Poverty reduction and decent work in developing countries: Do minimum wages help?

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The aim of this paper is to explore the effects of changes in the minimum wage level on employment and poverty in developing countries. The underlying policy objective is to find more appropriate tools to "integrate the agenda of poverty reduction and decent work".[1]

Supporters of minimum wage laws argue that the setting of a minimum wage improves the economic conditions of low-wage workers. However, if increasing the minimum wage reduces the employment of this group of workers, the overall effect on income distribution is ambiguous. It is all the more important, therefore, to assess the relevance of the minimum wage as a wage policy tool after the labour market liberalization that occurred in the 1980s and 1990s. On the one hand, minimum wages seem to be received by a greater share of the working population, partly because the low level of the minimum wage in some countries provided more incentive to comply with the law (Lustig and McLeod, 1997). On the other hand, a high proportion of the new jobs created in the developing world are in the informal sector where the minimum wage is weakly, if at all, enforced. In Latin America, for example, 85 per cent of newly created jobs are in the informal sector (ILO, 1997). In Africa, the percentage of the labour force working in the formal sector declined between 1990 and 1999 (van der Hoeven and van der Geest, 1999). What are the consequences of this trend?

Other questions this article attempts to answer centre on the effect of the minimum wage on the level of employment. What is the sign of the relationship, if any? What are the competing theories that explain the link between the minimum wage and employment? Have they received any empirical

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[1] Address by Juan Somavia, Director-General of the ILO, to the World Bank, Washington, DC, 2 March 2000.

support in developing countries? Finally, there remains the most ambitious question of all: ultimately, what is the effect of a change in the minimum wage on poverty? In other words, does a higher minimum wage push workers into or out of poverty? Who are the workers most at risk? Is it possible to test the minimum wage effect in a dual sector economy with a sizeable informal sector?

The lack of data makes such an analysis difficult. One of the most severe limitations in studying minimum wages is the unavailability of time series data for many developing countries, especially in Africa. Moreover, many countries also lack information on basic variables like the share of workers receiving minimum wages, the degree of compliance with minimum wage laws, the distribution of minimum wage earners by sex or by population group (e.g. youth, urban, etc.). However, a recently released database does provide information on the minimum wage at several points in time (from the 1970s to the late 1990s) for approximately 30 developing countries, mainly in Latin America and Africa. Thailand and the Philippines are also represented in the sample. This data set has made it possible to test simple equations that relate changes in minimum wages to variations in employment and poverty.

The discussion opens with a review of recent developments in the literature on the minimum wage and a summary of the main results of the studies. This section is followed by an overview of low-wage labour market conditions, including trends in minimum wage levels, country evidence on compliance and the characteristics of minimum wage earners. A third section investigates the response of employment and poverty levels to changes in minimum wages using the above-mentioned data set. A concluding section summarizes the main findings and presents some policy recommendations.

The effect of minimum wage on employment and poverty: A review of the literature

Minimum wage and employment: Predictions

Predictions of neoclassical models when there is an informal sector

The standard model predicts that employment will fall if the wage is exogenously raised. The higher the minimum wage, the more unemployment there will be. In developing countries, minimum wage law generally applies to a small formal sector.[2] Often, though, the minimum wage law does not cover all workers of the formal sector — excluding, say, part-time workers or workers in some industries — while in a few cases, there is also a lower limit imposed

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[2] Following standard practice, the informal sector, which is sometimes defined as a residual, excludes the agricultural and public sectors and includes all non-professional workers in establishments with fewer than six or 11 employees, depending on survey methodology.

on wages paid to informal-sector workers. The terms "informal" and "uncovered" are therefore not exactly equivalent. The following discussion, however, is concerned with substitution effects and with changes in relative wages in two parts of the economy: one with and another without a minimum wage. In the long run, substitution of capital for labour and changes in relative wages can be expected to occur in both the uncovered and the informal sectors as a result of changes in the minimum wage, though probably more immediately in the informal sector. Informal and uncovered are thus used interchangeably.

In the presence of an extended informal sector, the effect of the minimum wage is twofold. Firstly, the introduction of a minimum wage results in a decrease of employment in the covered sector since labour demand in the neoclassical model is a decreasing function of wage. Secondly, workers who lose their jobs in the covered sector will work in the uncovered sector, thereby depressing wages in this part of the economy. As some of these workers have reservation wages above the wage equilibrium that prevails in the uncovered sector, total employment is less than employment in the absence of a minimum wage. The ultimate effect on employment is therefore highly dependent on the size of the minimum wage increase and also on substitution effects between formal and informal employment.

Formalizing the effects of the minimum wage when there is an uncovered sector, Fields (1994) showed that the effect of the minimum wage on unemployment effectively depends on three factors: the elasticity of demand for labour in the covered sector, the elasticity of wage in the non-covered sector and the size of the minimum wage rise. These factors ensure that the overall effect is ambiguous: Other things being equal, "a higher minimum wage can result either in more unemployment in equilibrium or in less unemployment in equilibrium, depending on parameter values" (Fields, 1994, p. 80).

Introducing efficiency wage theory

The model developed by Agénor and Aizenman (1999) departs from neoclassical theory in assuming that skilled workers are paid an efficiency wage. These authors argue that a reduction in the minimum wage increases the demand for unskilled workers in the formal sector and contributes to a decrease in labour supply in the informal sector, thus leading to an increase in the informal sector wage. Thus, as the wage paid to unskilled workers in the informal sector rises, the wage paid to skilled workers is rated up. In turn, the wage increase for skilled workers reduces their employment.

Efficiency wage theory is also able to account for the spike in wage distribution — i.e. concentration of wages at the minimum — that occurs even in firms exempted from the wage floor, as in the United States for example (Card and Krueger, 1995, p. 158). A similar phenomenon was observed in Papua New Guinea after the 1992 drop in the minimum wage: new entrants in large firms were paid wages higher than the minimum wage that was supposed to apply to them (Levantis, 1997). One explanation is that workers perceive the old minimum wage as the fair wage.

Introducing firms' reaction to the minimum wage

De Fraja (1999) builds on the idea that firms respond to an increase in the real minimum wage by making working conditions harder. In this model, jobs with harder working conditions are better paid and workers have different preferences as regards working conditions. In the absence of minimum wage regulations, the firm would not require a worker who prefers lighter working conditions to work harder, because it would have to compensate her for that. With the introduction of a minimum wage, the firm requires more effort from that worker. This model is able to account for the evidence that, for a moderate increase in the minimum wage, the overall effect on employment seems negligible.

It is also possible that firms offset the effect of the minimum wage by reducing non-wage compensation. For instance, employers may react to a rise in the minimum wage by increasing investment in fixed and human capital, with the effect of increasing aggregate employment (de Fraja, 1996). The very fact that firms may respond to an increase in the minimum wage otherwise than by dismissing employees is important. It means that the participation of workers' and employers' organizations in the determination of the minimum wage may greatly contribute to the success of any minimum wage policy. According to Islam and Nazara (2000), consultations with unions and business organizations in Indonesia contributed to making minimum wage increases harmless to employment over 1990 and 1998. Controlling for the level of GDP and location, these authors found no evidence of a negative relationship between the ratio of minimum to average wages and wage employment in that country.

Lastly, it has also been argued that a rise in the minimum wage may not lead to a decrease in employment because an increase in aggregate demand may offset the "disemployment effect" of the minimum wage.

Removing the hypothesis of free competition

In the monopsony theory, firms are price-takers in the product market, but have some degree of market power in the labour market. This hypothesis corresponds to the situation of agriculture in Morocco, for example: the low mobility of labour ensures that, in a given area, a few large farmers deal with a given number of employees. In Morocco, there is a minimum wage specific to agriculture, which is substantially below the minimum wage payable in other sectors and seems more or less enforced (Azam, 1992). When firms are confronted with an increase in the minimum wage above the going wage (which is less than the worker's marginal productivity in the case of a monopsony), monopsony theory predicts that the best strategy is to increase the level of employment. Indeed, Azam (1992) found a positive relationship between the minimum wage and employment in wheat farming in Morocco over the period 1971-89. Controlling for the market price of wheat and other cereals, an increase in the real minimum wage in agriculture is found to increase wheat production and therefore the demand for labour. The minimum wage

thus increases employment and, as the agricultural labourers are amongst the poorest workers, contributes to alleviating poverty.

Introducing efficiency wage in the monopsony case

Further research (Azam, 1997) suggested an alternative explanation for Azam's findings on Morocco. His explanation assumes that the setting of a minimum wage relieves the employer from the burden of finding out the appropriate wage which, for each employee, would minimize labour costs while ensuring that the employee's household can survive. In this model, the minimum wage works in the common interest of the employers, by preventing some kind of opportunistic behaviour. Hence, each of them has an incentive to monitor compliance by the others (Azam, 1997). In turn, this incentive explains why the agricultural wage is enforced in Morocco. In this country, there seems to be a collective interest in enforcing the minimum wage.

Introducing household labour supply

A rise in the minimum wage may also reduce the labour supply of other members of households affected by the rise and thereby contribute to the reduction of unemployment (Basu, Genicot and Stiglitz, 1999).

Including job search friction/reservation wage

In a model where workers and jobs are heterogeneous, time is needed to ensure that each worker's profile matches her/his own job type. The effect of setting a minimum wage in this context is to increase the reservation wage and therefore the quality of the match between jobs and workers' profiles (Teulings, 2000).

