than other groups. They also have an effect on average wages. For example, according to evidence for Latin America, a 10 per cent increase in minimum wages would entail an increase in average wages of between 1 and 6 per cent (Cunningham, 2007). A 1 per cent increase in minimum wages lowered the incidence of poverty by 0.12 percentage points in Nicaragua (Alaniz, et al., 2011) and by 0.22 percentage points in Honduras (Gindling and Terrell, 2010).

5. See, for example, Lee (1999) for the United States; Butcher et al. (2012), Dickens and Manning (2004) and Dolton et al. (2010) for the United Kingdom; and Vaughan-Whitehead (2011) for other European countries.

6. This paragraph is based on the following empirical evidences: Chun and Khor (2010), for Indonesia; Arango and Pachón (2004) for Colombia; and Lemos (2007, 2009) for Brazil.

…without hurting employment.

One potential risk with minimum wages is that they may hurt employment if they are set too high. The recent literature, particularly careful micro-economic studies, suggests that in most cases there are only small or no negative employment effects of minimum wages. This is confirmed by two recent reviews of the empirical literature. First, a review of 64 recent studies on the impacts of minimum wages in the United States concluded that there was little or no evidence of a negative employment impact (Doucouliagos and Stanley, 2009). Second, a review of 55 studies in 15 industrial countries found that not only were the effects of minimum wages different across countries, but also the size of the effects were small (Boockmann, 2010). Many economists now believe that the employment effects of minimum wages are minimal (Chipman, 2006). The United Kingdom Low Pay Commission reached the same conclusion after commissioning a large body of research during the first 10 years of the country's new national minimum wage (The Low Pay Commission, 2009). And 4 years after the onset of the crisis, the most recent research has continued to find little evidence of significant adverse employment effects.[7] Some studies still find that minimum wages reduce employment of teenagers and low-skilled workers (Neumark and Washer, 2008).[8] Yet, even those studies tend to find relatively small effects, with the implication that minimum wages generally increase the share of earnings going to low-paid workers.

A growing body of evidence is also now available for developing economies. The employment effect of minimum wages has been found to depend on the economic context, level at which the minimum wages are set, the extent of enforcement and the labour market peculiarities and institutions prevailing in each country (Lemos, 2004). Ni, et al. (2011) using data from China from 2000 to 2005 found no significant overall effects on employment, with negative employment effects in one region and positive employment effects in two regions. Similarly, in an analysis on Brazil covering the period 1982 to 2004, Lemos (2007) found no employment effects of minimum wages, either in terms of the number of jobs or in terms of working hours. Similar results arise from studies on Indonesia. Rama (2001) found that doubling the minimum wage had negative employment effect but the results varied according to the size of the enterprise – negative employment effects for firms with fewer than 20 workers and a positive effect for medium-sized and large firms. Suryahadi et al. (2001) also found that a 10 per cent increase in the minimum wage would reduce employment by 1.2 per cent. More recent empirical evidence has shown that a minimum wage hike in Indonesia was associated with a net increase in total (formal and informal) employment: the increase in informal-sector employment more than offset the corresponding loss of jobs in the formal sector (Chun and Khor, 2010; Comola and de Mello, 2009).

7. The Low Pay Commission Report (2012), p. 56, and see Dolton et al. (2010).
8. According to Dolton et al. (2010), the diversity in empirical findings could be largely due to the use of different estimated parameters or methodologies, different types of data, different indicators, different age-groups and different macro indicators, which not only makes comparison difficult, but also exacerbates the difficulty of pinpointing the net employment effects.

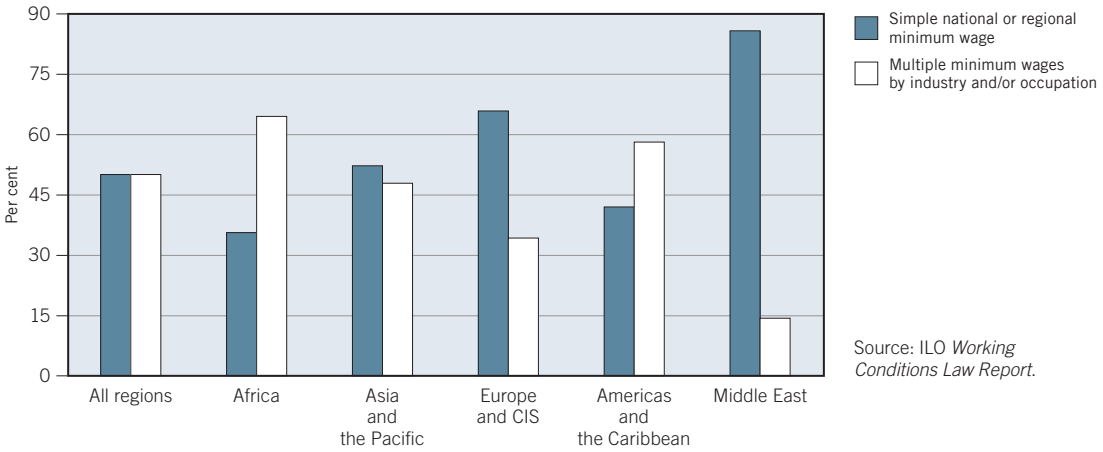
B. Key design features of minimum wage systems

The effectiveness of minimum wages depends, first, on the legal coverage of minimum wage systems…

The extent to which minimum wages can transfer resources to low-paid workers and stimulate private consumption depends on a number of key factors. First, this chapter considers legal coverage. The term "legal coverage" refers to workers who have been included in the minimum wage legislation and who are therefore entitled to be paid at least the minimum wage. The extent of legal coverage depends largely on whether a country operates a broad national minimum wage, which applies to all wage workers across the country (with some possible exceptions) or a more complex and partial system of minima that apply only to selected industries or occupations. The ILO *Working Conditions Law Report*, which reviews the 151 countries and territories, shows that about half of the countries under review implement a minimum wage system, which applies uniformly on a national or regional basis. Remaining countries implement systems with multiple rates, which vary by industry and/or occupation (see figure 3.1).[9] The fact that single or multiple systems of minimum wages exist in different countries is often due to historical developments (see box 3.1).

The proportion of wage earners covered by minimum wage systems is higher in countries where national minimum wages exist than in countries where industry-specific minimum wages prevail. As an illustration, legal coverage[10] has been estimated in selected developing economies for which such information is not readily available, namely Brazil, Costa Rica, India, Indonesia, Mali, Mexico, Peru, the Philippines, South Africa, Turkey and Viet Nam.[11] To identify workers who are covered, the categories of workers covered by minimum wage legislation are

Figure 3.1 Minimum wage systems across the world



Source: ILO *Working Conditions Law Report*.

9. These minimum wages are then fixed, either by Government alone or in consultation with the social partners or following the recommendation or consultation of a specialized body (ILO, 2010).
10. The legal information in this chapter relates to the analysis of the most recent labour legislation, such as labour codes, wage decrees, etc. The chapter does not examine or analyse the judicial decision-making (jurisprudence), which may affect the interpretation of the legislation and, by extension, expand or diminish legal coverage.
11. These countries have been chosen as they represent different systems of minimum wages, different levels of development, different institutional environments and have varying proportions of wage workers.

Box 3.1 ILO Minimum Wage Conventions: A historical overview

When they were first introduced in New Zealand and Australia at the end of the nineteenth century, and in the United Kingdom in 1909, minimum wages covered very few categories of workers. Their main purpose was to protect workers who were not covered by collective agreements and who were particularly vulnerable to low-pay conditions. The concept of minimum wages was therefore one of selective intervention, in which wage determination was considered best left to the social partners, with Government intervening only in special circumstances. Consistent with such a view, selective minimum wages have sometimes been described as a temporary "second-best" option, to be discarded once collective bargaining has been established. So, for example, the United Kingdom trade boards were described by the Minister of Labour of the time as a "temporary expedient facilitating organisation within the industry, so that, in the course of time, the workers or the employers will not have need for the statutory regulations" (quoted in Starr, 1981, p. 20). It was only after the Second World War that coverage expanded and national minimum wages appeared in a significant number of countries. In France, for example, the national minimum wage (*salaire minimum interprofessionel garanti* – SMIG) was introduced in 1950. In the United States, coverage under the Fair Labor Standards Act of 1938 increased from about 20 per cent of the workforce initially to nearly 80 per cent by 1970 (Neumark and Wascher, 2008).

