

## MINIMUM WAGES IN DEVELOPING COUNTRIES: HELPING OR HURTING WORKERS?\*

A large ongoing debate centers on the costs and benefits of increasing the minimum wage in an economy. Supporters of minimum wage legislation highlight that it can shift the earnings distribution in favor of low-paid workers by shrinking the bottom tail of the distribution. Opponents highlight its disemployment effect and the fact that it might reduce the share of earnings going to low-paid workers.

***“The goal of the minimum wage is not, of course, to reduce employment, but to redistribute earnings to low-paid workers.”***

R. Freeman, “The Minimum Wage as a Redistributive Tool,”  
*The Economic Journal*

This policy note reviews the literature on the effects of minimum wages on labor markets in developing countries. We begin by elucidating the challenges to ascertaining these effects, especially in developing economies where a large segment of the workforce is not covered by minimum wage legislation (uncovered sector). After summarizing the theoretical models and their predictions, we review the empirical evidence of the impact of minimum wage legislation on wages, employment, and unemployment in the covered and uncovered sectors of the labor market.

The evidence strongly suggests that an increase in the minimum wage tends to have a positive wage effect and a small negative employment effect among work-

ers covered by minimum wage legislation and that the effects tend to be stronger among low-wage workers. The findings are quite limited and fairly inconclusive on the indirect effects of increases in minimum wages on workers in the uncovered sectors, where the legislation either does not apply or is not complied with. This is in part because of the diversity of this sector and in part because of a paucity of appropriate data to test for these effects.

In sum, although there is no robust empirical evidence that increases in the minimum wage cause large disemployment effects, it is not clear that the resulting wage gain among those who retain their jobs is large enough to increase the share of earnings going to low-wage workers in the covered sector. The pay of the displaced workers moving to the uncovered sector may decrease, although the data supporting this is scant. Hence, the evidence is rather inconclusive on whether minimum wages leave low-paid workers better off.

### Theoretical Considerations

From a theoretical perspective, it is very difficult to predict the employment and wage effects of the minimum wage on workers in the covered and uncovered sectors. (See Box 1 below for a brief summary.) The overall effect of the minimum wage on the economy depends on multiple factors, including the degree of competition in the labor market, relative level of the minimum wage to the market clearing wage, structure (number) of minimum wages, share of the workforce covered by minimum wage legislation, degree of enforcement of the legislation, and elasticities of demand in the covered and uncovered sectors.

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## Box 1: Implications of Theoretical Models for Wages and Employment in Covered and Uncovered Sectors

|                  | Competitive Model                                                                                                          | Imperfect Competition Model                                                                                                                                       |
|------------------|----------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Covered Sector   | If the MW is set above market wage ( $MW > W$ ), $W$ will increase while $E$ will decrease.                                | Setting the MW at $W < MW < MPL$ (marginal product of labor) $\Rightarrow$ increase in $W$ and $E$ . Setting $MW > MPL$ will increase $W$ but will decrease $E$ . |
| Uncovered Sector | If a large number of displaced workers seek jobs in this sector, it could lead to an increase in $E$ and decrease in $W$ . | Ambiguous effect on $W$ and $E$ .                                                                                                                                 |

In a model of perfectly competitive labor market, an increase in the minimum wage (MW) set above the market clearing wage ( $W$ ) will result in a reduction of employment ( $E$ ). The magnitude of the effect depends on the size of the minimum wage increase and on the elasticity of the labor demand. If the elasticity of demand exceeds one in the covered sector, an increase in the minimum wage will reduce rather than increase the share of earnings going to low-wage workers. The impact on wages and employment in the uncovered sector is ambiguous. If the displaced workers seek jobs in this sector, the shift in labor supply could lead to an increase in  $E$  and a decrease in  $W$ . In this case, the extent to which  $E$  rises and  $W$  falls is a function of the size of the shift, the elasticity of demand in that market, and the extent to which unemployment ( $U$ ) increases as a result of the MW increases. If displaced workers flow into unemployment instead of to the uncovered sector, there would be no impact on employment and wages.

Taking into account long-run general equilibrium effects, such as a diversion of capital flows from the covered to the uncovered sector (in response to higher wages in the covered sector), can lead to an outward shift in labor demand in the uncovered sector, hence raising both employment and wages in this sector.