Minimum wage and employment: Empirical evidence

The ambivalence of the theoretical predictions has prompted a large number of studies using empirical data. There are two main procedures for estimating the effect of the minimum wage on employment. The first and most simple is to regress employment changes on the minimum wage, controlling for other factors.[3] Estimations typically relate changes in employment over time to variation in the level of the minimum wage (often relative to the average wage), output growth, controls for changes in labour supply (e.g. the ratio of economically active to total population), educational attainment and a time trend. To account for the effect of the minimum wage in the uncovered sector, the coverage-weighted sum of the ratio of the minimum wage to average wage is often used as an independent variable in place of the minimum wage.

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[3] Empirically, the employment effect is estimated using:

$$E_t = a_1 f(MW_t) + a_2 X_t + u_t$$

where E_t is the annual change in the log of employment, MW_t represents the percentage change in the real minimum wage between t and $t-1$, and X_t is a vector of independent variables at time t that are supposed to affect the level of employment at that time.

Bell (1997) estimated the impact on employment of the erosion of the minimum wage in Mexico and of its increase in Colombia in the 1980s.[4] She found significant minimum wage effects in Colombia but not in Mexico. In Colombia, an increase of 15 per cent in the real minimum wage is found to have reduced employment by 5 per cent over the period 1977-87. In Mexico, the very low value of the minimum wage may well explain the finding that no disemployment is observed for this country. The real minimum wage lost 45 per cent of its value in Mexico in the 1980s, whereas it increased by roughly the same proportion in Colombia by 1988.

While Bell's (1997) analysis is restricted to the manufacturing sector, another study on Mexico focuses on the impact of the minimum wage on overall employment (Feliciano, 1998). This study identified strongly differentiated impacts by sex: reductions in the Mexican minimum wage between 1970 and 1990 were found to have increased the employment of women aged 15-64 and to have reduced the employment of older male workers.

As in industrialized countries, the minimum wage is suspected of having a negative effect on youth employment in developing countries, though there is little evidence on this question for lack of disaggregated data (Ghellab, 1998). In France, a cross-section study investigated the responsibility of the minimum wage for keeping the youth unemployment rate as high as 20 per cent since 1983. Empirically, the study regressed the yearly youth unemployment rate over the log of minimum wages — using the unemployment rate of prime-age adults (25-49) to control for business cycle variation — and the log of the number of subsidized jobs for youth over the number of youth unemployed and the schooling rate during the period 1970-1994 (Bruno and Cazes, 1997). No impact of minimum wage on youth unemployment could be identified.

The method of regressing the minimum wage at time t (or $t-1$) raises two caveats. First, it requires changes in demand and supply factors to be controlled. Most notably, controls for final product demand in low-wage industries are also lacking. Secondly, the minimum wage is possibly endogenous, as minimum wage and output may well be determined by the same factors.

The second procedure for estimating the minimum wage effect on employment is the so-called "natural experiment approach" introduced by Card and Krueger (1995). These authors analysed the increase in the minimum wage in New Jersey in 1994, using as a control group the neighbouring state of Pennsylvania where the minimum wage was left unchanged. Basically, they compared employment growth between the two states following the rise in New Jersey's minimum wage. No disemployment effect was evidenced. This conclusion, though challenged by several researchers, was confirmed again by Card and Krueger (2000), using another set of employment

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[4] She estimated the following relationship for both countries:
$$ln(emp/pop)_i = \beta_1 ln(MW/AW)_t + \beta_2 ln(GNP) + \beta_3\, ln(price)_t + \beta_4\, trend\ \varepsilon$$
where employment refers to manufacturing employment.

data provided by the Bureau of Labour Statistics. In another study (also in Card and Krueger, 1995), the authors analysed the effect of the 1991 increase in the federal minimum wage in Texas. Looking at differences in employment growth between restaurants that had to adjust their wages to the new minimum and restaurants that were paying wages above the new minimum, they found weak evidence of a positive employment effect of the increase in the minimum wage. The "natural experiment" method has been heavily criticized because it is difficult, in practice, to define a proper control group. There is always concern that the change in employment observed for the control group may not reflect what would have happened to firms subject to the minimum wage regulations in the absence of those regulations.

Employment distribution effects

Another possible effect of a minimum wage increase is to alter the distribution of employment as between demographic groups. For example, a decrease in the minimum wage may cause a shift away from older workers towards younger workers, as appears to have happened in Mexico in the 1990s (Feliciano, 1998). The skill profile of minimum wage workers may also shift — away from those with more formal education towards those with little education. As already mentioned, Feliciano (1998) also reported large swings in the estimated effects of minimum wages by sex for Mexico, with a decline in the minimum wage having a positive effect on the employment of women. Similarly, a differential impact of the minimum wage by sex and age was also found for the United States, (Mills, Roy and Williams, 1999). By affecting the distribution of employment across population groups, changes in real minimum wages might have an impact on household poverty, an issue that is examined in the next section.

Minimum wage and poverty

Much of the justification for minimum wage regulation centres on the objective of providing income support to the poor. It seems, however, that while some low-wage workers may gain from a minimum wage increase, others lose, depending on its employment effects and its impact on average earnings.

Theory

Raising the minimum wage level in developing countries may contribute to widening the gap between workers in the covered sectors and the others. It would thus generate further poverty in relative terms. For example, this argument has been developed in work on Malawi (Livingstone, 1995). Malawi has a small urban sector and a large and impoverished, mainly informal, rural sector. Different minimum wage rates apply in towns and rural areas, and rates have been periodically increased but not sufficiently to compensate for the rise in consumer prices. According to Livingstone (1995), increasing the minimum wage within such a context would only result in

driving workers from the rural areas to towns, where they would look for a job but not necessarily find one. Therefore, the most efficient way of lifting workers out of poverty is to raise the price of labour through rural development, not to increase the minimum wage in urban areas.

There is at least one counter argument. In some developing countries, unskilled wages account for a higher proportion of the income of poor urban people than in developed countries where the poor are more likely to benefit from social income (Lustig and McLeod, 1997, p. 65). Thus a minimum wage increase may lift relatively more low-paid workers out of poverty in developing countries. Furthermore, changes in the minimum wage may alter the labour supply behaviour of other members of the households of minimum wage earners (ILO, 1997), with an effect on well-being.

To summarize, the effects on poverty are fourfold. Firstly, some workers lose their job in the covered sector and, in the absence of unemployment benefits, receive zero income. Secondly, some workers previously employed in the covered sector find a job in the uncovered sector and, depending on the inter-sectoral wage differential, may fall into poverty. Thirdly, some workers who keep their jobs in the covered sector earn more due to the introduction or increase of the minimum wage. A proportion of them might escape poverty depending on the level at which the minimum wage is set. Fourthly, a family may react to a decrease in the minimum wage earned by one family member by increasing labour participation in the informal sector.

Theory thus offers no clear predictions as to the effect of the minimum wage on poverty, as the overall effect depends on the value of several elasticities that are, themselves, difficult to predict (Addison and Blackburn, 1999). As the effect on uncovered workers remains unclear, it makes sense to test the data by regressing change in poverty rates on changes in the minimum wage. Theory, however, suggests that increases in the minimum wage might reduce poverty if the employment effect of minimum wage is small.

Minimum wage and wage inequality

At least two studies have shown that the minimum wage may have a strong effect on observed wage inequality. The United States, for instance, experienced a dramatic increase in wage inequality during the 1980s, primarily between more and less educated workers and between more and less experienced workers. A recent study concluded that most of the growth in inequality in the bottom categories of wage distribution is attributable to erosion of the real value of the minimum wage during the 1980s (Lee, 1999). The impact of the minimum wage on the lower wage categories was also confirmed by data on the Netherlands (see Teulings, Vogels and van Dieten, 1998).

Poverty and low-paid employment

Low-paid employment is usually defined in terms of earnings below 66 per cent of the median. The poverty rate among the working age population

has been shown to be systematically higher in OECD countries where low-wage employment is more developed (Marx and Verbist, 1998). More specifically, poverty is quite considerable among households with dependent children when the head of household is in low-paid employment. However, the vast majority of two-adult households with at least two wage earners are out of poverty. Conversely, and somewhat obviously, the highest poverty rates are found in households with no adults at work. A similar relationship between the number of employed individuals per household and poverty has been observed in Chile. In 1994, poor Chilean households were about the same size as the national average; only the proportion of those at work differed, with 0.8 persons employed in poor households as against 1.2 for those not living in poverty (Bravo and Vial, 1997). A poverty-reduction alternative to an increase in the minimum wage may thus be to have individuals in the lowest decile working.

Financing minimum wage: Wage subsidies for unskilled workers?

It is often argued that minimum wages should be subsidized to promote social integration through employment of the least skilled workers in the context of declining demand for unskilled labour. Subsidizing enterprises that employ workers whose wages are below a certain level has indeed been suggested as a mechanism to protect income for the poor in Latin America (Inter-American Development Bank, 1998). Yet, as the Bank has rightly pointed out, there are problems with subsidizing firms in order to increase employment or support the income of the poorest workers. Besides being difficult to monitor, subsidies may also generate poverty traps because they reduce the incentive for firms and workers to raise productivity and wages above the threshold level. While wage subsidies may be provided on a temporary basis with the above effect, it seems that social welfare measures aimed at encouraging labour force participation may turn out to be detrimental to minimum wage earners in the long run. The very idea of subsidizing work may easily be taken to imply that the work performed is not valuable. This, in turn, will put downward pressure on the non-subsidized minimum wage with the result that the minimum wage may again become the maximum wage (Sachdev and Wilkinson, 1998).