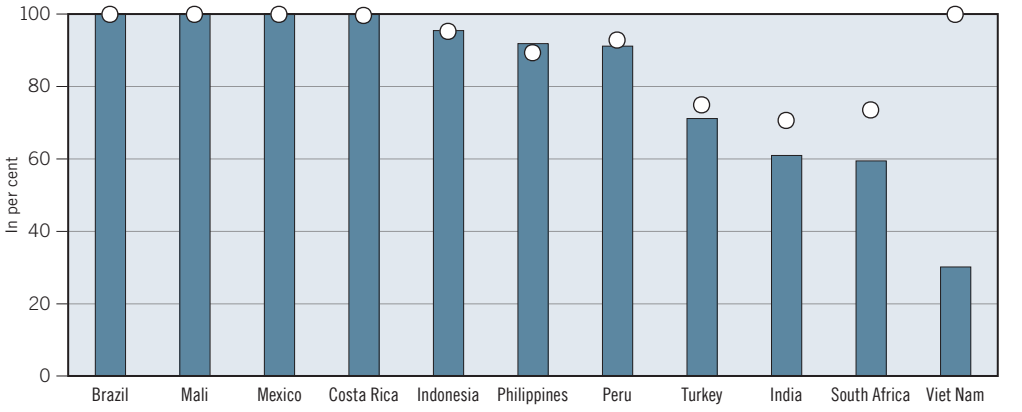
This historical evolution of minimum wages is also reflected in ILO Conventions. The ILO adopted the Minimum Wage-Fixing Machinery Convention, 1928 (ILO Convention No. 26) following a proposal by the British Government. This proposal was intended to protect workers in those trades with the most extreme working conditions, such as homeworkers and a few others with exceptionally low pay and where collective bargaining would generally not apply. The Convention was quickly ratified by a number of countries, such as Germany (1929), the United Kingdom (1929), Spain (1930), China (1930), France (1930), Ireland (1930), Italy (1930), Australia (1931), Chile (1933), Colombia (1933) and Mexico (1934), even though the economic depression of the 1930s represented a serious challenge for the implementation of labour standards. These countries were later followed by many more countries in the second half of the twentieth century, including Argentina (1950), India (1955), Brazil (1957) and a large number of newly independent African countries during the 1960s and thereafter. As a result, with 108 ratifications, this Convention is now one of the most widely ratified of all ILO Conventions. The adoption of the Convention itself played an important role in disseminating minimum wage strategies throughout both advanced and developing economies. It was identified as one of the key factors in the establishment of minimum wages in India and several other countries (Sankaran, 1997).

Importantly, ILO Convention No. 26 was limited to manufacture and commerce and excluded agriculture, which represented a significant share of the labour force, particularly in developing economies. Moreover, the implementation of minimum wages evolved beyond the framework of the Convention. The first gap was filled by the adoption in 1951 of the Minimum Wage Fixing Machinery (Agriculture) Convention (No. 99), which essentially complemented Convention No. 26. A greater advance was made, however, with the adoption in 1970 of the Minimum Wage Fixing Convention No. 131, in which minimum wages were conceived as part of a development strategy, i.e. as "one of a battery of measures in the strategy of an attack on poverty" (see ILO (1967) for more details). While ratification was rapid in the first 10 years following the adoption of Convention No. 131, the context changed after the oil-price shocks in the 1970s, the debt crises that affected developing countries in the 1980s and the implementation of structural adjustment policies in the 1980s and 1990s.

Since the start of the global financial crisis in 2008, minimum wages have once again attracted the attention of policy makers and economic experts and have gathered support as a tool for rebalancing the economy, particularly in developing countries.

matched with employment data from available surveys. For example, if minimum wage legislation applies to all wage earners except domestic workers, the coverage of minimum wages is estimated by calculating the ratio of non-domestic paid employment to total paid employment using household survey data. This methodology can be easily implemented in countries with a relatively uniform minimum wage system, but estimates are more complex when legislation takes different

Figure 3.2 Legal coverage of minimum wage legislation in selected developing economies



Note: The figure provides estimates of the proportion of dependent employment covered by minimum wage legislation in each of the countries. In all countries, public-sector employees are included in the estimates.

Source: IILS estimates based on legal information and data from household and labour force surveys.

categories of workers into account. The analysis takes into consideration two time periods, namely the mid-2000s and late-2000s, so as to examine how the legal coverage of minimum wage legislation has evolved over time (see Appendix A for a detailed explanation of the data sources used to estimate the legal coverage and Appendix B for details of legislation in the countries under analysis).[12]

There is universal legal coverage of minimum wages in almost half of the countries under analysis.[13] The case of Brazil illustrates how a simple national minimum wage can ensure universal coverage. In Brazil, the federal minimum wage applies to all wage workers and collective agreements can only provide for "wage floors" that are equal to or higher than the federal minimum wage.[14] Figure 3.2 shows that such legislation provides universal coverage, meaning that all paid employees are entitled to the federal minimum wage. In Viet Nam, the legal coverage of the minimum wage has been universal since 2010. Until 2006, the minimum wage system applied only to foreign-owned firms in certain regions. In 2007, the legal coverage was gradually extended, to domestic firms in major cities and finally to all workers in 2010. In Indonesia, Peru and the Philippines, the legislative coverage is almost universal (around 95 per cent) as minimum wages cover all employees except domestic workers.

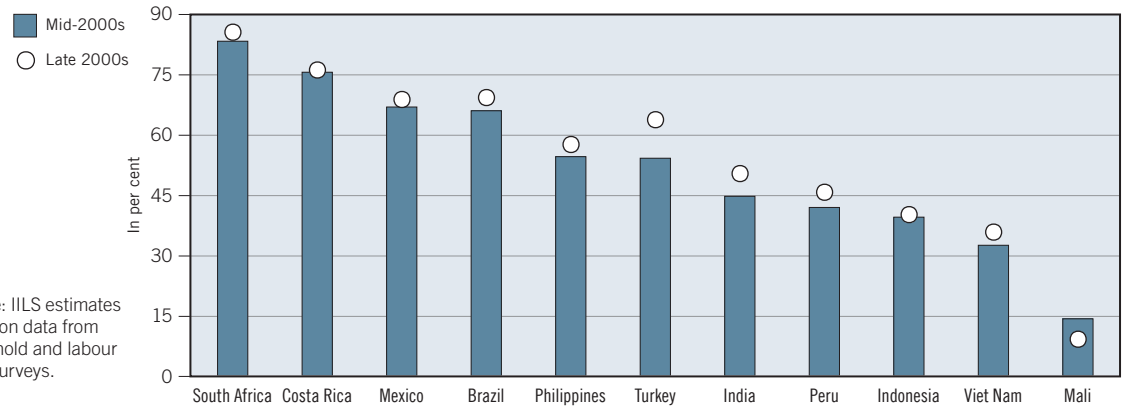
In India and South Africa, minimum wages apply to specific groups of workers. In India, the Central Government sets 45 minimum wage rates for different job categories in agriculture, mining, oil extraction and any corporation under its ownership. State governments determine minimum wage rates for 1,679 job categories among sectors "scheduled" (or listed) in the law. This has resulted in a very large number of minimum wage rates but only partial coverage: around two-thirds of wage earners, excluding public-sector workers, are covered by minimum wage legislation in India. In South Africa, the Ministry of Labour sets minimum wages – so-called "sectoral determinations" – for vulnerable workers in sectors

12. Appendix A provides the list of countries, the years for which analysis is undertaken and the household and labour force surveys used for analysis. Appendix B provides the "legal coverage" of the workers included in the minimum wage legislation and also those workers excluded at the country level. As an illustration, we also provide the level of minimum wage rates for Viet Nam. Finally, information on how minimum wages have been assigned to workers in the household survey data is also provided.

13. Although minimum wages for public-sector workers are set by discrete administrative procedures, we have included all public-sector employees in all countries under analysis with the assumption that all these employees receive wages above the minimum wage.

14. The legislation also specifies that, for piece-rate workers, the minimum wage paid per piece must be fixed in such a way that the wage paid to a worker is not lower than the normal daily minimum wage.

Figure 3.3 Dependent paid employment as a proportion of total employment in selected developing economies



Source: IILS estimates based on data from household and labour force surveys.

that are not covered by collective agreements. These sectoral determinations provide legal protection to more than half of all employees (figure 3.2).

Not all countries fall into this simple typology, however, some hybrid systems also exist. The example of Turkey highlights the case of a national minimum wage that provides less than universal coverage because the legislation is only applicable to employees who are registered with social security system. As more employees have registered with social security, the legal coverage of minimum wage increased from 71 per cent in 2005 to 75 per cent in 2011. Costa Rica has a complex system of sectoral and occupational minimum wages, which nonetheless provides universal coverage because it is complemented by a national wage floor (the so-called *mínimo minimorum*). Peru provides near universal coverage (except for domestic workers) and has a complex system of determining wages for certain occupational categories. Mexico has a general minimum wage and a complex system of minimum wages for more than 80 occupations with regional differentiation.

There is a popular perception in many developing countries that minimum wage laws do not cover certain segments of the economy, such as informal employment or firms with no trade union presence. However, this is not always the case. In some of the countries analysed in this chapter, certain provisions of minimum wage legislation are specifically targeted at unskilled/low-paid workers or those in the informal economy. For example, in India the minimum wages in the "schedules of employment" are set for unskilled workers – mostly employed in the informal economy. South Africa has sectoral minimum wage determinations for workers who are not part of a trade union. Similarly, many Latin American countries, including Brazil, Costa Rica, Mexico and Peru, have minimum wage legislation for all workers, irrespective of the sector or the status of the enterprises that employ them.

Partial coverage erodes the potential of minimum wages to redistribute resources in favour of all low-paid workers. The potential redistributive role of minimum wages can be further undermined in developing countries by the incidence of self-employment and unpaid family work, which is typically higher than in advanced economies. In the 11 countries under analysis, 52 per cent of workers are paid employees (generally referred to as "dependent paid employment"), on average. This proportion varies from 10–20 per cent in Mali to over 80 per cent in South Africa (figure 3.3). Therefore whether legal coverage is partial or universal, minimum wages may protect a lower share of all workers than coverage suggests. This emphasizes the need for developing countries to combine minimum wages with social protection policies in order to maximize the positive impacts of both policies on reduction of poverty, inequality and on increasing aggregate demand.

…second, the level at which minimum wages are set…

The success of minimum wage policy depends on the level at which it is set. If the minimum wage is set at too low a level, it may be ineffective in ensuring a minimum living income to workers and their families and may fail to act as an automatic aggregate demand stabiliser in the face of shocks. On the other hand, while carefully designed minimum wage policies can encourage domestic consumption and reduce low pay, combat inequality and narrow the gender pay gap, past experience also shows that mismanagement can have adverse economic and social consequences. If they are set too high or raised unexpectedly, minimum wages can trigger price inflation, hurt employment and/or lead to widespread non-compliance. Hence, a balanced approach is needed (Belser and Sobeck, 2012).