Departures from the perfectly competitive model can lead to dramatic changes in the predicted effects of the minimum wages. The model of a monopsonistic labor market predicts that a moderate increase in the minimum wage that is greater than the market clearing wage but less than the marginal product of labor ( $MP_L$ ) results in an increase in employment and

wages. If the covered sector labor market responds with an increase in employment, a backward shift in labor supply to the uncovered sector could occur. This would lead to a reduction of employment and to an increase in wages. However, if the new hires in the covered sector are drawn from unemployment or out of the labor force, there may be no effect on wages and employment in the uncovered sector. The theoretical prediction from the monopsonistic model of setting the  $W > MP_L$  is a reduction in employment, as in the competitive labor market. Hence, one needs to take into account how high the minimum wage is set relative to the marginal product of labor and whether markets are competitive or not.

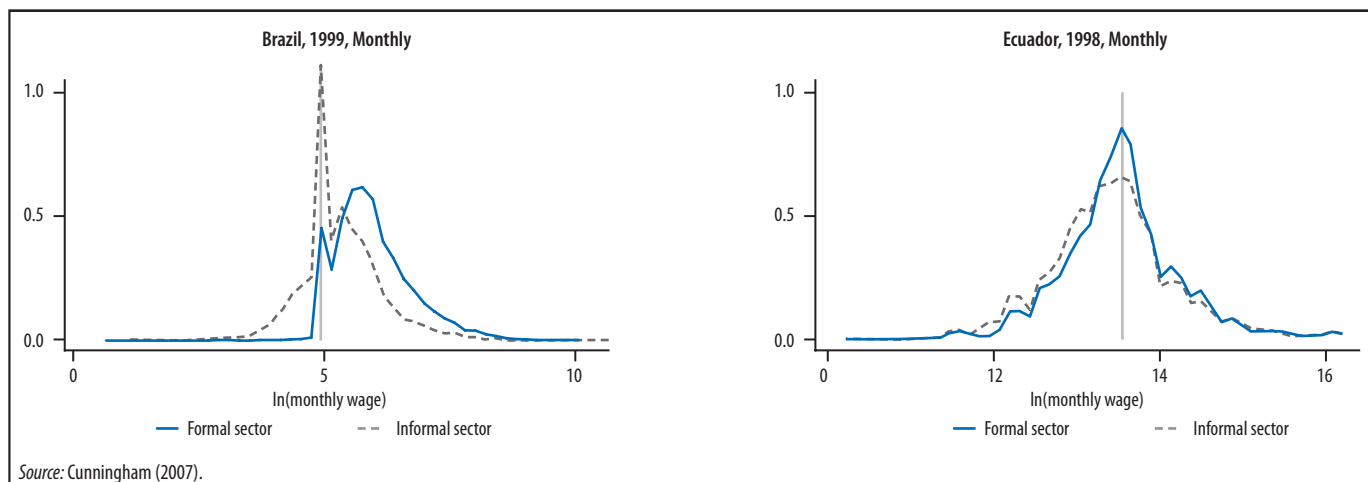
## Uncovered Sector and Non-Compliance

Since the uncovered sector can be as large as 30–70 percent of the labor market in developing countries and the competitive two-sector model of minimum wages predicts negative wage effects, it is especially important to look at the “indirect” effects in this sector. Defining the uncovered sector, however, is a non-trivial task with potentially different implications for the effects of the minimum wage. The uncovered can be comprised of a high-wage public sector (where the legislation does not apply) plus a low-wage informal sector, such as workers in small firms (where the legislation is not typically enforced) and the self-employed (where the legislation might not apply). In some countries, such as Brazil and Mexico, it also includes higher-wage workers in large firms without a formal registration card.

Non-compliance in a covered sector essentially makes it behave as an uncovered sector, and it should be treated as such when thinking about the effects of an increase in the minimum wages. In most countries, including the U.S., relatively few resources are devoted to monitoring compliance in the covered sector. In developing countries, there are even fewer resources. For example, in 2005 in Honduras the Ministry of Labor had only four inspectors to enforce compliance with the labor law (including the minimum wage) in the entire country.