Evidence

Empirical evidence suggests a negative correlation between minimum wages and poverty.[5] Using a sample of developing countries, Lustig and McLeod (1997) regressed change in poverty on a number of explanatory variables of poverty, including real wages (either minimum wage or average

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[5] The effect of the minimum wage on income distribution is generally calculated using: $P_t = b_t + c(MW_t) + dX_t + v_t$ for various groups of workers (all, teens...) where b represents year-specific intercept. This equation is estimated as a fixed-effects model. MW_t is the minimum wage at time t, X_t contains average wage, percentage of minorities and a control for business cycle (very often the unemployment rate).

wage) and the growth in per capita income. The level of human capital of the population and the share of agricultural employment are also among the independent variables they consider, together with real public spending, terms of trade, unemployment rate divided by the number of years in the interval, inflation (if minimum wage is increased infrequently), and education expenditure as a percentage of GDP. Their sample contains 22 countries and more than 40 time periods. The results suggest that higher minimum wages have a stronger impact in diminishing poverty than do higher average wages. Lustig and McLeod (1997) also found that the effect of the minimum wage on poverty is slightly higher in recovery periods. The analysis is replicated for several measures of poverty, including the poverty gap, the income gap and the per capita calorie intake.

Another study compares the situation of Costa Rica and Colombia — both of which adopted a policy of increasing the minimum wage relative to the average wage during the adjustment process of the 1980s — with that of Chile and Guatemala, which experienced a relative decline in their minimum wages (Camargo and Garcia, 1994). This study concludes that minimum wage adjustments — together with lower unemployment and inflation — contribute to explaining why poverty did not rise in Colombia between 1984 and 1988, despite tough fiscal and exchange-rate policies. It also argues that the rise in the minimum wage relative to the average wage in Costa Rica protected the position of the lowest-paid workers. In sharp contrast, a poor macroeconomic policy and a decline in the minimum wage relative to the average wage lead to increased poverty and reduced GDP growth in Guatemala.

On the one hand, the foregoing literature review invites the conclusion that for low levels of minimum wage, theoretical effects on the level of employment are fairly small, except where all the hypotheses of perfect competition are met. On the other hand, empirical studies lead to different conclusions. However, there does seem to be a correlation between the minimum wage and the reduction of poverty.

Recent developments in minimum wages

How does the behaviour of minimum wages in developing countries relate to the theoretical predictions and empirical findings of the studies reviewed above?

Instability of minimum wage

In real terms, minimum wages are widely believed to have declined worldwide during the adjustment crisis of the 1980s before recovering modestly in the 1990s. While this picture holds in the case of many Latin American countries, the evidence is more mixed in the cases of Asia and Africa.

Structural issues

Calculated on the basis of the IMF Consumer Price Index (CPI), the value of real minimum wages and that of average wages appear to have

fluctuated widely in the developing countries over the period 1980-1998 (see figures1-4). Increases of 30-40 per cent and decreases in the order of 15 to 20 per cent are common for both variables. Such extreme changes illustrate the difficulty of measuring real wage behaviour in countries with huge inflation rates. However, much less variation has occurred in the variable of primary interest here, namely, the ratio of minimum to average wage.

In some countries, the minimum wage appears to have been *relatively* stable over time in relation to average wage. Internal stability, however, does not imply lack of variation across countries. For example, minimum wage levels in Malawi (1980-1986) and Bolivia (1991-1996) represented less than 20 per cent of those countries' average manufacturing wages (figures 5a and 7), whereas the ratio was around 40 per cent in Botswana (1981-1997) and increased modestly from 48 to 54 per cent in Thailand during 1986-1994 (figures 6 and 7).

In other countries, by contrast, the ratio of minimum to average wages fluctuated over time. A deterioration of the ratio indicates that the wage gap widens between unskilled workers paid the minimum wage and skilled workers. The Philippines, for instance, experienced a continuous decline in the ratio, from more than 60 per cent in 1981 to around 35 per cent in 1992 (figure 6). Similarly, in Ecuador the minimum wage represented a much larger proportion of the average wage in 1980 — at 65 per cent — than in 1989, when it reached 45 per cent. In El Salvador, by contrast, the ratio almost doubled, from 21 per cent in 1984 to 42 per cent in 1991.

A comparison of the ratio between OECD and Latin American countries in the 1990s undertaken by the Inter-American Development Bank (1998) showed that the minimum wage represented more than 70 per cent of the average wage in Venezuela, Italy and El Salvador. At the opposite end of the distribution, the ratio was less than 35 per cent in a group of countries that included Bolivia, Brazil, Chile and Spain. Finally, the minimum wage was close to half the average wage in Switzerland, Colombia and Sweden.

Within the sample selected for this article, some of the countries have a national minimum wage (e.g. Algeria, Colombia, Togo), while others set minimum wages by sector (e.g. Burkina Faso, the Philippines). Furthermore, countries may have adopted regional minimum wages (Mexico, Thailand, etc.). In Peru and Turkey, only the capital city is covered. The approach followed in defining the value of the minimum wage was to select the lowest minimum wage series with the most comprehensive coverage within an economy. In cases where such series were very short or where there was not enough information on the data, the next best series were selected, i.e. the next lowest wage series with the most comprehensive coverage.

Country evidence

In Latin America, minimum wages tended to decline during the 1980s and have since become largely non-binding (Cox Edwards, 1997). Overall, minimum wages in Latin America lost more than 30 per cent of their value in

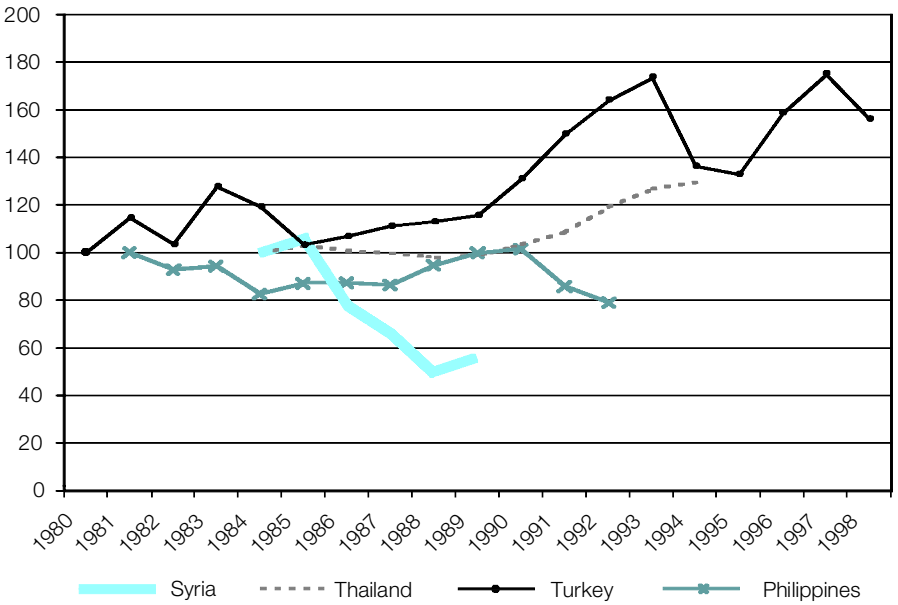Figure 1.   Change in the real minimum wage (1980-1998) — Asia

Figure 2.   Change in the real minimum wage (1980-1998) — North Africa
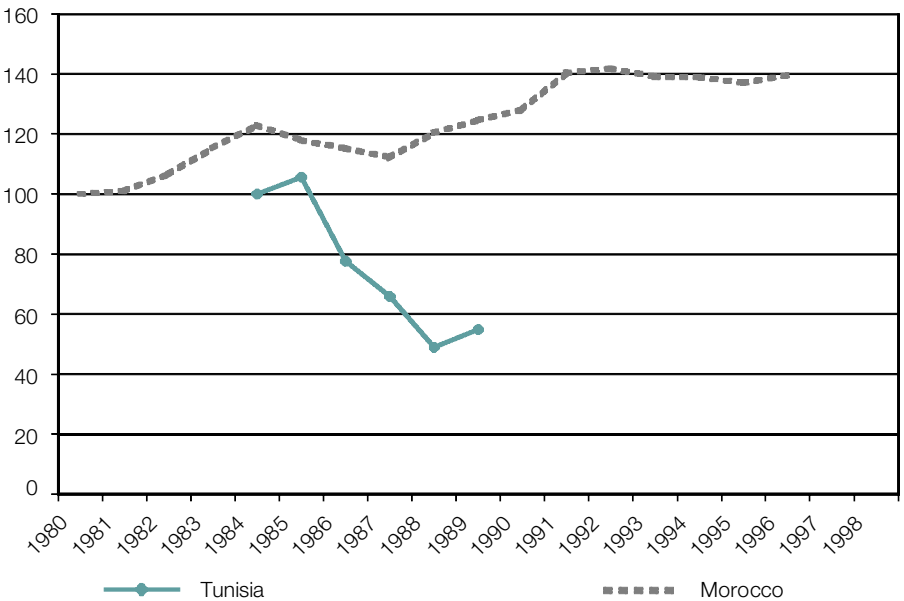
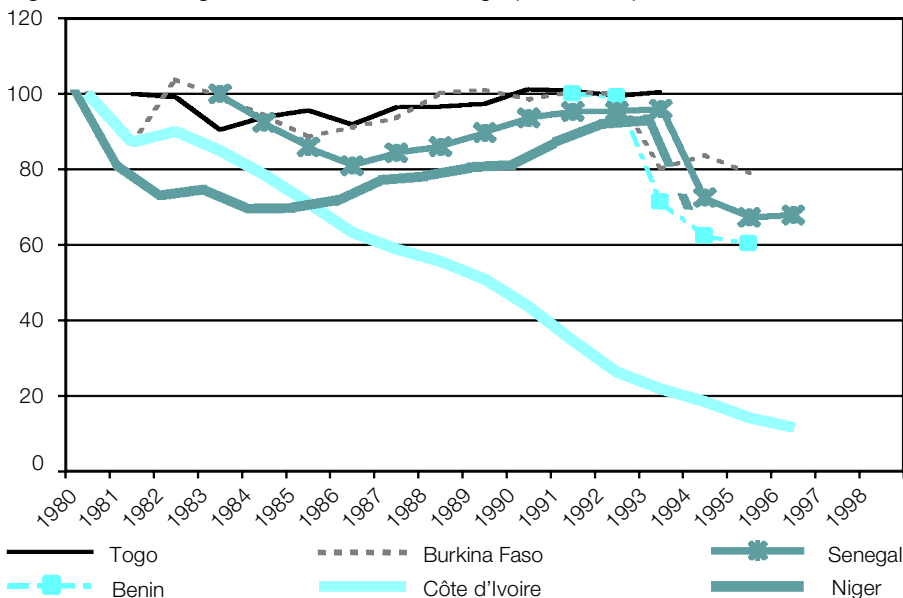Figure 3a.   Change in the real minimum wage (1980-1998) — Sub-Saharan Africa