The balanced approach is enshrined in the text of the ILO *Minimum Wage Fixing Convention, 1970* (No. 131) which states that minimum wage setting should involve social partners and independent experts and take into consideration: (i) the needs of workers and their families, taking into account the general level of wages in the country, the cost of living, social security benefits and the relative living standards of other social groups; and (ii) economic factors, including the requirements of economic development, levels of productivity and the desirability of attaining and maintaining a high level of employment. Minimum wages should also be regularly adjusted to take account of fluctuations in the cost of living and other economic conditions.

One way to assess the level at which minimum wages should be set is through the ratio of minimum to median wages. The United Kingdom Low Pay Commission using national surveys and restricting the analysis to full-time workers estimated that among 13 advanced economies minimum wages in 2010 ranged from 37 per cent of median wages in Japan to about 60 per cent of median wages in France, with the country in the middle of the distribution being the United Kingdom with a ratio of 46 per cent (figure 3.4).

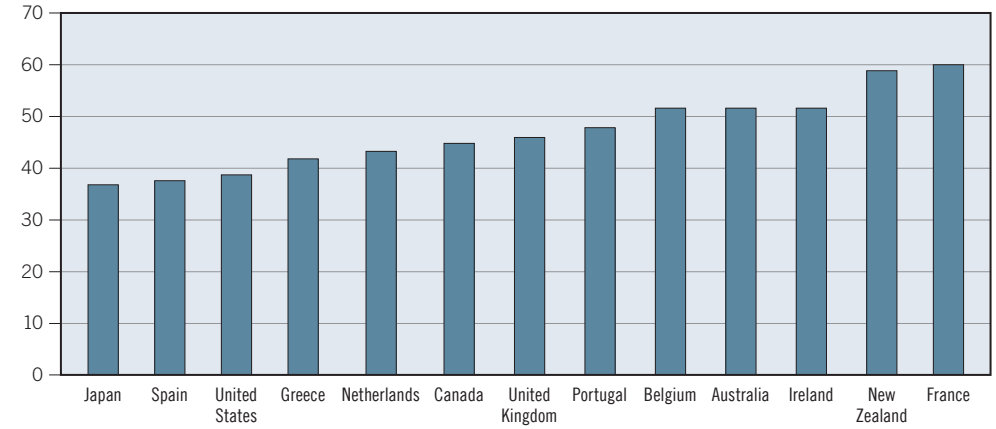
The present chapter provides estimates for the ratio of the level of minimum wages to median wages as well as to mean wages in the 11 developing economies under analysis. For countries that have multiple minimum wage rates, which vary by region, sectoral activity, occupation or size of the enterprise, the weighted average of these rates for the respective country is estimated. This is then compared to the median and mean wages of those paid employees who are covered by minimum wage legislation.[15]

The results of this analysis are shown in figure 3.5. In about half the countries the ratio of minimum wages to mean wages hovers at around 40 per cent (figure 3.5, panel A). This ratio is close to that observed in a number of advanced economies. Based on data available for 75 countries the ILO's *Global Wage Report* 2008/09 considered that "the levels of minimum wages relative to average [mean] wages vary widely across countries, but that there is a relatively high frequency at around 40 per cent of average wages" (ILO, 2008). In Costa Rica, Indonesia, Peru, the Philippines, South Africa and Turkey the ratio is higher.

Minimum wages as a proportion of median wages are relatively high in developing countries (figure 3.5, panel B). This could reflect the fact that, in most developing economies, a disproportionately high number of workers earn low wages. In

15. Both ratios are calculated for workers who are under the legal coverage and between the ages of 15 and 64.

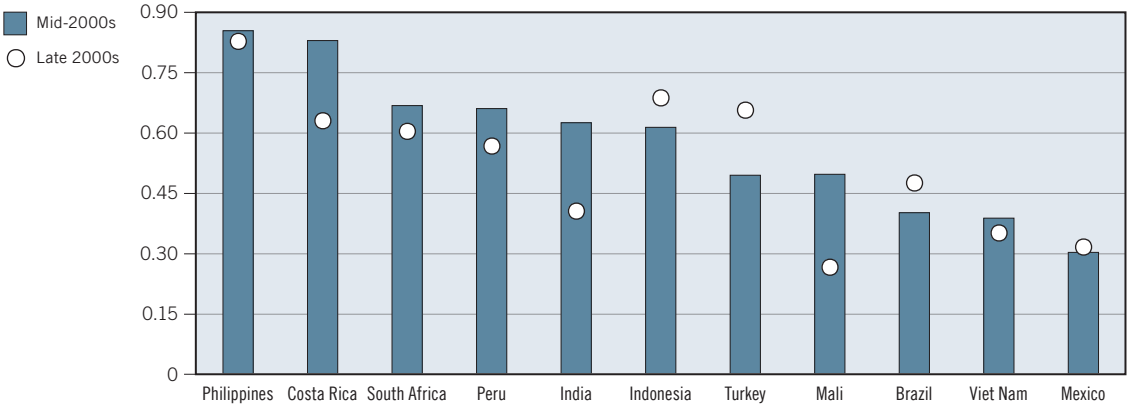
Figure 3.4 Minimum wages as a percentage of full-time median wages in selected advanced economies



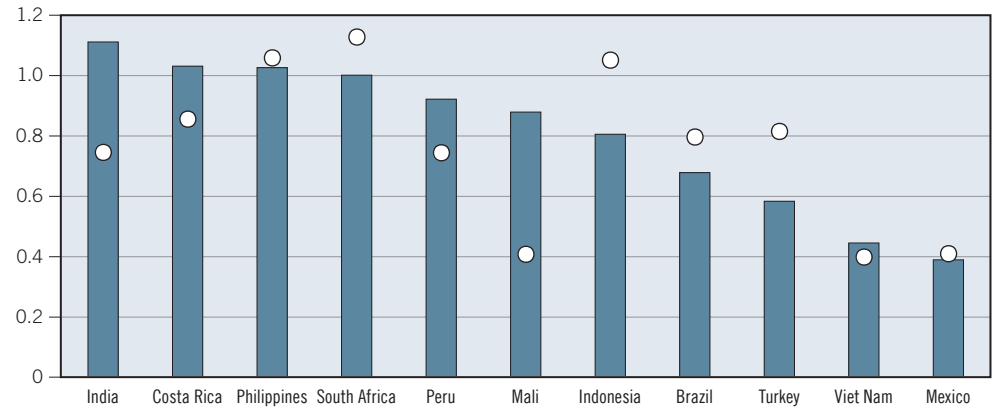
Source: The Low Pay Commission Report (2012).

Figure 3.5 Ratio of minimum wages to mean and median wages in selected developing economies

Panel A. Ratio of minimum wages to mean wages



Panel B. Ratio of minimum wages to median wages



Source: IILS estimates based on data from household and labour force surveys.

practice this would mean that rising minimum wages would affect more workers, with resulting impacts on poverty, inequality and demand. In Indonesia, the Philippines and South Africa, where the minimum wage is higher than the median wage, there may be problems of non-enforcement, an issue examined in the next section.

…and third, the ability to ensure compliance with legal minimum wage provisions.

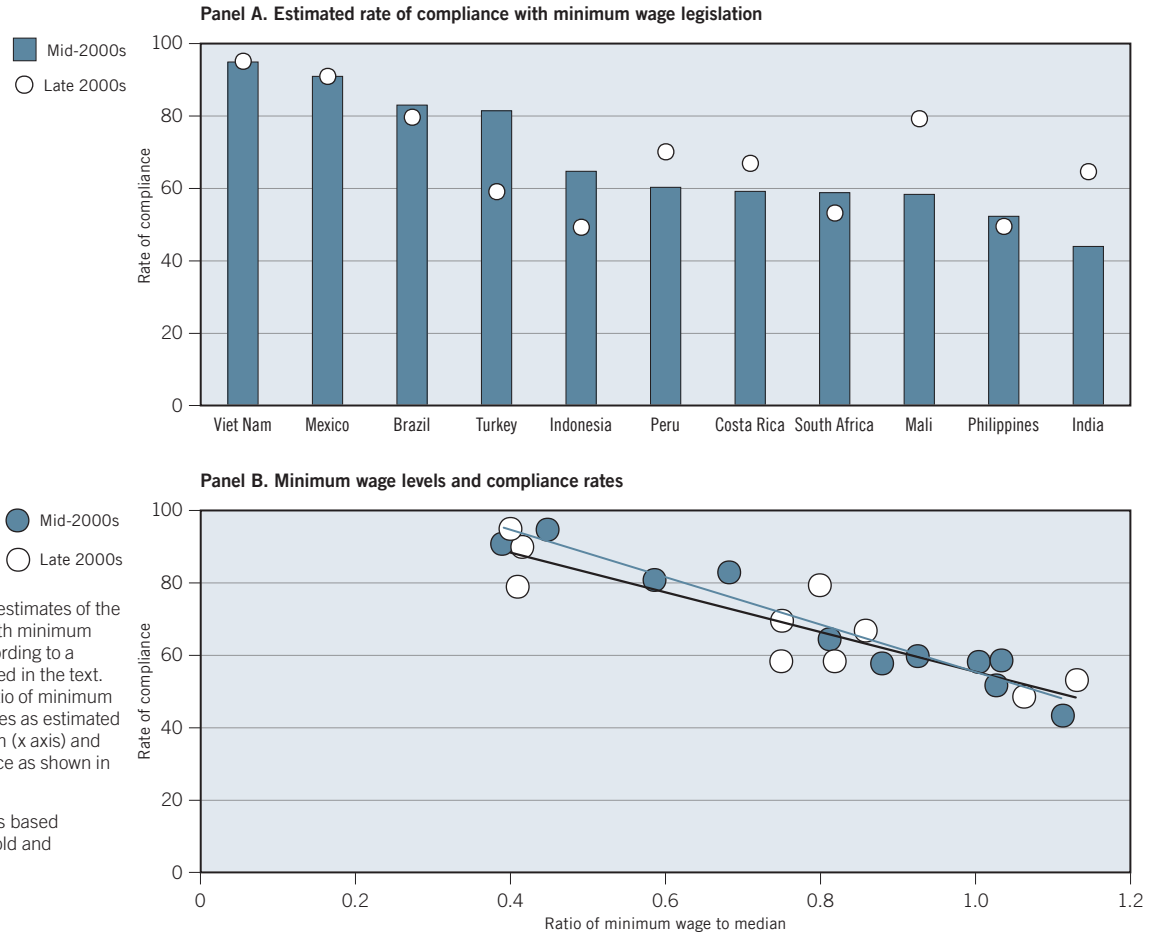
The effectiveness of minimum wage policy depends not only on the coverage and levels of minimum wages but also on the degree of compliance with legal provisions. The fact is that "simply legislating a minimum wage will not make it happen" (Murgai and Ravallion, 2005:2). In advanced economies, the proportion of workers paid less than the national minimum wages is often relatively low (Bureau of Labor Statistics 2009; Metcalf, 2008). Ensuring compliance in developing economies, as measured by the proportion of wage earners who receive minimum wages, is more problematic. For example, in Brazil, Lemos (2004) estimated that in 2000 the proportion of workers earning below the minimum wage was 13.7 per cent in the private sector and 4.6 per cent in the public sector. Even at this level of less than perfect compliance, a majority of low-paid wage workers would still benefit from minimum wages.