Economists check for compliance with the minimum wage in several ways. First, one can look for spikes at the minimum wage (or at multiples of it) in the wage distribution of the formal and informal sectors. While the evidence for the U.S. has generally found such spikes, the evidence for developing countries has been more

Figure 1. Wage Distribution in Brazil and Ecuador



mixed.<sup>1</sup> For example, Figure 1 shows a clear “spike” in the wage distribution in the covered sector in Brazil though not in Ecuador. Second, one can calculate the average share of workers earning less than the minimum wage. Eyraud and Saget (2005) find that this share ranges from 0.8 percent in the U.S. in 1973 to 15 percent in Morocco in 1995–99 and 25 percent in Honduras in 1999. Applying this measure to all workers, and not just covered workers, has the disadvantage of capturing other effects apart from compliance in the covered sector. One way to overcome this problem is to test whether the share of workers earning the minimum wage is substantially higher among uncovered than covered employees. Third, one can test whether increases in minimum wages cause increases in the average wage prevalent in the covered sector. An increase in the average wage can be interpreted as evidence supporting the enforcement of the minimum. Using this approach, Gindling and Terrell (2007a, 2007b) find evidence that minimum wages are complied with in both large and small firms in Costa Rica, but only in large firms in Honduras.

## Empirical Findings

A growing literature is testing the effects of minimum wages on employment and wages using data for both developed and developing countries, especially Latin America.<sup>2</sup> This literature documents heterogeneity in the structure and coverage of minimum wages. Specifically, countries differ on whether: (i) one or multiple minimum wages are in effect; (ii) the minima are set by occupation, industry, and/or region; (iii) coverage is

universal or limited to private sector employees (or to some economic activities); and, (iv) the level(s) is (are) set at the low end of the wage distribution (as in the U.S.) or throughout the wage distribution (as in Costa Rica). As seen above, the effects, to the covered and uncovered sectors, also should depend on the degree of compliance with minimum wage legislation.

### Covered Sector

Early time series studies for the U.S. (using data from the 1960s and 70s) showed that a 1 percent increase in the minimum wage reduced teenage employment by 0.1–0.3 percent. However, more recent studies exploring micro data in the 1980s and 90s tend to find smaller, and at times insignificant, employment effects.<sup>3</sup> Several explanations have been offered for the insignificant employment effects in more recent years. They range from monopsonistic labor markets and employers reducing other labor costs to compensate for a higher minimum wage to a lower level of the real minimum wage in the more recent period.

The overall elasticities for developing countries range from being quite large (–0.9 percent) in Puerto Rico after 1974 to no effects in Mexico in the 1980s.

<sup>1</sup> Neumark *et al.* (2004) presents evidence for the U.S. Maloney and Núñez (2003) and Cunningham (2007) present evidence for several Latin American Countries, including Argentina, Brazil, Chile, Colombia, Mexico, and Uruguay. Lemos (2006) also presents evidence for Brazil, and Gindling and Terrell (2007a) for Costa Rica and (2007b) for Honduras.

<sup>2</sup> For recent and comprehensive reviews of the literature, see Cunningham (2007) and Neumark and Wascher (2007).

<sup>3</sup> See for example Brown (1999) and Card and Krueger (1995).

(See Box 2 below.) The difference in these elasticities can be traced to the level and structure of minimum wages. Where they are set at fairly high levels relative to the market wage and enforced, minimum wages can generate larger disemployment effects.

In fact, some evidence indicates that increases in the minimum wage are not helping and may even be hurting low-wage workers, both in the U.S. and developing countries. For example, Neumark *et al.* (2004) conclude that low-wage workers in the U.S. are more adversely affected by minimum wage increases than higher-wage workers. Although the wages of low-wage workers increase, their hours and employment decline such that a decline in total income earned by this group occurs. On the other hand, high-wage workers experience an increase in earned income due to an increase in their hours but no change in their wage. In Colombia, where the minimum is set relatively high, Arango and Pachón (2003) have found that the minimum wage improves the earnings of families in the middle and upper part of the income distribution with net losses for those in the bottom (due to significant negative employment effects).