Togo — Burkina Faso — Senegal
Benin — Côte d'Ivoire — Niger

Figure 3b.   Change in the real minimum wage (1980-1998) — Southern Africa

Malawi — Botswana
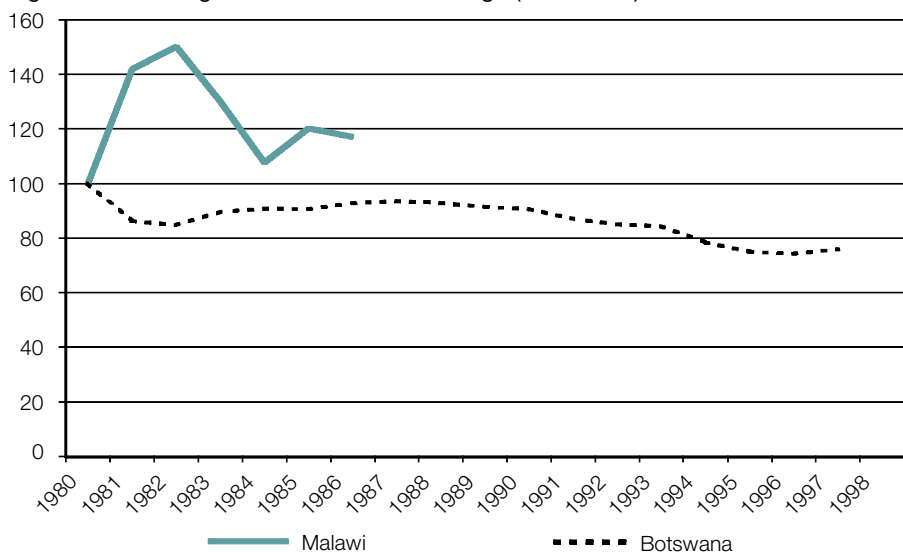
Figure 4a.   Change in the real minimum wage (1980-1998) — Latin America

Legend:
- Paraguay
- Bolivia
- Chile
- Peru
- Brazil
- Uruguay
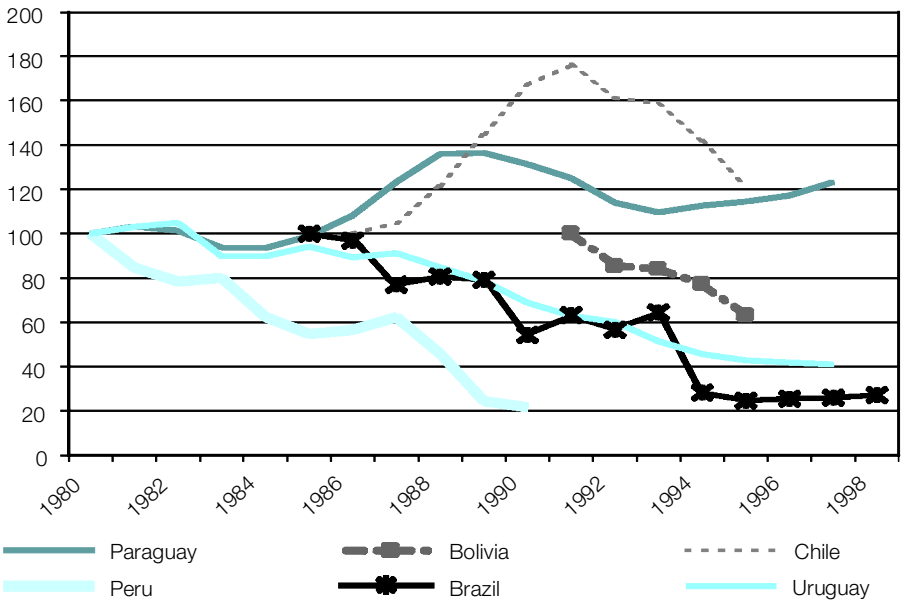
Figure 4b.   Change in the real minimum wage (1980-1998) — Latin America

Legend:
- Venezuela
- Costa Rica
- Mexico
- El Salvador
- Ecuador
- Colombia
- Guyana