The degree of compliance depends, first, on the complexity of the system. A uniform system is typically simpler and easier to enforce than a system of multiple minimum wage rates. Clear information or guidelines available to employers and workers about the level of minimum wages, and about possible sanctions in case of non-respect, may also increase the likelihood of compliance. Second, if set at too high a level, there is a risk that minimum wages may increase evasion in certain sectors and occupations. Third, a high rate of compliance requires a coherent strategy based on provision of information, effective labour inspection and sanctions in the event of failure to comply with legal provisions. The regulatory structures in developing economies, including labour inspection services, are often under-resourced and under-staffed and penalties may be too weak to induce compliance (Ghosheh, 2013).

Compliance can be measured in a number of ways: first based on the complaints made by workers in a judicial system; second, based on workplace inspection by labour inspectors; and third, by calculating the share of workers' earning[16] less than the legal minimum wage (another statistical measure of compliance, presented in Appendix C, leads to similar results).[17] In the methodology developed for this chapter, the third measure is calculated reflecting the full complexity of minimum wages with each worker assigned a specific minimum wage.[18] The rate of compliance using this measure ranges between 95 per cent in Viet Nam to 49 per cent in Indonesia and the Philippines (figure 3.6, panel A). The compliance rate is relatively high in Brazil, Mali, Mexico and Viet Nam, while in all other countries the rate of compliance hovers around 60 per cent. The high level of compliance in Brazil could be due in part to the simple national minimum wage system, which makes it easy to implement and administer. This has not only ensured a higher level of compliance but has also resulted in improvements to the wage distribution as a considerable proportion of low-paid workers are covered by the minimum wage (Lemos, 2009).

16. The earnings of all wage earners are adjusted to the full-time equivalence wage, and this imputed wage is compared to the legal minimum wage.
17. In the case of multiple minimum wages, the legal minimum wage is the weighted average for the covered population.
18. Most studies, which analyse the employment effects or compliance actually ignore the complexity of minimum wages and often consider the lowest level of minimum wage for analysis. There are a few exceptions, such as Costa Rica (Gindling and Trejos, 2010; Gindling and Terrell, 2004) and South Africa (Bhorat et al., 2012), where the complexity of minimum wages was taken into consideration in the analysis.

Figure 3.6 Compliance and minimum wages in selected developing economies



Note: Panel A shows estimates of the rate of compliance with minimum wage legislation, according to a methodology presented in the text. Panel B shows the ratio of minimum wages to median wages as estimated in the previous section (x axis) and the rates of compliance as shown in panel A (y axis).

Source: IILS estimates based on data from household and labour force surveys.

The rate of compliance also depends on the level at which the minimum wages are set (Lee, 2012). A low level of minimum wages tends to be associated with a relatively high degree of compliance, as in Mali, Mexico and Viet Nam. Conversely, a higher level of minimum wages as observed in Costa Rica, India, Indonesia, Peru, the Philippines, South Africa and Turkey, tends to be associated with lower levels of compliance.[19] In Peru, the compliance rate was 60 per cent in 2005, when the minimum wage was set at 92 per cent of the median wage. In 2010, the ratio of minimum to median wages decreased and the rate of compliance increased more or less proportionately.

The association between minimum wage levels and compliance rates is presented in figure 3.6, panel B. Probit models confirm this association.[20] It is noteworthy that during the late 2000s, the relationship was weaker as the fitted line is flatter, implying that the wage level loses part of the impact on compliance.

This indicates that while non-compliance is associated with the level at which minimum wage is set, it is also linked to the general institutional environment. For example, although Costa Rica and India have complex minimum wage systems and the level of minimum wage is quite high, the two countries have successfully

19. The compliance rate estimated for Costa Rica and South Africa are similar to the results found in Gindling and Trejos (2010) and Bhorat et al. (2012) respectively.
20. The probit models are available on request from the authors.

improved compliance rates, largely due to the strengthening of enforcement mechanisms. The minimum wage level in Costa Rica is set relatively high but, despite that, it has been able to improve compliance, largely due to an increase in the number of labour inspectors, which helped to increase the proportion of firms that were regularly inspected, often with repeat visits. In case of repeated violations (more than two complaints) the cases are referred to the labour courts, which can impose fines (Gindling and Trejos, 2010). Further, in August 2010, a national campaign for Minimum Wages (Campaña Nacional de Salarios Mínimos) was launched with the aim of increasing compliance. Workers were encouraged to denounce employers who paid less than the minimum wage. The programme also included other measures, such as increasing the capacity of the call centre handling complaints, which resulted in 77,816 calls in the first year alone and an increase in joint inspections with the social security administration.

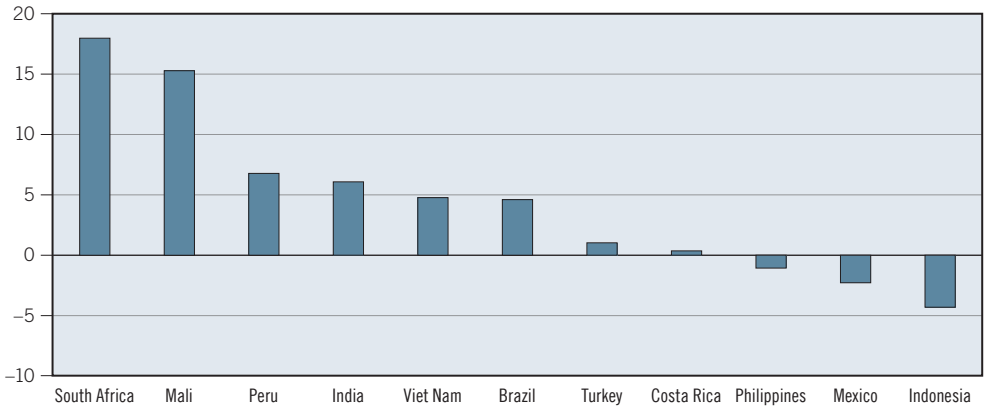
Some authors such as Murgai and Ravallion (2005) suggest that, to be effective in developing countries, minimum wage legislation should be supported by commitment from the Government to act as an "employer of the last resort". This would help to ensure jobs for all unskilled workers at the stipulated minimum wage rate. In this spirit, in India the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) provides all households in rural areas with 100 days of employment per year, paid at minimum wages. The Act also relies on a legislated Right to Information and Social Audits, which provides an opportunity for civil society to ensure that the implementation of the program is effective. This has not only provided a number of days of work at minimum wages to poor households but also improved the compliance rate with minimum wages in rural parts of India where the program operates (see Rani and Belser, 2012 for more details). A high proportion of female workers have benefitted from the program and the strategy has effectively redistributed resources to low-paid workers.

C. Concluding remarks on the aggregate distributional and employment effects of minimum wages

The analysis detailed above shows that, if minimum wages are set appropriately and operated effectively, then low paid wage earners will benefit. The transfer of resources to low-paid workers could contribute towards sustaining household consumption and overall aggregate demand and output, especially important at times of crisis.

The resilience of some Latin American economies to the crisis provides a case in point. The combination of comparatively well-designed minimum wage systems and rising minimum wage levels with effective social protection measures was an element in preventing these economies from falling into recession despite falling exports, as domestic demand sustained the growth process (de Melo et al., 2012; ECLAC, 2012). Likewise, through the expansion of the rural employment programme (MGNREGA), India managed to increase consumption (Ravi and Engler, 2013) while also stimulating productive investment in land and non-agricultural activities, thus boosting productive employment (Saraswat, 2011).

Figure 3.7 Annual percentage change in real earnings in the informal economy between the mid-2000s and the late-2000s



Source: IILS estimates based on data from household and labour force surveys.