In Brazil, where only one universal minimum has been set at relatively low levels for many years, evidence attests that increases in the minimum wage raise the wages of low-wage workers earning below and around the minimum wage more than the wages of higher-wage workers (Fajnzylber 2001). Nevertheless, it seems that the low minimum wage in Brazil does not affect the earnings and employment of those at the very bottom of the wage distribution—those with no schooling (Cunningham and Siga 2006). At the other extreme, in Costa Rica where minimum wages are set at different levels across

the entire wage distribution (from domestic servants to university graduates), Gindling and Terrell (2007a) find that only the wages and employment of individuals in the lower half of the wage distribution are impacted. One explanation may be that the minimum wages are set at a level above the market clearing wage among low-wage workers but not among high-wage workers.

In sum, we can conclude that in countries where the minimum wage is set at relatively low levels in the wage distribution, increases in the minimum will improve the wages of the lower-wage workers and produce small disemployment effects in the labor market.

### Uncovered Sector

The evidence for the effects of the minimum wage on the uncovered sector is limited and inconclusive. This is because the effects are more difficult to quantify, in part because changes in employment and wages in the covered sector indirectly affect the uncovered sector (as shown in Box 1) and in part because the uncovered sector is comprised of such heterogeneous labor markets. Moreover, until recently, the correct data (on individual panels) have not been available to measure these effects.

The extant evidence regarding the effects on wages in this sector ranges from negative to positive. Most papers have found that wages in the uncovered sector are not affected on average when this sector is defined as the self-employed, although some claim to have found a positive effects as well.<sup>4</sup> Alternatively, some authors

<sup>4</sup> For no significant effect see for example, Gindling and Terrell (2005, 2007b) for Costa Rica and Honduras, respectively, and Maloney and Núñez (2003) for Colombia. For a positive effect see for example, Fajnzylber (2001).

### Box 2: Effects of the Minimum Wage on Employment in Selected Developing Countries

| Country                                             | MW Variation                                                                       | Elasticities of Employment                                                                             | Criticism                                                            |
|-----------------------------------------------------|------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------|
| Colombia<br>(Maloney and Núñez, 2003)               | Two federal MW increases.                                                          | Small effects (−0.15).                                                                                 | Selected group of workers.                                           |
| Colombia and Mexico<br>(Bell, 1997)                 | Regional variation in Mexico; transition from regional to national MW in Colombia. | No effects in Mexico (−0.18 but insignificant); between −0.15 and −0.33 for the unskilled in Colombia. | —                                                                    |
| Honduras<br>(Gindling and Terrell, 2007b)           | More than 22 MWs set by industry, firm size, and region; changed annually.         | Large effect in large firm covered sector (−0.46); stronger for the lowest two education groups.       | —                                                                    |
| Indonesia<br>(Rama, 2001)                           | Cross-province variation in MW changes over 1990s.                                 | Small effects (−0.04).                                                                                 | Unclear strength of identifying information because low enforcement. |
| Puerto Rico<br>(Castillo-Freeman and Freeman, 1992) | U.S. federal MW and cross-industry variation.                                      | Large effect (−0.91 after 1974).                                                                       | Krueger (1995) shows that results are fragile.                       |



talk about a “lighthouse” effect of the minimum wage, where changes in its level serve as a reference for wages in the uncovered sector, defined as workers without a signed registration card in some countries and workers in micro firms in others.<sup>5</sup> They conclude that in several Latin American countries the minimum wages affect the wage distribution of the informal sector positively both at the minimum wage and at multiples of the minimum. There is also evidence that the public sector emulates minimum wage increases in its wage structure when it is not formally covered (Gindling and Terrell 2007a).

Similarly, the impact on employment in the uncovered sector is unclear. For example, in Brazil, where uncovered was defined as workers without a “carteira de trabalho”, some economists have found a positive employment effect and others have found a negative one.<sup>6</sup> Similarly, when the uncovered sector is defined as self-employed workers, there are also mixed findings: for example, a small positive effect in Costa Rica but no significant effect in Honduras.<sup>7</sup> The disemployment effect in the public sector appears to be insignificant or small where it has been measured.<sup>8</sup>

Because many of these findings are drawn from studies that do not use individual panel data, it is very difficult to conclude what the indirect impact of minimum wage legislation is on the uncovered sector.