Figure 5a.   Ratio of minimum to average wages (1980 -1998) — Latin America

Bolivia   Brazil   Chile 1
Chile 2   Peru   Paraguay

Figure 5b.   Ratio of minimum to average wages (1980 - 1998) — Latin America

Ecuador   Colombia   Guatemala
Mexico   Costa Rica   El Salvador
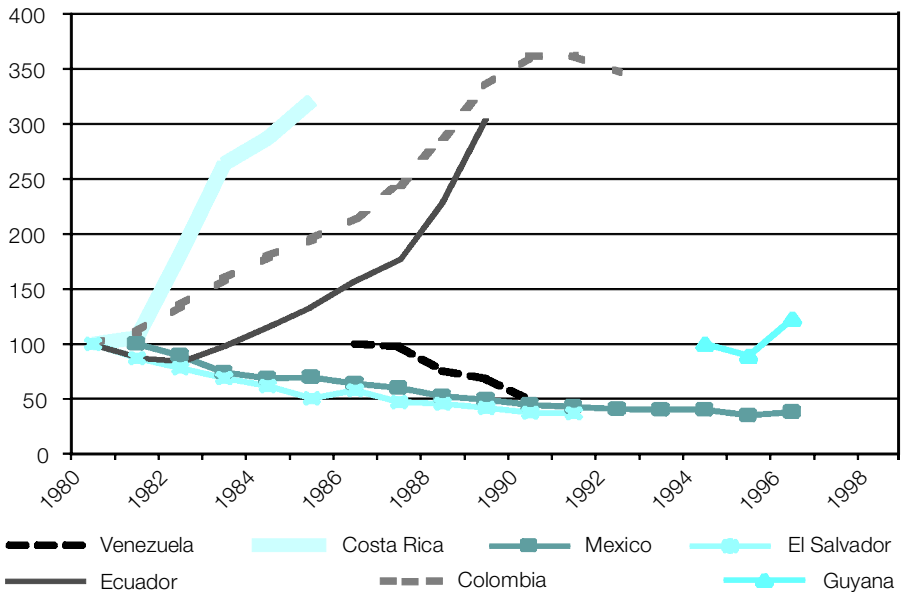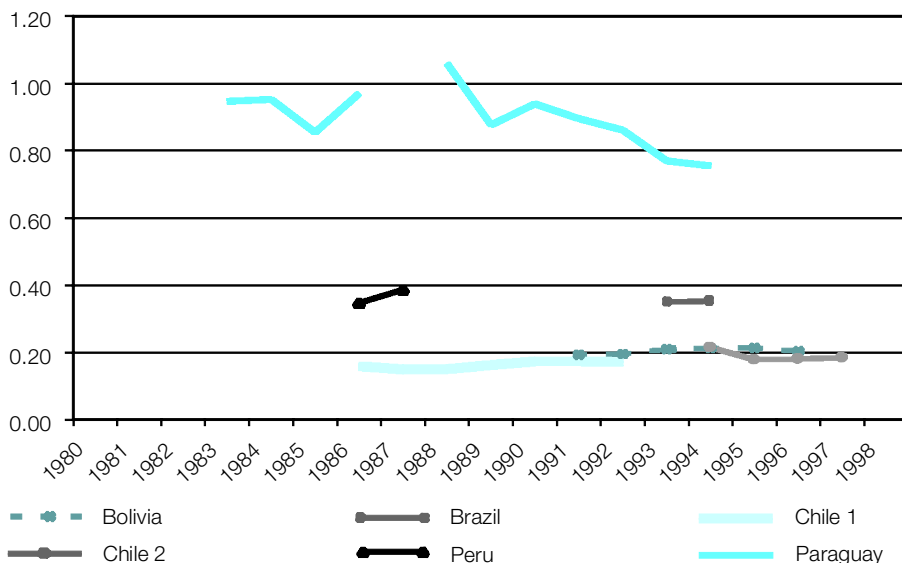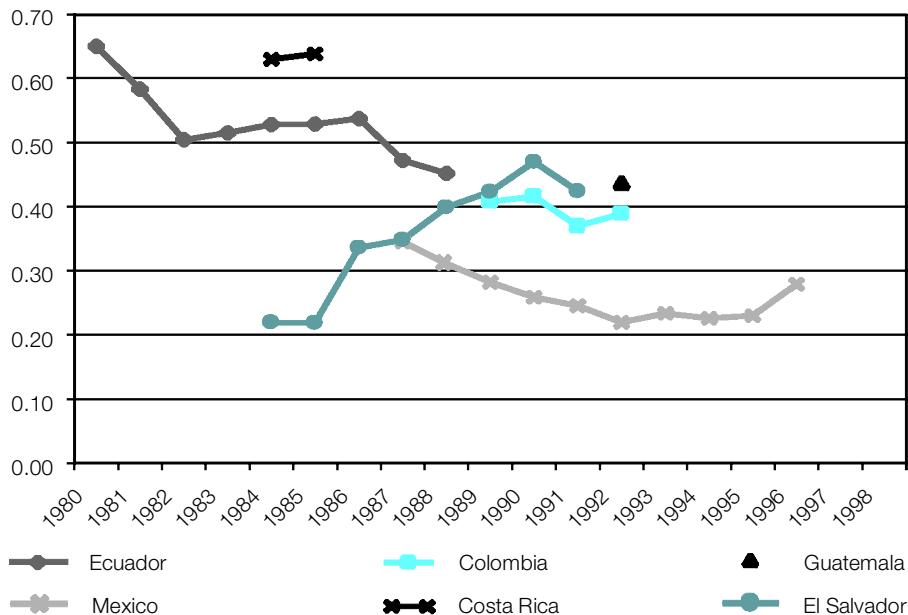
Figure 6.   Ratio of minimum to average wages (1980-1998) — Asia
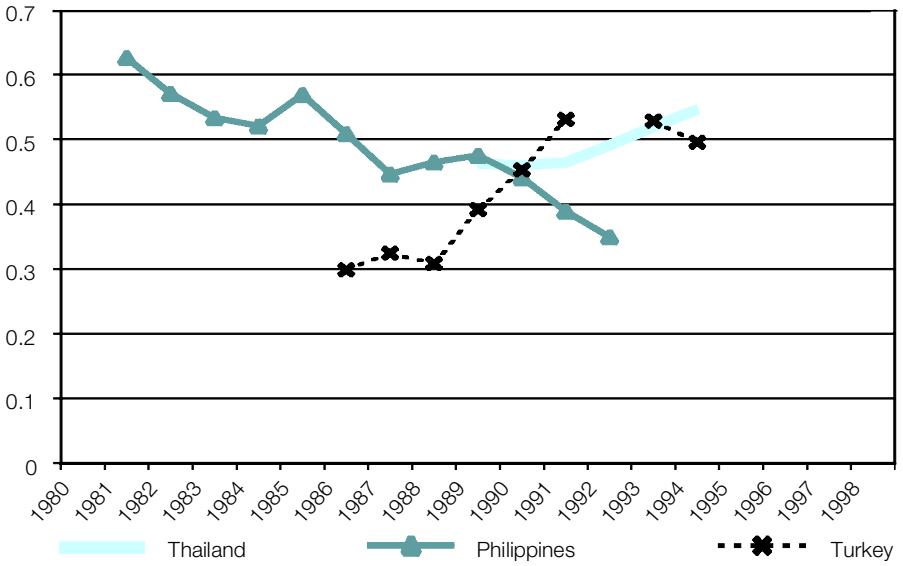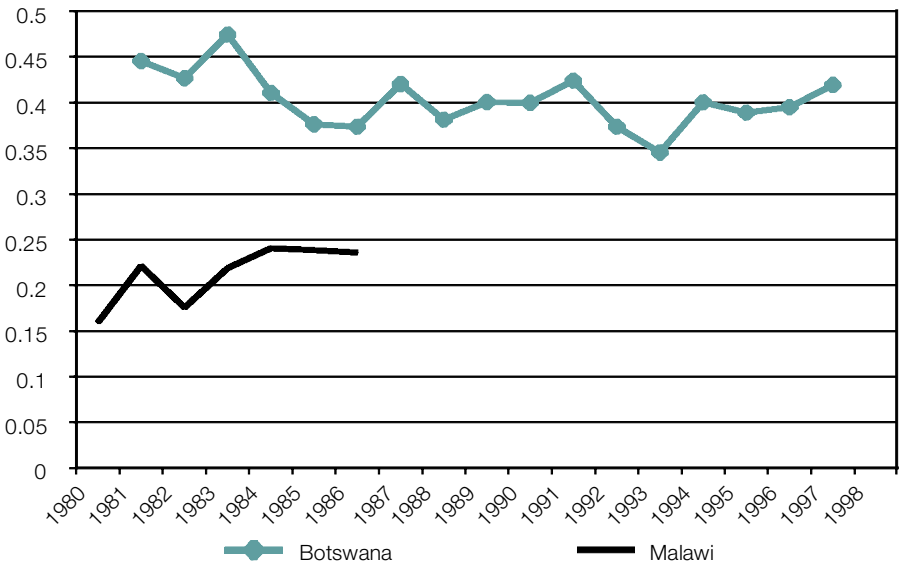

Figure 7.   Ratio of minimum to average wages (1980-1998) — Africa

real terms between 1980 and 1990. With the period of modest recovery that followed (+ 1 per cent a year), the minimum wage was still below its 1980 value in most countries by the end of the 1990s. In Bolivia, El Salvador, Mexico and Peru, its 1997 level was equivalent to one-third of its 1980 level (ILO, 1997). The minimum wage dropped relatively more and then recovered less than average industrial wages during 1980-1990. As a result, low-paid workers were disproportionately affected by the recession. In Chile, the minimum wage lost two-thirds of its value between 1980 and 1987, but has since been increasing again (Bravo and Vial, 1997).

Studies on Ghana show that the minimum wage applying to public-sector workers was halved in real terms during the period from the 1970s to the early 1990s. The same sharp drop is observed for starting wages in the manufacturing sector. Since GDP per capita increased steadily over the same period, these findings mean that workers in the manufacturing sector failed to benefit from the rise in aggregate income that followed the introduction of the country's structural adjustment programme in 1983 (CSAE, 1999).

The Government of Zimbabwe adopted an interventionist wage policy in the 1980s. As a result, the minimum wage increased in real terms until 1990-91. However, some studies argued that this policy failed to ensure growth of income and wage employment in the formal sector, so that the minimum wage policy was progressively abandoned (CSAE, 1999). Foroma (1996) argues that job losses due to the setting of minimum wages were particularly severe during the mid-1980s, but provides no evidence to back up this claim. As the author himself notes, "it is difficult to quantify the impact that job security legislation and the minimum wage had on investment because other strong factors (such as foreign exchange shortages and price and exchange controls) were also at play" (Foroma, 1996, p. 249).

In India, the minimum wage applies to a small formal sector and varies across occupations, industries and states. Minimum wages are not regularly adjusted to price increases so that most states have been paying workers a cost-of-living allowance to compensate for inflation. As a result, minimum wages decreased in real terms between 1983 and 1988 in half of the major Indian states, while they increased between 1988 and 1994 in most states (Annant and Sundaram, 1998).

In Papua New Guinea, minimum wage regulation was introduced in 1972 and then dropped in 1992. By 1995, it seemed that real wage decreases had been substantial for both skilled and unskilled labour (Levantis, 1997). In the case of unskilled workers, however, the wage decrease was inferior to that allowed by the reduction in the minimum wage: wages received by unskilled workers in 1995, while below the pre-1992 official minimum wage, were well above the new minimum. One reason is that, although the new minimum wage applied only to newly hired workers, large regulated firms were reluctant to discriminate between new workers and existing employees performing the same job.

The minimum wage in Puerto Rico, which is imposed by the Federal Government of the United States, was increased gradually between 1974 and 1983. By 1983, Puerto Rico had the same minimum wage as the United States. But many studies have concluded that Puerto Rico's minimum wage increase resulted in a decline in employment, though Card and Krueger (1995) cast some doubt over this interpretation of their findings.

The above evidence shows that the stated goal of providing low-paid workers with a decent livelihood is not systematically reflected in the process of adjusting minimum wages, which differs by country. In Indonesia, the minimum wage is adjusted according to changes in labour productivity, employment growth and per capita GDP (ILO, 1998). In Thailand, minimum wage adjustments used to be based on changes in the CPI, but since 1990, they also depend on GDP growth. As a result, the minimum wage has been growing faster than the average wage (ILO, 2000). In the Philippines, the CPI seems to be the main criterion for updating minimum wages, though 11 criteria should in theory enter into the determination of the minimum wage. In Mexico, the objective of maintaining or increasing the purchasing power of the minimum wage came into conflict with other objectives of structural adjustment policy. After the debt crisis of 1982, the reduction of inflation became the main consideration in fixing the minimum wage as adjustments were indexed to expected future inflation (Marinakis, 1998).[6] Such conflicts between the objectives of economic policy also occur in industrialized countries. In the United States, for example, changes in the level of the minimum wage can mostly be traced to political pressures during the adoption of the Minimum Wage Bill, rather than to the aim of lifting low-income households out of poverty (Sobel, 1999).

In conclusion, the minimum wage is a very unstable variable in some cases, both in real and in relative terms. In some cases, workers seem better protected against increases in consumer prices than they are in others, and the minimum wage follows variations in the average wage more closely.