Improved levels and/or effective compliance with minimum wage legislation went hand in hand with higher earnings in the informal economy…

The increase in aggregate demand could also arise from the spillover effects[21] of minimum wages in the informal economy.[22] Average earnings in the informal economy increased in most of the countries under analysis, by between 0.33 per cent and 18 per cent per year depending upon the country (figure 3.7). Average real earnings in the informal economy increased significantly in those countries, which experienced the greatest improvements in levels of compliance (India and Peru). This could reflect either spillover effects from minimum wages or improved macro-economic conditions (although the period covered includes years of the financial crisis). However, in some of the countries such as Indonesia, Mexico and the Philippines the informal wage earnings declined.

…and reductions in wage inequality in some countries…

There is some evidence that higher minimum wage levels and/or improved compliance have tended to boost the relative position of low-paid earners. Despite less than perfect compliance, the analysis suggests that minimum wages have been accompanied by reductions in inequality at the bottom end of the distribution, especially in India, Mali, the Philippines, South Africa, Turkey and Viet Nam (table 3.1). In Brazil and Peru, improved minimum wages appear to have resulted in an expansion of the middle part of the wage distribution, thus fuelling the expansion of middle-income groups, which is documented in Chapter 2.

21. This has been interpreted as evidence of the signalling (lighthouse) effect which actually hypothesizes that the minimum wage is a signal for wage bargaining and therefore plays a role as a coordinator of the wage policy (Lemos, 2009).
22. The spillover effect of minimum wages on informal wage earnings and non-wage incomes has been well documented in a number of Latin American countries. See Fajnzylber, 2001; Carneiro and Henley, 2001; Lemos, 2009 for Brazil; Gindling and Terrell, 2004 for Costa Rica; and Maloney and Núñez, 2001 for Colombia.

Table 3.1 Wage inequality indices, change in inequality between mid-2000s and late 2000s

Countries	P50/P10	P90/P50	P75/P25	Gini
Brazil	0.15	–0.37	–0.48	–0.02
Costa Rica	0.34	0.46	0.11	0.03
India	–0.13	0.25	–0.07	–0.01
Indonesia	0.15	0.76	0.34	0.06
Mali	–2.37	1.00	–2.83	0.10
Mexico	0.34	–0.22	–0.07	–0.02
Peru	0.11	–0.29	–0.66	–0.04
Philippines	–0.13	0.21	0.00	0.03
South Africa	–0.45	–0.90	–0.70	0.00
Turkey	–0.22	0.48	0.02	0.01
Viet Nam	–1.71	–0.53	–1.23	–0.15

Source: IILS estimates based on data from labour force and household surveys.

...without hurting overall employment levels.

There is also some evidence that changes in minimum wage policies, while achieving distributional goals, have not come at the cost of employment. Indeed, the aggregate effects arising from improved minimum wages may have outweighed any negative substitution and labour demand effects at the level of individual firms.

The effects of minimum wages on employment are examined empirically in Appendix D. It is found that, for the majority of the countries analysed, the employment effects are statistically insignificant (see Appendix D, table 3D.1). The impacts on employment are in line with the previous empirical results, which show statistically insignificant or small adverse or positive effects of minimum wages on employment (Lemos, 2004, 2009 for Brazil; Chun and Khor, 2010; Comola and de Mello, 2009 for Indonesia; Ni, et al., 2011 for China).

In general, the fact that the size of the distributional and employment effects differs across countries highlights the importance of (i) the design features of minimum wage systems; and (ii) complementarity with other policies, notably social protection and, as will be seen in Chapter 4, productive investment.

Appendix A

Sources for the data on coverage of minimum wages

Country	Data source	Years
Brazil	Pesquisa Nacional por Amostra de Domicílios (PNAD), IBGE	2005 and 2009
Costa Rica	Encuesta de Hogares de Propósitos Múltiples, INEC for 2005; Encuesta Nacional de Hogares (ENAHO), INEC for 2010	2005 and 2011
India	Employment–Unemployment Survey, NSSO, Government of India	2004–05 and 2009–10
Indonesia	National Labour Force Survey (Survei Angkatan Kerja Nasional) (SAKERNAS), BPS-Statistics	2005 and 2009
Mali	Enquête Permanente Emploi Auprès des Ménages (EPAM)	2004 and 2010
Mexico	Encuesta Nacional de Ocupación Y Empleo (ENOE), INEGI	2005 and 2010
Peru	Encuesta Nacional de Hogares, INEI	2005 and 2010
Philippines	Labour Force Survey, National Statistics Office	2003 and 2009
South Africa	Labour Force Survey, Statistics South Africa for 2007, Labour Market Dynamics (LMD) Survey for 2011	2007 and 2011
Turkey	Household Labour Force Survey, Turkish Statistical Institute	2005 and 2011
Viet Nam	Labour and Employment Survey, General Statistics Office, Ministry of Planning and Investment	2007 and 2011

Appendix B

Detailed information on minimum wage systems in selected developing countries

Legal coverage and compliance

Coverage of wage workers by minimum wage legislation

Brazil. The legal minimum wages in Brazil are set both at the national and at the state level. The national minimum wage is applicable to all workers in the private sector, explicitly including rural workers and domestic workers. Although, the legislation does not apply to the public sector, the law on public servants provides that no public servant shall receive a remuneration lower than the minimum wage.

Brazil has also had wage floors at the federal level since 2000. Two states, namely Rio de Janeiro and Rio Grande do Sul, adopted wage floor legislation with effect from 2000 and 2001, respectively, followed by Paraná in 2006, São Paulo in 2007 and Santa Catarina in 2010. The wage floors at the federal level are set at the occupational or sectoral level and there are significant variations in the number of occupations included at each federal level. The number of occupations or sectors included in the schedule also varies over time in any given federal state. For example, Rio de Janeiro had minimum wages for nine different occupational categories in June 2009, compared to six in January 2005. The definitions of each of the occupational categories, which were made available in the wage floor legislation, were matched with the Classificação Brasileira de Ocupação of Brazil at the four-digit level to identify the workers.

Costa Rica. The structure of legal minimum wages in Costa Rica is quite complex, as the legal minimum wages are set for three broad categories of workers, covering all workers in the economy. The first category of minimum wages is set for non-professional workers, the second category for "*genericos*" (largely professional) categories of workers and the third category for "special" minimum wages. Four different minimum wages are set for non-professional workers: unskilled workers, semi-skilled workers, skilled workers and specialized workers. The definition of skill is determined by the occupation and industry of the worker in regulations promulgated by the Ministry of Labor. Minimum wages are set for "*genericos*" (largely professional) workers in the following categories: unskilled workers, semi-skilled workers, skilled workers, technicians with a secondary degree, specialized workers, technical workers with a tertiary education, "*diplomados*" with a university degree, a 4-year university "*bachiller*" degree, and those with a 5-year university "*licenciado*" degree. Special minimum wages are set for coffee harvesters, domestic servants, reporters, stevedores, doormen, taxi drivers, beer salesmen and newspaper delivery personnel. The definitions of each occupational group, which were made available in the wage decrees, were matched with the Clasificación de Ocupaciones de Costa Rica 2000 at the four-digit level to identify the workers.

India. The minimum wage system in India is fairly complex as minimum wages are set for certain "schedules of employment" in each state and, as a result, not all

workers are covered by minimum wages. In India, 48 minimum wages rates are set for different job categories in agriculture, mining, oil extraction or any corporation under the ownership of the Central Government, while the various State governments determine wage rates for 1,123 job categories among sectors "scheduled" (or listed) in the Act. Legal minimum wages are set in each state by occupation or industry group, by type of establishment – public or private sector – and by size of the enterprise. There are significant variations across states in the number of occupations or industry groups for which minimum wages are set. The definitions of each of the occupation and industry groups, which were made available in the schedule of employment, were matched with the National Classification of Occupations (NCO), 1968 for 2004–05 survey data; NCO, 2004 for 2009–10 for the occupational groups; National Industrial Classification (NIC), 1998 for 2004–05 and NIC, 2004 for 2009–10 for the industry groups.

Indonesia. The minimum wage in Indonesia is set at the provincial level and it is applicable to all workers, including piece-rate and freelance workers, except for domestic workers. Minimum wages in Indonesia are also set at the district and sub-district levels, and within provinces and districts there are also sectoral minimum wages, where the minimum wages are supposed to be at least 5 per cent higher than the respective province or district minimum wage. The sectoral categories, which were made available in the sectoral minimum wages provisions, were matched with the International Statistical Industrial Classification (ISIC) Rev.4 at the five-digit level to identify the workers.

Mali. The minimum wage in Mali is set at the national level and covers all workers. Minimum wages are set separately for domestic workers, who are classified within seven categories, based on the services performed. These seven categories are: category 1 – workers without a specific professional qualification who provide cleaning or surveillance services; category 2 – domestic work with up to 2 years of experience in cooking and gardening; category 3 – workers in charge of executing domestic work with more than 2 years of experience in cooking; category 4 – workers performing domestic work including regular cooking, in which they hold a qualification, as well as being able to compile menus and prepare dessert; category 5 – qualified chefs who comply with the definition of category 4, who are also in charge of domestic work; category 6 – chefs with other people under their authority and direction; and category 7 – butlers.

Mexico. The Minimum Wage Commission sets the minimum wages for workers in certain occupations and different minimum wages are set for the three geographical regions. In 2005, the minimum wage was set for 87 occupations and for the three geographical regions; and, by 2010, the number of occupations for which the minimum wage was set was reduced to 73 occupations. The occupation categories defined in the Minimum Wage Commission were matched with the Mexican Classification of Occupations (CMO) at the four-digit level to identify the workers.