### Unemployment

There is considerable evidence that increases in the minimum wage also increases unemployment among covered sector workers but it is not clear whether low-paid workers are affected more than higher-paid workers. For example, Maloney and Núñez (2003) find that increases in the minimum wage in Colombia increase the probability that either a salaried worker or a self-employed worker will become unemployed, and the effect is larger for those earning up to 70 percent of the minimum wage. Montenegro (2003) finds that increases in the minimum wage are positively associated with the unemployment rate in Chile. Gindling and Terrell (2007b) find that increases in the minimum wage lead to an increased level of unemployment in Honduras; this may be concentrated only among workers with secondary education rather than those with primary education.

### Implementation Challenges

Assessing the effects of minimum wages on labor market outcomes among low-wage workers in developing

countries is a challenging endeavor. The evidence to date shows that increases in the minimum wage do raise the wages of some workers in the covered sector and cause small negative employment effects among others. The total earnings of low-wage workers in the covered sector do not seem to rise and, have been shown to fall, in at least one country (Honduras). There is little evidence as to whether the disemployed workers end up unemployed for a long time or find another job rapidly in the uncovered/informal sector. There is even less of an understanding as to the indirect effects of minimum wages on the earnings of these workers in the uncovered sector. Thus, it is difficult to inform policymakers on the overall effect of minimum wages on all low-wage workers in an economy.

Nevertheless, a number of issues are worth highlighting for policymakers. First, most of the evidence for developing countries relies on the Latin American experience. Although this is an important and heterogeneous set of countries, evidence from other geographic locals is lacking. For example, in Latin America the minimum wage tends to be set at relatively high levels, which might explain the disemployment effects among the low-skilled, low-wage workers. In the former communist countries, where minimum wages tend to be set at relatively low levels, the evidence is virtually null.<sup>9</sup>

Second, when considering changes in the minimum, policymakers should also consider interactions with other labor market institutions (e.g., unemployment benefits, hiring and firing legislation, and unions). Unfortunately most of the evidence to date tends to ignore these interactions, with other labor market institutions. However, they are likely to amplify or minimize the estimated effects of the minimum wages. Consider for example, the impact of an increase of the minimum wage on unemployment. Countries with strong social safety nets, like the former socialist countries in south and central Eastern Europe, are likely to be impacted significantly while those with governments that provide few if any unemployment benefits, like the Central American countries, are likely to be less impacted. Furthermore, the

<sup>5</sup> See for example, Cunningham (2007).

<sup>6</sup> For positive effects see Carneiro and Corseuil (2001) and Lemos (2006), and for a negative effect see Fajnzylber (2001).

<sup>7</sup> Gindling and Terrell (2007a, 2007b).

<sup>8</sup> See Lemos (2006) for Brazil and Gindling and Terrell (2007a) for Costa Rica.

<sup>9</sup> Since labor codes have recently become more flexible in these countries, they would provide interesting comparative case studies to the Latin American economies.

adjustment to a higher minimum wage is also affected by two additional factors: (i) the degree of stringency of firing costs in the country, which is likely to slow down adjustment, and (ii) the other monetary or in-kind compensation (e.g., training, vacation days). It should be noted that very little evidence exists on whether minimum wage jobs are “worse” jobs with respect to these other non-cash dimensions. Finally, the extent to which labor unions rely on the minimum wage when setting wages also might affect how widely the minimum wage is implemented. For example, in countries with powerful unions, like Bosnia or Brazil, one might expect larger effects of the minimum wage. Therefore, the interaction of the minima with these three known variables—unemployment benefits, hiring and firing legislation, and unions—should also be considered when setting policy.

Finally, economists still need to improve the knowledge base of the indirect effects of minimum wages on the uncovered sectors. This can be achieved by: (i) separating the effects in each of the labor markets within this sector, such as the public sector, large versus small firms in the private sector, and the self-employed, and (ii) making more use of panel data on individuals (coupled with a solid research design) to observe the transition of workers across sectors as well as their labor market outcomes. Only then, will we better understand these processes and give a complete answer to our initial question, “Do minimum wages help or hinder low-paid workers?”

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