Compliance

In principle, the setting of the minimum wage provides a floor to workers' earnings. However, the legislation of most countries excludes certain groups of workers from the scheme, who thus legally earn sub-minimum wages (e.g. part-time workers, the self-employed). In addition to those workers who are excluded by law, some workers earn wages below the minimum because the employer fails to comply with the legislation. Gindling and Terrell (1995), for example, estimate the number of workers earning wages below the statutory minimum in Costa Rica. Their study concluded that one-third of the workers in the covered sector (full-time employees) were paid less than the minimum wage, with the same proportion in the uncovered sector

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[6] It should be noted that the drop in the real minimum wage and in the average manufacturing wage that followed this policy shift did not ensure a decrease in inflation.

(part-time workers and the self-employed). In Guatemala, the National Socio-Demographic Survey estimated that persons working 40 hours a week or more and whose income was less than the minimum wage of the branch of activity concerned accounted for 49.4 per cent of urban employment in 1987 and 53.5 per cent in 1989 (see ILO, 1999). As documented by several studies, most governments appear not to enforce strict compliance with minimum wage legislation. In Ecuador, for example, the fine for non-compliance with labour legislation cannot exceed five times the national minimum wage regardless of the severity of the violation and the number of workers involved. In the Philippines, the ILO (1997) reports a low level of compliance due to the absence of real penalties for underpayment of the minimum wage. In Chile, 9.4 per cent of wage earners were paid less than the minimum wage in 1994 (Bravo and Vial, 1997). In Indonesia, about 15 per cent of workers in manufacturing are paid less than the minimum wage, and the proportion rises to 26.9 per cent for women and 20.6 per cent for workers under 25 (Rama, 1996). In India, a statutory minimum wage applies to the informal or un-organized sector, which represents more than 90 per cent of the labour force. In general, however, minimum wage levels are not enforced: for agricultural labour, actual earnings were on average below the minimum wage in almost all states (Annant and Sundaram, 1998).

Non-compliance is widespread, and not only among small-scale enterprises. A study conducted by the ILO (1997) revealed that 63 per cent of the workers in micro-enterprises in Costa Rica received sub-minimum wages, the proportion being 46 per cent in Panama, 38 per cent in Venezuela, 28 per cent in Chile, 19 per cent in Mexico and 16 per cent in Colombia and Brazil. But the same study also found that 8 per cent of the workers in Mexico's large enterprises (those employing more than 300 workers) earned wages at or below the minimum wage (Bravo and Vial, 1997). An OECD study, however, found contrasting results as to the extent of non-compliance by micro-enterprises in seven developing countries (Morrisson, Solignac Lecomte and Oudin, 1994). According to its authors, most micro-enterprises in these countries respected minimum wage laws with the exception of those in the two poorest countries of their sample, namely, Niger and Swaziland.

All else being equal, non-compliance is expected to be more widespread the higher the ratio of minimum to average wages. This positive relationship was found for 12 Latin American countries (Inter-American Development Bank, 1998). Non-compliance levels were estimated to be below 10 per cent in countries where the minimum wage is below 30 per cent of the average wage (Argentina, Chile, Bolivia) and more than 35 per cent in those where the minimum wage is at least 60 per cent of the average wage, as in Paraguay, El Salvador and Venezuela (Gindling and Terrell, 1995).

Sub-minimum wages are also rather common in developed countries. In 1990, 7 per cent of wage earners in France — mostly young people employed in publicly funded programmes — had wages below the statutory minimum, while 6.6 per cent were paid the minimum wage. In the United States,

4.5 per cent of all employees had wages below the minimum wage and 13.2 per cent at the minimum in 1981 (Abowd, Kramarz and Margolis, 1999).

Who are the minimum wage earners?

Sectoral and individual characteristics

The proportion of the labour force receiving the minimum wage differs by sector. In some countries, many minimum wage workers are found in export-oriented activities. In Chile, for example, a quarter of the workers in agriculture were paid at, or below, the minimum wage in 1994 (Bravo and Vial, 1997). In such cases, it is often suspected that a higher minimum wage — when compensated by an increase in product prices — may have an adverse effect on the volume of exports. However, if the minimum wage applies mainly to the service (and/or public) sector, its impact on the price of goods produced for export may be quite small. Again in the service sector, workers may be less likely to lose their job because of technology or mechanization so that a higher minimum wage may only marginally affect employment. When civil servants and state-firm workers are covered by minimum wage regulations, the state must collect the resources to finance the additional costs resulting from higher minimum wages.

Similarly, a high minimum wage may induce teenagers to leave secondary school early and start working instead. The incentive to leave school may be higher in industrialized countries where minimum wage laws mainly benefit teenagers, young workers and workers with low levels of education (like secondary school dropouts), although there are some exceptions.

In other countries, minimum wages have little impact on exports. For example, Standing, Sender and Weeks (1996) argue that the minimum wage would not affect South African export since the main export industries tend to have relatively high wages. The situation looks different in Mexico where there exists a massive, low-paid export processing industry called "maquiladoras". Maquiladoras are factories located in low-wage regions, in which workers assemble imported materials for export. The maquiladoras of Tijuana, for example, mainly employ women — married women, women with children, and women with low levels of education — who earn less than women in the service and trade sectors whatever their educational levels, and less than self-employed women, except those at the lowest educational level (Fussel, 2000).

In Chile, more men are paid the minimum wage, especially in rural areas, where the labour force participation of women is low (Bravo and Vial, 1997). One study on Costa Rica showed that workers earning *below* the minimum wage are disproportionately women, non-heads of household, under 19 years of age or older than 60, have low education and live in rural areas outside the Central Valley (Gindling and Terrell, 1995).

In cases where women make up the majority of the lowest paid workers, a decrease in the minimum wage can contribute to widening the wage gap

between women and men. According to the study by Fortin and Lemieux (1998), something along those lines happened in the United States between 1979 and 1991, when the decline in the minimum wage contributed to setting back the wage gap by 7.5 percentage points at the 10th decile. In another study, Fortin and Lemieux (1997) show that about one-third of women's wage inequality in the United States is attributable to the decrease in the minimum wage over the period 1979-1988.

Poverty of minimum wage workers

The position of minimum wage earners and their families in relation to overall income distribution depends not only on their level of earnings but also on household structure and labour supply, and non-wage income. There is some scattered evidence on the poverty of minimum wage earners in developing countries. In Chile, less than 50 per cent of minimum wage earners are considered to be poor (Bravo and Vial, 1997). There is more evidence in industrialized countries. In France, households with the highest proportion of individuals paid the minimum wage are in the third lowest income decile (Dolado et al., 1996), while one-third of minimum wage earners in Spain are in the bottom decile of household income (Dolado, Felgueroso and Jimeo, 1998).

What emerges first from the overview in this section are the wide variations in the minimum wage in real terms, which are much less pronounced in its relation to the average wage. Second, the ratio of minimum to average wages varies across countries and, in some countries, over time. Furthermore, there are legal sub-minimum wages and little enforcement of minimum wage regulations in several countries. And finally, minimum wage earners do not seem to belong systematically to the poorest segments of the population.

Empirical analysis

Most of the minimum wage data used in this section are drawn from a database created in early 2000,[7] while a few other data were provided by ILO field offices and national labour ministries. The data on other variables — like GDP growth, GDP per capita, share of GDP spent on education and working-age population — are taken from the World Development Indicators (World Bank, 2000). The ILO provided the figures on employment, informal employment and unemployment. The CPI data come from the IMF.

Effect on employment

Minimum wage and the informal economy

The relationship between the growth of the informal economy and changes in the minimum wage in Latin America is analysed on the basis of

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[7] The ILO Bureau of Statistics provided the data on minimum wages, which were then compiled by the WIDER Institute.

Table 1.   The informal sector in Latin America

Country	Year	Informal-sector share of total employment*	Ratio of minimum to average wages
Bolivia	1991	0.493	0.193
	1992	0.507	0.195
	1993	0.547	0.210
	1994	0.561	0.213
	1995	0.582	0.213
Brazil	1994	0.473	0.215
	1995	0.482	0.178
Chile	1990	0.418	0.173
	1991	0.421	0.173
	1992	0.424	0.171
	1993	0.433	0.368
	1994	0.449	0.350
	1995	0.447	0.352
Colombia	1990	0.498	0.415
	1991	0.504	0.369
	1992	0.506	0.388
Mexico	1990	0.499	0.259
	1991	0.503	0.245
	1992	0.505	0.219
	1993	0.515	0.233
	1994	0.516	0.225
	1995	0.540	0.230
Paraguay	1990	0.507	0.939
	1991	0.520	0.895
	1992	0.521	0.861
	1993	0.509	0.769
	1994	0.572	0.754

* Source: ILO.

time series data provided by the ILO Regional Office in Lima. The main variables of interest are summarized in table 1, which shows the share of urban informal employment in total employment and the ratio of minimum to average wages. Informal-sector employment is understood to include all own-account workers — except professionals — and all workers in establishments with fewer than six or 11 workers, depending on survey methodology.