Peru. The minimum wage is set at the national level and it covers all workers with the exception of domestic workers. The legal minimum wages are set broadly for six categories: the first category is the general minimum wage, which applies to all workers who are not specified in the other five categories; the second category is for the agricultural sector; the third category is for mining sector; the fourth category

for journalists; the fifth category for unemployed between 45 and 65 years of age who are participating in a refreshing activity to facilitate their reinsertion into the labour market; and the sixth category is for apprenticeship, which has two sub-categories – one, mandatory internship in the context of their secondary education, and, two, internships related to vocational training. The minimum wages for the second to the sixth categories are computed based on the general minimum wage. For example, the minimum wage for workers in the mining sector is 25 per cent higher than the general minimum wage, while the salary of registered journalists is three times higher than the general minimum wages. For the analysis, we did not consider the last two categories (that is the fifth and sixth categories) as it was difficult to identify such workers in the survey. The industrial classification, which was made available in the minimum wage provisions was matched with the ISIC Rev.4 at the four-digit level to identify the workers.

Philippines. The system of minimum wages in the Philippines is relatively complex, as there are multiple minimum wages, which differ across regions and industry groups. A number of exemptions are also granted to small enterprises, making the system still more complex. All private-sector workers are covered by minimum wages, and the law provides that no public-sector worker shall receive a remuneration lower than the minimum wage. The Philippines is divided into 16 administrative units or regions and, depending on the region, the minimum wages are classified within different industry groups or sectors. For example, in the National Capital Region, the minimum wages are set for five categories: non-agriculture; agriculture (plantation and non-plantation); private hospital with bed capacity of 100 or less; retail/service establishments employing 15 workers or less; and manufacturing establishments regularly employing fewer than ten workers. Almost all the regions adopt these categories with some variations; for example, Region VI does not have the category of "manufacturing establishments" but includes cottage and handicraft and the sugar industry. The industrial categories specified in the wage orders were matched with the 1994 Philippine Standard Classification at the two-digit level in 2003 and four-digit level in 2009 to identify the workers.

South Africa. The minimum wages in South Africa are sectorally determined for the following eleven sectors: wholesale and retail trade; domestic work; forestry; farms; private security; taxis; civil engineering; hospitality; contract cleaning services; learnership and children in the performance of advertising, artistic and cultural activities. The first sectoral determination, for contract cleaning, was introduced in 1999, and the last one, for hospitality, was introduced in 2007. Depending on the sector, the minimum wages are set according to the area, occupations, size of the enterprise and hours of work performed per week. It was very difficult to identify workers within the learnership and children in the performance of advertising, artistic and cultural activities sector in the occupation category in the labour force survey, so they are not considered for analysis.

For some of the sectors, such as private security, civil engineering and the wholesale and retail sectors, the minimum wages were set for a number of subcategories. Private security was divided into the following classifications: artisan, clerical assistant, clerk, control of communications centre operator, stock controller, driver of light and heavy motor vehicles, general worker, handyman, and security officer was further sub-divided into five grades from A to E. Similarly, in the case of civil engineering, the minimum wage structure became quite complex in 2007 as the workers were divided within nine task grades and each of the task

grades further divided into sub-categories. Task grade 1 includes general worker; task grade 2 includes artisan aid, construction hand (grade 4), operator (grade 5), checker and chainman; task grade 3 includes construction hand (grade 3), operator (grade 4) and site support (junior clerk); task grade 4 includes construction hand (grade 2), operator (grade 3), driver (grade 2) and site support (material tester); task grade 5 includes construction hand (grade 1), operator (grade 2), driver (grade 1), and site support (assistant surveyor); task grade 6 includes operator (grade 1); task grade 7 includes supervisor (grade 2); task grade 8 includes supervisor (grade 1) and task grade 9 includes artisan. The definitions of each of the sub-categories, which were made available in the sectoral wage determinations, were matched with the National Classification of Occupations of South Africa at the four-digit level to identify the workers.

Turkey. The Labour Law, Article 39 stipulates that minimum wage rates will be determined at least every 2 years by the Minimum Wage Fixing Committee for all workers employed on labour contracts, regardless of whether they come within the scope of the Labour Act. A nationwide monthly minimum wage rate is set for all adult workers, regardless of sector or occupation, and a lower monthly minimum wage is set for workers below 16 years of age. In Turkey, the household labour force survey (HLFS) does not investigate whether a worker is on a labour contract or not. So, for the purposes of this analysis we have taken into consideration whether or not the worker has a social security contract. All those employees who do not have a social security contract were excluded from the analysis.

Viet Nam. The minimum wages are set for two broad categories of workers and set separately for different regions. The first category includes workers employed by foreign-invested enterprises, foreign agencies and organizations, international organizations or foreigners in Viet Nam; and the second category includes workers employed by Vietnamese companies, enterprises, cooperatives, cooperative groups, farms, households and individuals and other organizations employing labourers. In 2007, the minimum wages were applicable to all workers within category 1 in all three regions, while, in category 2, minimum wages were applicable only to workers employed in large cities. As a result, a number of workers employed in smaller cities and in rural areas were actually excluded from the provisions of the minimum wage legislation. However, in 2011 minimum wage cover was expanded to all workers in all regions in both categories.

Assigning minimum wages to workers covered by the minimum wage legislation

To assign a legal minimum wage to each worker in the data, we took the official minimum wages from the wage orders or sectoral wage determinations or the official decrees of the respective country. Every worker in the data set was assigned a legal minimum wage if the occupation or sector or industry in which the worker was employed had been legally covered by the official decree of the respective country. In the case of multiple minimum wages in a country, the minimum wage legislation provided information at the different levels. The assignment of a legal minimum wage to a worker was then based on a comparison of the occupational classification used in the household or labour force survey, and the categories in the minimum wage regulations. In most cases, it was not difficult to match the

categories with the surveys and minimum wage legislations, as detailed information was available.

However, there were cases where a match was difficult due to the lack of information in the survey. For example, in the Philippines, the minimum wage provisions provide exemptions for workers and employees in retail/service establishments that regularly employ not more than ten workers, and exempt workers in micro business enterprises, defined by a limit on total assets, from compliance with the Wage Rationalization Act. Information on firm and asset size was not available in the labour force survey, so it was difficult to exempt these workers from the coverage. In such cases we have considered all workers within the scope without exempting those working in smaller or micro-enterprises.

For example, in Costa Rica, to assign a legal minimum wage to each worker in the data, we took the legal minimum wages available in the official decrees. As Costa Rica has a complex minimum wage system, categorized by occupations and skills, every worker in the data set was assigned a legal minimum wage based on occupation, skill level and education level. To assign the legal minimum wage to a worker required comparison of the skill, education and occupation classifications used in the household surveys with the detailed skill, occupation and industry categories in the minimum wage regulations. Although both the household surveys and the minimum wage legislations provided detailed definition of the categories, there were some slight discrepancies in certain definitions. Based on this comparison, we then assigned a legal minimum wage to each worker.

Although in all the countries we have taken great care in matching the definitions of categories between household and labour force surveys and the minimum wage regulations, it is plausible that we have made some errors in the process.

Level of minimum wage rates

As an illustration, we provide below the level of minimum wage rates that are applied in Viet Nam for 2011. The scope of the region, which was used for analysis is listed in Decree No. 107/2010/ND-CP and No. 108/2010/ND-CP for 2011.

Table 3B.1 Level of minimum wage rates per month (VND) in Viet Nam, 2011

	Minimum wage applicable to Vietnamese labourers working for foreign-invested enterprises, foreign agencies and organizations, international organizations or foreigners in Viet Nam	Minimum wage applicable to labourers working for Vietnamese companies, enterprises, cooperatives, cooperative groups, farms, households and individuals and other organizations employing labourers
Region I	1,550,000	1,350,000
Region II	1,350,000	1,200,000
Region III	1,170,000	1,050,000
Region IV	1,100,000	830,000

Appendix C

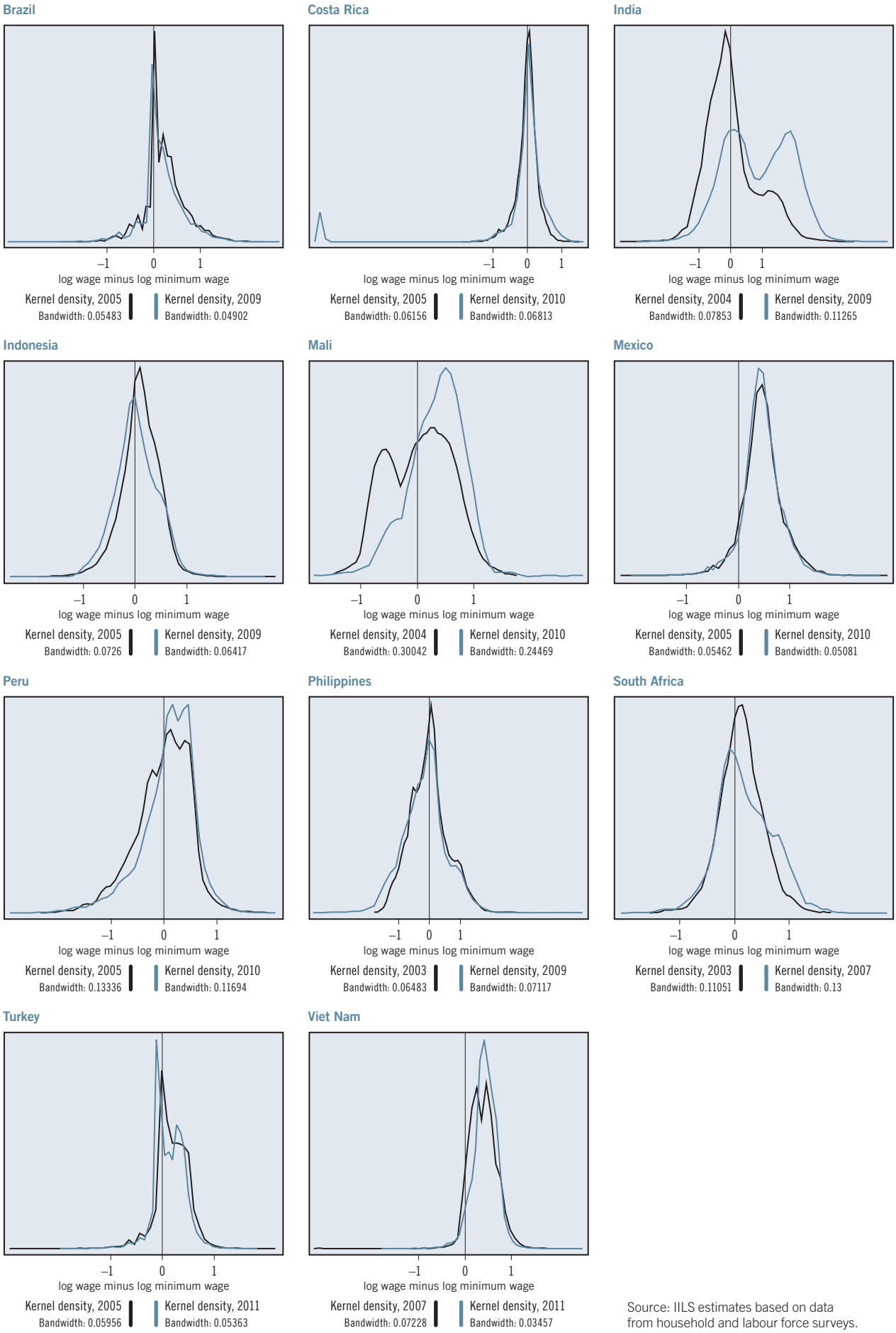
Distribution of wages around minimum wages

There are a number of approaches to estimate the impact of legal minimum wage on wage distributions using kernel density estimates. A simple method would be to look for spikes in the wage distribution at or around the minimum wages to infer level of compliance with the legislation and whether or not there is an impact. As a number of countries under analysis have multiple legal minimum wages, the kernel density estimates are simply calculated as log actual wage minus log minimum wage for each worker[23] and plotted in figure 3C.1 for the two periods under analysis. This method also allows the ways in which the complex structure of minimum wages can affect the wage distribution to be examined. The line "zero" in the figure indicates that the worker is earning the legal minimum wage, and the value above (below) zero implies that workers earn above (below) the legal minimum wage.

The evidence of spikes in the earnings distribution at the minimum wage level is quite mixed in developing countries. There is a significant spike at the minimum wage level in Brazil, Costa Rica, Indonesia, the Philippines and South Africa, but there is no evidence of a spike in Mali, Mexico, Peru, or Viet Nam. The steep cliffs around the minimum wage level highlight the role of minimum wages in shaping the distribution. When comparing the distribution over time, the spikes in the distribution near zero in the case of Brazil and Costa Rica, indicate that minimum wages have become much more binding in the second year compared to the first. The proportion of workers earning the minimum wage[24] increased from 18 to 23 per cent in Brazil, and from 18 to 24 per cent in Costa Rica. Thanks to the improved enforcement mechanism in Costa Rica, minimum wages have become more binding. In Brazil there is a strong compression effect towards the middle of the distribution, which indicates the expansion of the middle class during the late 2000s (Chapter 2). In countries such as India and Turkey, minimum wages have become less binding in the late 2000s, and the proportion of workers at the minimum wage level has declined by more than 4 percentage points.

23. This method is used by other studies; see Gindling and Terrell (2004).
24. The term "workers earning the minimum wage" includes workers who receive wages between 90 and 110 per cent of the minimum wage.

Figure 3C.1 Comparing the distribution of wages and legal minimum wages, all wage earners



Source: IILS estimates based on data from household and labour force surveys.

Appendix D

Methodology to analyse the impact of minimum wages on employment

Section C of this chapter analysed the employment effect due to an increase in minimum wages or an expansion of minimum wage legislation. One of the questions is whether employers would respond to the enforcement of such legislation by reducing their workforce. From the policy point of view, the issue can be tested by analysing the effect of change in minimum wage level or other minimum wage indicators on employment and by analysing the movement of labour force from covered to uncovered sectors. The analysis is restricted to examining the impact of minimum wages on employment, and not the transitions from covered to uncovered sectors.

As it is difficult to obtain panel data in developing countries, the analysis is done at the aggregate level to capture the policy effect of the rise in minimum wages, using the pseudo panel concept.

To build the pseudo panel, we considered the smallest geographical units, where applicable, that were defined in the surveys as cohorts over two available time periods – in the mid-2000s and late 2000s. To control for regional effect, the panel regression with fixed effects was run over this aggregated set. The model was estimated in the following form:

$$EMP_{ct} = \alpha_0 + \alpha_1 \log(MW_{ct}) + \alpha_2(LowEdu_{ct}) + \varepsilon_{ct} \quad (1)$$

where $(EMP)_{ct}$ represents the employment rate, that is the ratio of employment over the population in a particular geographic cohort, c, at time, t, and MW_{ct} is the minimum wage indicator of the cohort, which is the average weighted minimum wages of the cohort. To control for the personal characteristic of the cohort we included *LowEdu*, which represents the percentage of population in each cohort with primary education and below. This variable was considered as there was sufficient variation across the geographical regions.

The two main challenges in analysing the employment effect of minimum wages are the availability of the appropriate geographical units in the survey and the endogeneity of the minimum wage indicator in the main regression. For the former, we have considered for analysis only those countries which have appropriate geographical units[25] and, to ensure the orthogonality of $\log(MW_{ct})$ with the error term in this model, we have applied the two-stage least square (2SLS) procedure. It is first instrumented (regressed) log of minimum wage of each cohort on the average wage level and the degree of compliance with minimum wage legislation, and the resulting predicted values are used to estimate equation (1). For the estimation of instrumental regression, the following model was used:

$$\log(MW_{ct}) = \beta_0 + \beta_1(DC_{ct}) + \omega_{ct} \quad (2)$$

where DC_{ct} is the degree of compliance within the cohort; and ω_{ct} represents the error term. Table 3D.1 presents the final results of the analysis, which is consistent

25. Only Costa Rica is an exception, and the analysis for this country was carried out for one time period for which district-level information was available. The geographical variation in this year in this country was sufficient to allow the analysis to be carried out using OLS.

Table 3D.1 Impact of minimum wages on employment (Instrumental Variable (IV) regression)

	Dependent variable: Employment rate					
	Brazil	Costa Rica	India	Mexico	Peru	Viet Nam
Log (MW)	1.720 (2.02)	1.983 (1.14)	–0.620 (0.58)	–1.385* (0.55)	1.384* (0.64)	–0.144 (0.153)
LowEdu	5.048 (4.27)	–14.66*** (2.76)	33.25** (10.61)	–2.449 (2.21)	12.35*** (3.25)	10.54*** (2.79)
Constant	56.18*** (10.85)	48.54*** (10.14)	43.20*** (7.39)	61.15*** (1.87)	70.61*** (2.78)	78.76*** (0.86)
R^2	0.011	0.158	0.076	0.007	0.261	0.031
No. of observations	54	359	140	1971	1687	125

Note: Standard errors are in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Source: IILS estimates based on data from household and labour force surveys.

Table 3D.2 Time period and variables for analysing employment effects

Country	Properties of the model
Brazil	Years of study: 2005 and 2009; Unit of measurement: federal units, 27 units were available for each year; Method: panel regression with fixed effect
Costa Rica	Year of study: 2010; Unit of measurement: only the 2010 survey encompassing 359 districts as a geographical unit; Method: OLS (considering the geographical variation)
India	Years of study: 2004–05 and 2009–10; Unit of measurement: districts, 70 districts were available for each year; Method: panel regression with fixed effect
Mexico	Years of study: 2005 and 2010; Unit of measurement: municipalities, 1,070 municipalities in 2005 and 1,068 municipalities in 2010 were available for the respective years; Method: panel regression with fixed effect
Peru	Years of study: 2005 and 2010; Unit of measurement: ubicación geográfica, 877 in 2005 and 974 in 2010 were available for the respective years; Method: panel regression with fixed effect
Viet Nam	Years of study: 2007 and 2011; Unit of measurement: province, 64 province in 2007 and 65 province in 2011 were available for the respective years; Method: panel regression with fixed effect

with a large body of the literature that argues that the employment effect of minimum wages is either insignificant or has values around zero.

The analysis has been carried out for the age group 15 to 64 years. The models were estimated using a fixed effect on the aggregate data at different geographical levels. The details of the geographical units, time periods and variables considered for each country are presented in table 3D.2. Some of the macro variables at the regional level were considered for the analysis. However, due to the lack of regional variations in these macro variables they could not fit into the model. To partially address the omitted variable bias, we assumed that the panel structure and use of fixed effect model would help in taking into consideration the district-specific macro variables.

References

Alaniz, E.; Gindling, T.H.; Terrell, K. 2011. "The impact of minimum wages on wages, work and poverty in Nicaragua", in *Labour Economics*, Vol. 18, Supplement 1, pp. S54-S59.

Arango, C.A.; Pachón, A. 2004. *Minimum wages in Colombia: Holding the middle with a bite on the poor*. (Bogota, Central Bank of Colombia), unpublished.