The following analysis atttempts to measure the role of the minimum wage in changes in the size of the informal sector in Latin America. Using the figures in table 1, a very minimalist equation is tested: on the labour-supply side, change in GDP per capita should measure the income incentive associ-

Table 2.   OLS regression of the share of the informal sector on the minimum wage (Latin America)

Variables	Specification 1	Specification 2	Specification 3
DGDPCAP	−.301**(.124)	−.314**(.139)	−.311**(.131)
OVER (MW/AW)	–	−.027 (.018)	−.051 (.107)
DLNREALW	–	–	−.026 (.112)
R^2	.171	.199	.202
Observations	21	21	21

Note: The dependent variable is the log change in the share of informal employment in total employment. Robust standard errors are given in parentheses (White estimator). ** indicates the coefficient is significant at the 5 per cent level.

ated with the supply of labour in the informal economy, while on the labour-demand side, log changes in the ratio of minimum to average wages represent changes in the flexibility of the labour market for unskilled labour relative to more skilled labour.[8] The independent variable is the annual change in the log of the share of the informal economy. In other words, the exercise is really a regression of cross-section of panel data. The results of this regression, which are summarized in table 2, suggest that increases in per capita GDP tend to reduce urban informal employment significantly.

In contrast, changes in the ratio of minimum to average wage seem to have no significant impact on the relative size of the informal economy. Using changes in real minimum wages instead of changes in that ratio does not improve the significance of the coefficient. This result tends to support the view that labour market rigidity and, more specifically, wage rigidity introduced by minimum wage regulation is not the main cause of informal-sector growth in Latin American economies.

Minimum wage and overall employment

In an attempt to relate changes in the minimum wage to changes in employment, the following equation was estimated:

$$DLNEMPO = \beta_0 + \beta_1\,GDP + \beta_2\,AFRICA + \beta_3\,NORTHAF + \beta_4\,EASTASIA + \beta_5\,LATIN + \beta_6\,DLNREALW + \beta_7\,DLNOVER + \beta_8\,DTRADE + \beta_9\,DLNEDUC + \varepsilon$$

where *DLNEMPO* is the log annual change in the ratio of employment to population. The vector of regressors contains dummies controlling for location: *AFRICA, NORTHAF, EASTASIA, LATIN* and the base *TURKEY*, unless otherwise noted. *GDP* is the rate of growth of GDP while *DLNREALW, DLNOVER* and *DLNEDUC* are respectively the log annual change in real average wage in manufacturing, the ratio of minimum to average wages, and the percentage of GDP spent on education. Finally, *DTRADE* represents change in

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[8] GDP per capita is also a demand-side variable.

Table 3.   OLS regression of changes in employment on changes in the minimum wage

Variables	Specification 1	Specification 2	Specification 3
GDP	.004**(.001)	.005**(.002)	.005*(.003)
AFRICA	−.074**(.032)	.078**(.038)	.069 (.052)
EASTASIA	−.082**(.034)	.026 (.040)	.015 (.054)
NORTHAF	.007 (.027)	–	–
LATIN	-.068 **(.031)	.027 (.038)	.036 (.056)
DLNOVER	–	−.051 (−107)	.003 (.179)
DLNREALW	–	−.156 (.104)	−.026 (.112)
DTRADE	–	–	.000 (.000)
DLNEDUC	–	–	−.036 (.108)
R^2	.071	.141	.05
Observations	218	60	48

Note: The dependent variable is the log change in employment. Robust standard errors are given in parentheses (White estimator). ** indicates the coefficient is significant at the 5 per cent level and * at the 10 per cent level. All years available between 1980 and 1999.

terms of trade from one year to the next. Specifications used by other authors also include the ratio of minimum to average wage and a control for business cycle — in this case, GDP growth (see Bell, 1997; Bruno and Cazes, 1997). Since the data used here are international, terms of trade and spending on education were also added as explanatory variables, besides geographical dummies. As there might be several observations by country, the equation is therefore a regression of cross-section of panel data.

The results, which are displayed in table 3, show that GDP growth is positively correlated with employment growth whatever the other factors controlled. The effect of other variables is much more unstable, e.g. that of an increase in the real wage rate. From the second regression in table 3, increases in the real average manufacturing wage appear to have a significant negative impact on the level of employment, though the *t* is rather low at 1.5. In none of the cases is there any significant effect of changes in the ratio of minimum to average wages that would explain variations in employment. Restricting the analysis to manufacturing employment or excluding specific geographic areas like Africa leads to the same conclusion.

These results may partly be explained by the extent of non-compliance in developing countries, which can be expected to reduce the employment effects of minimum wages (see above). Another simple explanation for the generally small disemployment effect caused by minimum wages may be the decrease in the real minimum wage experienced by many countries during most of the 1980s. Indeed, a low value of the minimum wage is unlikely to cause much unemployment. There is a simple way of checking for such an effect: if the minimum wage has a negative impact on employment, the negative impact can be expected to be stronger in countries with a relatively high

minimum wage. Yet such cross-section analysis leads to no significant result on the data set used here.

Effect on poverty

Poverty line

Table 4 gives the minimum wage in United States dollars in the mid-1990s and the ratios of the minimum wage to poverty lines at US$1 and US$2 per day for 31 countries. The data are presented by region. North African countries have a relatively high minimum wage, with more than US$100 a month, while the minimum wage is under US$50 a month in all sub-Saharan African countries except Senegal. The figure for most Latin American countries is between US$40 and US$70, with a few countries enjoying a much higher minimum wage (Chile, Paraguay and Costa Rica). Three of the five Asian countries have minimum wages above US$100 a month. The minimum wage is above the poverty line at US$1 per day in most, though not all, countries. But it is below the poverty line at US$2 a day in all sub-Saharan African countries except Senegal and in a few countries of Latin America. Obviously, when comparing the minimum wage level and the poverty line, it should also be borne in mind that a minimum wage earner may provide the main income of a household.

Table 5 gives the results of regressing poverty on national minimum wages in United States dollars (MINWDOL), average wages in dollars (AWAGEDOL), GDP per capita (GDPCAP) and location. Several measures of poverty are used: the share of the population living below the national poverty line and the share of the population living with less than US$1 and US$2 a day. The second column of table 5 shows that the minimum wage level is a negative and significant determinant of the national poverty line. What is more striking is the finding that this relationship persists after controlling for the average wage. The relationship between the minimum wage and poverty remains negative when the level of development, as approximated by per capita GDP and location, are introduced as explanatory variables.[9] This can be seen from the bottom of table 5 (second column), which relates the share of population in poverty to GDP per capita in dollars, minimum wage in dollars, average wage in dollars and four regional dummies.

The effect of the regional dummies is estimated with respect to the effect of poverty in Thailand and the Philippines. The regression shows that for a constant level of GDP per capita and average wage and controlling for location, a higher national minimum wage is associated with a lower rate of poverty. Using the estimated coefficients, it is possible to calculate the elasticity of poverty with respect to changes in the minimum wage. This value is often estimated by computing it at sample mean, where the minimum wage is

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[9] The correlation between per capita GDP and the minimum wage in dollars is 0.29 and that between the minimum and the average wage is 0.75.

Table 4.   Ratio of minimum wages to poverty lines in developing countries

Region	Country	Year	MW/AW	MW	US$1 a day	US$2 a day
North Africa	Algeria	1990	–	111.7	3.4	1.7
	Morocco	1996	–	157.5	4.9	2.5
	Tunisia	1993	0.95	119.4	3.7	1.9
Sub–Saharan Africa	Benin	1996	–	32.8	1.0	.5
	Botswana	1996	0.39	40.7	1.3	.6
	Burkina Faso	1996	–	48.3	1.5	.7
	Côte d´Ivoire	1996	–	8.9	.3	.1
	Malawi	1986	0.24	11.05	.3	.2
	Mali	1996	–	28.2	.9	.4
	Niger	1994	–	33.8	1.0	.5
	Senegal	1996	–	70.3	2.2	1.1
	Togo	1993	–	48.6	1.5	.7
Latin America	Bolivia	1996	–	43.9	1.4	.7
	Brazil	1994	0.22	67.0	2.1	1.0
	Chile	1995	0.35	127.8	3.9	2.0
	Colombia	1992	0.39	61.5	1.9	.9
	Costa Rica	1985	0.64	110.2	3.4	1.7
	Ecuador	1989	0.45	60.8	1.9	1.0
	El Salvador	1990	0.47	44.2	1.4	.7
	Guatemala	1992	0.44	62.7	1.9	1.0
	Guyana	1996	–	45.3	1.4	.7
	Mexico	1996	0.27	67.9	2.1	1.0
	Paraguay	1997	0.75	241.2	7.4	3.7
	Peru	1989	0.39	42.8	1.3	.7
	Uruguay	1996	–	76.6	2.4	1.2
	Venezuela	1996	–	70.3	2.2	1.1
Asia	Azerbaijan	1993	0.00	5.0	.15	.08
	Philippines	1992	0.35	85.6	2.6	1.3
	Syria	1989	–	115.8	3.6	1.8
	Thailand	1994	0.55	105.3	3.3	1.6
	Turkey	1996	0.53	138.3	4.3	2.1

Note: ILO minimum wages expressed in United States dollars. The poverty lines are US$1 a day and US$2 a day at 1985 prices, equivalent to US$1.08 a day and US$2.15 a day at 1993 prices when adjusted for purchasing power parity using rates from the Penn World Tables.

— in this case — US$214 a month and the poverty rate, 31.6 per cent. The elasticity at sample mean is 0.459, i.e. a 1 per cent increase in the minimum wage produces a 0.46 per cent reduction in the level of poverty. Finally, the fit of the regression is rather good (R^2=.48).