Autor, D.H.; Manning, A.; Smith, C.L. 2010. *The contribution of the minimum wage to U.S. wage inequality over three decades:* A *reassessment*, NBER Working Paper No. 16533 (Cambridge MA, National Bureau of Economic Research).

Belser, P.; Sobeck, K. 2012. "At what level should countries set their minimum wages?" in *International Journal of Labour Research*, Vol. 4, No. 1, pp. 105-27.

Bhorat, H.; Kanbur, R.; Mayet, A. 2012. "Minimum wage violation in South Africa: Low-paid work in emerging economies", in *International Labour Review*, Vol. 151, No. 3; pp. 277-287.

Boockmann, B. 2010. *The combined employment effects of minimum wages and labour market regulation:* A *meta-analysis*, IZA Discussion Paper No. 4983 (Bonn, IZA).

Bureau of Labor Statistics. 2009. *Characteristics of minimum wage workers: 2008*. (Washington, DC, United States Department of Labor).

Butcher, T.; Dickens, R.; Manning, A. 2012. *Minimum wages and wage inequality: Some theory and an application to the UK*, CEP Discussion Paper No. 1177 (London, The London School of Economics and Political Science).

Carneiro, F.G.; Henley, A. 2001. *Modelling formal versus informal employment and earnings: Micro econometric evidence for Brazil*, Working Paper No. 2001-15 (Aberystwyth, School of Management and Business, Aberystwyth University).

Chipman, K. 2006. "Higher minimum wage no longer seen as sure-fire U.S. job killer", in *Bloomberg.com* (News). Available at: http://www.bloomberg.com/apps/news?pid=20601070&sid=atp2MiOAZ3Xc&refer=home# [11 Apr. 2013]

Chun, N.; Khor, N. 2010. *Minimum wages and changing wage inequality in Indonesia*, ADB Economics Working Paper series No. 196 (Manila, Asian Development Bank).

Comola, M. ; de Mello, L. 2009. *How does decentralised minimum-wage setting affect unemployment and informality? The case of Indonesia*, OECD Economics Department Working Paper No. 710 (Paris, OECD).

Cunningham, W.V. 2007. *Minimum wages and social policy: Lessons from developing countries*. (Washington, DC, World Bank).

de Melo, F.L.B.; Figueiredo, A.; Mineiro, A.S.; Mendoca, S.EA. 2012. "Rescuing the minimum wage as a tool for development in Brazil", in *International Journal of Labour Research*, Vol. 4, No. 1, pp. 27-44.

Dickens, R.; Manning, A. 2004. "Has the national minimum wage reduced UK wage inequality?", in *Journal of the Royal Statistical Society*, Series A (Statistics in Society), Vol. 167, No. 4, pp. 613–626.

Dolton, P.; Rosazza-Bondibene, C.; Wadsworth, J. 2010. *Employment, inequality and the UK national minimum wage over the medium-term*, IZA Discussion Paper Series No. 5278 (Bonn, IZA).

Doucouliagos, H.; Stanley, T.D. 2009. "Publication selection bias in minimum-wage research? A meta-regression analysis" in *British Journal of Industrial Relations*, Vol. 47, No. 2, pp. 406-428.

Economic Commission for Latin America and the Caribbean (ECLAC). 2012. "Preliminary overview of the economies of Latin America and the Caribbean" (Santiago, Chile, ECLAC), United Nations).

Fajnzylber, P. 2001. "Minimum wage effects throughout the wage distribution: Evidence from Brazil's formal and informal sectors", paper provided by ANPEC – Associação Nacional dos Centros de Pósgraduação em Economia [Brazilian Association of Graduate Programs in Economics] in its series Anais do XXIX Encontro Nacional de Economia [Proceedings of the 29th Brazilian Economics Meeting] No. 98 (Ingá Niterói, RJ, ANPEC).

Ghosheh, N. 2013. *Wage protection legislation in Africa*, Conditions of Work and Employment Series No. 38 (Geneva; ILO).

Gindling, T.H.; Terrell, K. 2004. *Legal minimum wages and the wages of formal and informal sector workers in Costa Rica*, IZA Discussion Paper No. 1018 (Bonn, IZA).
—;—. 2010. "Minimum wages, globalization and poverty in Honduras" in *World Development*, Vol. 38, No. 6, pp. 908-918.
—;Trejos, J.D. (2010) *Improving compliance with legal minimum wages in Costa Rica*, Working Paper No. 127, Department of Economics (Baltimore, MD, University of Maryland.
Hein, E.; Mundt, M. 2012. *Financialization and the requirements and potentials for wage-led recovery – a review focusing on the G20*, Conditions of Work and Employment Series No. 37, Conditions of Work and Employment Branch (Geneva, ILO).
Herr, H.; Kazandziska, M. Mahnkopf-Praprotnik, S. 2009. *The theoretical debate about minimum wages*, Global University Working Papers, Paper No. 6 (Kassel and Berlin, Global Labour University).
International Labour Office (ILO). 2011. *World of Work Report 2011: Making markets work for jobs* (Geneva).
—. 2012. *Global Wage Report 2012/13: Wages and equitable growth.* (Geneva).
—. 2010. *Global Wage Report 2010/11: Wage policies in times of crisis.* (Geneva).
—. 2008. *Global Wage Report 2008/09: Minimum wages and collective bargaining. Towards policy coherence.* (Geneva).
—. 1967. Report of the meeting of experts on minimum wage fixing and related problems, with special reference to developing countries, presented at the 170th session of the Governing Body of November 1967, Geneva
—. Various years. *Working Conditions Report*.
Lee, D.S. 1999. "Wage inequality in the United States during the 1980s: Rising dispersion or falling minimum wage?" in *The Quarterly Journal of Economics*, Vol. 114, No. 3, pp. 977–1023.
Lavoie, M. 2009. *The perverse effects of declining wages*, Presentation to the International Labour Conference, ILO Geneva, June 2009. Available at: http://www.ilo.org/public/libdoc/ILC2009/TD6/Lavoie%20TD6.pdf [11 Apr. 2013].
Lee, S. 2012. ""Varieties of minimum wage system" through the dubious lens of indicator-based country rankings", in *International Labour Review*, Vol. 151, No.3, pp. 261-275.
Lemos, S. 2009. "Minimum wage effects in a developing country" in *Labour Economics,* Vol. 16. No. 2, pp. 224-237.
—. 2007. "Minimum wage effects across the private and public sectors in Brazil", in *Journal of Development Studies*, Vol. 43, No. 4, pp. 700-720.
—. 2004. "The effect of the minimum wage on prices", IZA Discussion Paper No. 1072 (Bonn, IZA).
Maloney, W.F.; Nuñez, J. 2001. *Measuring the impact of minimum wages: Evidence from Latin America*, Policy Research Working Paper No. 2597 (Washington DC, The World Bank).
Metcalf, D. 2008. "Why has the British national minimum wage had little or no impact on employment?", in *Journal of Industrial Relations*, Vol. 50, No. 3, pp. 489-512.
Murgai, R.; Ravallion, M. 2005. "Employment guarantee in rural India: What would it cost and how much would it reduce poverty?", in *Economic and Political Weekly*, Vol. 40, No. 31, pp. 3450-3455.
Ni, J.; Wang, G.; Yao, X. 2011. "Impact of minimum wages on employment" in *The Chinese Economy*, Vol. 44, No.1, pp.18.38.
Neumark, D.; Wascher, W.L. 2008. *Minimum wages* (Cambridge, MA, MIT Press).
Rama, M. 2001. "The consequences of doubling the minimum wage: The case of Indonesia", in *Industrial and Labor Relations Review*, Vol. 54, No, 4, pp. 864-881.
Rani U.; Belser, P. 2012. "The effectiveness of minimum wages in developing countries: The case of India", in *International Journal of Labour Research*, Vol. 4, No. 1, pp. 45-66.
Ravi, S.; Engler, M. 2013. "Workfare as an effective way to fight poverty?: The case of India's NREGS", Available at: http://ssrn.com/abstract=1336837 [10 Apr. 2013].
Sankaran, S. R. 1997. "Minimum Wage Legislation", in *The Indian Journal of Labour Economics,* Vol. 40, No. 4, pp. 705-13.

Saraswat, D. 2011. *Effect of employment guarantee on access to credit: Evidence from rural India*, Munich Personal RePEc Archive (MPRA) Paper No. 34671 (Munich, Munich University Library).

Starr, G.F. 1981. "Minimum wage fixing: International experience with alternative roles" in *International Labour Review*, Vol. 120, No. 5, pp. 545-562.

Stockhammer, E. 2012. "Why have wage shares fallen? A panel analysis of the determinants of functional income distribution", Conditions of Work and Employment Series No. 35, Conditions of Work and Employment Branch (Geneva, ILO).

—.; Onaran, Ö.; Ederer, S. 2007. *Functional income distribution and aggregate demand in the Euro-area,* Working Paper No. 102, Department of Economics (Vienna, Vienna University of Economics).

Suryahadi, A.; Sumarto, S.; Maxwell, J. 2001. *Wage and employment effects of minimum wage policy in the Indonesian urban labor market*, SMERU Research Report (Jakarta, The SMERU Research Institute).

The Low Pay Commission (LPC). 2012. *National minimum wage: Low pay commission report 2012* (London, Low Pay Commission).

—. 2009. *National minimum wage: Low pay commission report 2009* (London, Low Pay Commission).

Vaughan-Whitehead, D. 2011. *Work inequalities in the crisis: Evidence from Europe* (Cheltenham and Geneva, Edward Elgar and ILO).