The above analysis is based on the national poverty line. But the regression can also be run on a smaller group of countries using the US$1- or US$2-a-day poverty line. The shares of population below these poverty lines are

Table 5. OLS regression of poverty measures on the minimum wage
(SE in parenthesis)

Variables	National	US$1 a day	US$2 a day
MINWDOL/1000	−.771**(.271)	−.430(.334)	−.906**(.439)
R²	.223	.049	.138
Observations	22	17	17
MINWDOL/1000	−.901**(.417)	−.078 (.200)	−.502 (.321)
AWAGEDOL/1000	−.055 (.151)	−.185*(.106)	−.233 (.162)
R²	.479	.237	.383
Observations	18	13	13
MINWDOL/1000	−.823**(.376)	−.296 (.358)	−.763 (.478)
AWAGEDOL/1000	−.052 (.000155)	–	–
GDPCAP/1000	−.023 (.022)	−.076 (.049)	−.080 (.056)
R²	.499	.237	.266
Observations	18	17	17
MINWDOL/1000	−.676*(.388)	−.167*(.326)	−.312 (.412)
AWAGEDOL/1000	−.018 (.159)	–	–
GDPCAP/1000	−.063*(.0348)	−.043 (.035)	−.051 (.041)
LATIN	.165**(.086)	.184**(.035)	.223**(.047)
NORTHAF	−.045 (.091)	−.028 (.048)	−.078 (.065)
AFRICA	.099*(.114)	.442**(.096)	.487**(.100)
R²	.722	.790	.790
Observations	18	17	17

Note: The dependent variable is the percentage of population below the poverty line. Robust standard errors are given in parentheses (White estimator). ** indicates the coefficient is significant at the 5 per cent level and * at the 10 per cent level.

taken from the World Bank (2000). As can be seen from the third column in table 5, the level of the minimum wage in dollars is not significantly associated with the share of population living on less than US$1 a day. In fact, none of the independent variables can explain the level of poverty using the US$1-a-day threshold. This result confirms intuitive assumption that minimum wages in developing countries do not apply to the poorest share of the population, but rather to the relatively less poor among the low-income population. Indeed, the minimum wage in dollars is a significant determinant of the larger share of the population living on less than US$2 a day (fourth column of table 5). However, the coefficient of the minimum wage becomes insignificant when adding controls for GDP per capita, average wage and location.

As this study focuses on poverty, wages in dollars are expressed using the purchasing power parity conversion factor developed by the World Bank. Estimating the equations with wages expressed in dollars using the official exchange rate leads to the same conclusion as to the impact of average and minimum wages on poverty.

Table 6.   OLS regression of the level of unemployment on the minimum wage

Variables	Specification 1	Specification 2	Specification 3	Specification 4
MW/AW	−.975**(.409)	−.828*(.464)	−1.023**(.473)	−1.156 (.723)
ASIE	−.002 (.086)	.005 (.089)	−.012 (.099)	.028 (.112)
GDP	−	−.010 (.011)	−.003 (.013)	−.000 (.018)
DTRADE	−	−	−.012 (.012)	−.014 (.016)
LNEDUC	−	−	−	.002 (.212)
Observations	38	36	33	29
R^2	.09	.12	.14	.12

Note: The dependent variable is log change in unemployment from one year to another. Robust standard errors are given in parentheses (White estimator). ** indicates the coefficient is significant at the 5 per cent level and * at the 10 per cent level.

In conclusion, there are indications that a higher minimum wage is associated with a lower level of poverty. This result *per se* does not imply that setting a higher minimum wage would reduce poverty; it is merely the sign of a correlation between the two variables. For instance, the correlation could indicate that countries with a high minimum wage are also more committed to the reduction of poverty and have developed social policies targeting the poor. Furthermore, there seems to be little relation, if any, between the minimum wage and extreme poverty as measured against the international poverty line of US$1 per day. However, the results are an indication that minimum wages may be an efficient channel of poverty reduction.

Unemployment

Indicators of poverty other than poverty lines have been suggested to measure the minimum wage effect, such as the level of unemployment. Lustig and Mcleod (1997), for example, evaluate the effect of changes in real minimum wages on changes in unemployment rates controlling for real public spending, human capital and terms of trade. Their study concludes that the real minimum wage increases unemployment, a result that is often quoted in the literature (see, for example, Inter-American Development Bank, 1998). The way the independent variable "unemployment" is defined is not clear from this analysis as "the unemployment variable is the change in the unemployment rate divided by the number of years in the interval"; it is therefore difficult to reproduce these results. However, based on a larger sample of 40 observations, the result turns out to be the opposite: an increase in the minimum wage relative to the average wage reduces the unemployment rate (table 6). This result remains remarkably stable across specifications and when various definitions of the variables are used. This regression, however, explains very little of the variation of unemployment rates as the R^2 is less than 10 per cent.

Therefore, no conclusion will be inferred as to the link between the unemployment rate and the minimum wage.

Concluding remarks

After years under attack for its negative effect on low-paid employment, the minimum wage seems to be back in favour as a means of providing unskilled workers with a decent living. Several factors are responsible for the renewed interest in the minimum wage as a tool of market policy. First, several studies from the 1990s showed that the minimum wage had little, if any, disemployment effect. Second, there is currently a shift towards a new human rights approach that focuses on the right to decent employment. Within this context, this paper has been concerned with the impact of the minimum wage not only on employment, but also on the level of poverty.

From the theoretical literature review on the minimum wage, it was concluded that the static model of pure and perfect competition — i.e. homogeneity of goods and workers, perfect information, many small suppliers and buyers — is a unique case where the minimum wage has a definite negative effect on employment. If one of the hypotheses of perfect competition is removed (e.g. workers are heterogeneous or paid the efficiency wage, or if there are a few employers) or dynamics are introduced (minimum wage affects household labour supply or aggregate demand), the impact of the minimum wage on employment cannot be predicted. This seems also to apply in an economy with a sizeable informal sector. It is therefore not surprising that many empirical studies failed to find evidence of a negative effect on employment for moderate increases in the minimum wage. As regards the impact of the minimum wage on the level of poverty in developing countries, one empirical cross-country study showed that increases in the minimum wage are associated with a lower level of poverty when other factors are held constant.

The present article shows evidence of high instability of the minimum wage in real terms in many developing countries. The ratio of minimum to average manufacturing wages is shown to vary considerably both between countries and within countries over time. In some countries, the minimum wage appears to be *relatively* stable over time in relation to the average wage, though such internal stability does not imply lack of variation across countries. For example, minimum wage levels represented less than 20 per cent of the average manufacturing wage in Malawi (1980-1986) and Bolivia (1991-1996), as against 40 per cent in Botswana (1981-1997); and in Thailand the ratio increased modestly from 48 to 54 per cent over the period 1986-1994. In other countries, however, the ratio of minimum to average wages has fluctuated widely over time.

This variety of minimum wage data was used in this article to assess the impact of the minimum wage on employment and poverty. The relationship between the growth of the informal economy and changes in the minimum wage was analysed using time series data on the informal economy in Latin America. To that end, a simple reduced form was tested. On the labour supply side, change in GDP per capita should measure the income incentive associated with the supply of labour in the informal economy, while on the labour demand side, change in the ratio of minimum to average wages represents

changes in the flexibility of the labour market for unskilled labour relative to more skilled labour. The dependent variable is annual change in the share of the informal economy. The results of this regression suggest that increases in per capita GDP tend to reduce urban informal employment significantly. In contrast, changes in the ratio of minimum to average wages seem to have no significant impact on the share of the informal economy. This result tends to support the view that labour market rigidity and, more specifically, low-wage rigidity is not the main explanation for the size of the informal sector in the Latin American countries.

One of the main objectives of this study was to determine the relationship between changes in employment and changes in the ratio of minimum to average wages (which measures the relative price of unskilled labour and, thereby, the bite of the minimum wage in the wage structure). A regression was thus estimated that relates changes in the ratio of employment to population to the following variables: changes in the ratio of minimum to average wages, growth of the real average wage, changes in the terms of trade, GDP growth and changes in educational levels. The results suggest that, other things being equal, the minimum wage level has an insignificant effect on the level of employment.

The number of countries in the sample made it possible to estimate the effect of the minimum wage on the level of poverty, using cross-section data. As expected, the level of the minimum wage (in United States dollars) is a negative and significant determinant of the level of poverty. What is more striking is that this relationship persists after controlling the level of development, as approximated by GDP per capita, average wage in manufacturing and location. The regression shows that for constant levels of GDP per capita and average manufacturing wage, and after controlling for location, a higher minimum wage is associated with a lower national level of poverty. This analysis was based on national poverty lines. But with a smaller group of countries, the regression could also be run using the US$1- or US$2-a-day international poverty line. The result shows that the level of the minimum wage in dollars is not significantly associated with the share of the population earning less than US$1 a day. This result confirms the intuitive assumption that minimum wages in developing countries do not affect the poorest population groups, but rather the upper levels of the low-income population.

In contrast, the minimum wage in dollars does correlate with the share of the population earning less than US$2 a day. Yet the minimum wage is still not significantly associated with a lower level of poverty at US$2 a day when other factors are held constant.

In conclusion, an analysis of the data gives strong support to the idea that the minimum wage may bring positive results in poverty alleviation by improving the living conditions of workers and their families, while having no negative effects in terms of employment. There is no evidence either of any effect of the ratio of minimum to average wages on the size of the informal economy in Latin America.

Yet the consequences of setting a minimum wage are manifold and go beyond the impact this may have on levels of employment and poverty. Raising the minimum wage may have an effect on incentives to provide training and enhance productivity, as well as on working conditions and prices. These and other such effects, however, have received little attention even within the context of the more industrialized developing countries. The idea that a decent minimum wage may induce firms in these countries to use their labour force more efficiently has been little explored so far.

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