

Globalization, Inequality and Labor Market Policies

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This paper addresses four questions. First, is globalization associated with more inequality in consumption or earnings? Second, is the labor market an important transmission mechanism? Third, can labor market policies reduce inequality? And fourth, would these policies have important side-effects on efficiency? The answers are based on an analytical survey of the literature, including several studies currently under preparation. Some of these studies involve the use of new databases of wages and labor market indicators across countries. While all the answers should be considered tentative, some patterns emerge. Globalization may lead to higher inequality, especially in countries with a low educational attainment. But different aspects of it have different consequences. In the short run, wages fall with openness to trade, but they rise with foreign direct investment. The latter also increases returns to education. Social protection programs are effective at reducing inequality. Minimum wages, public sector employment and “core” labor standards are not. In between these two extremes, collective bargaining works mainly for the “middle class”. Social protection programs do not have a detrimental impact on efficiency, but high public sector employment and trade union membership are associated with weaker performance. The most promising way to offset the effects of globalization on inequality, namely increased education, does not fall under the realm of labor market policies.

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1. Introduction

Integration with world markets bears the promise of prosperity for developing countries and transition economies, but it could also be a source of increased inequality. In principle, the unleashing of market forces associated with globalization should increase productivity, and possibly economic growth. But many fear that the pendulum will swing too far in the direction of efficiency, to the detriment of equity. Low wages and limited workers' rights could be necessary to attract foreign investment and gain market shares, and this would be to the advantage of capital owners. There could also be more inequality among workers, if those who have the skills needed to adjust to the new technologies and organizational structures benefited from increased economic integration, while the others were left behind. Caricaturing only a bit, these are the fears that lie behind popular concepts such as "the race to the bottom" or "the digital divide".

This pessimistic view is in sharp contrast with predictions by economists. Lower tariffs and transportation costs should push each country to specialize in the production of the goods for which it has a comparative advantage. In relative terms, skilled labor is the abundant factor in the industrial world and unskilled labor the abundant factor in the developing world. Globalization should therefore be associated with an increase in the relative demand for skilled labor in rich countries, and an increase in the demand for unskilled labor in poor countries. Economic integration could thus increase inequality within the industrial world, or increase unemployment if labor regulations prevented a downward adjustment in the wages of unskilled workers (Wood, 1994). But it should reduce inequality within developing countries. In fact, the labor-intensive growth associated with greater openness and deregulation is often seen as one of the main avenues towards poverty reduction (World Bank, 1990).

Both views about the effects of globalization are plausible, and both can be articulated under the form of rigorous economic models. This is why their relevance can only be assessed on empirical grounds. Unfortunately, the available evidence is scattered. The experience of East Asia over the last decades suggests that export-oriented growth in labor-intensive economies is indeed associated with a dramatic reduction in poverty (World Bank, 1993). But consumption inequality did not decline systematically in East Asian countries, as economists would have predicted. In China, it increased substantially. There are also indications that wage inequality

increased in Latin American countries as they liberalized their foreign trade. This trend is suggested by several studies. Although the interpretation of their findings is open to debate, it is striking that all these studies show an increase in the returns to skill over periods of economic reform and increased openness, despite their different data sets and methodologies.¹

The goal of this paper is to take a closer look at the relationship between globalization and inequality, focusing on the role played by the labor market. More specifically, the paper addresses four questions. First, is there a systematic link between inequality and globalization? Second, is the labor market an important transmission mechanism? Third, are domestic labor market policies an effective tool to reduce inequality? And fourth, do these policies have important side-effects on economic efficiency? These questions are addressed mainly from the perspective of developing countries and transition economies. In those countries, wage earners do not necessarily represent a majority of the labor force, as many workers are self-employed or engaged in household enterprises. Also, the ability to enforce labor market policies is limited, and often does not reach wage earners in the informal sector of the economy.

While the paper presents some new empirical evidence, it should be seen as an analytical survey. The new evidence is from a series of studies in preparation, or recently completed. A more detailed discussion of data sets and methodologies used in each case can be found in the studies themselves. The ambition of this paper is more modest. By putting together the new evidence, as well as the main findings from other studies, the paper tries to provide a consistent story line. For some of the questions listed above, the story line appears to be quite solid, and tentative answers can be offered. For others, the gaps in our knowledge are too large, and the best the paper can do is to identify areas for further research.

2. Is Globalization Associated with More Inequality?

Until quite recently, the dominant perception was that inequality in consumption or earnings within countries was relatively stable (Li et al., 1998). In fact, very few countries experienced a significant trend increase or decrease in inequality over the last couple of decades

¹ Studies includes Green et al. (2000) on Brazil, Beyer et al. (1999) on Chile, Robbins (1997) on Colombia, Robbins and Gindling (1999) on Costa Rica, Hanson and Harrison (1999) on Mexico, and Behrman et al. (2000) on the region as a whole.

(Bruno, Ravallion and Squire, 1998). Given the observed stability, inequality within countries was explained as the result of structural characteristics, such as the land ownership structure, the political system, educational attainment or religious beliefs (e.g. Gradstein et al, 2001).

Two recent studies included openness to trade among the variables explaining inequality within countries, leading to almost opposite conclusions. Dollar and Kraay (2001) found that the consumption or earnings of the poorest population quintile grow at the same rate as the country's income per capita. This relationship is not affected by policy reforms, including greater openness. The only exception is stabilizing against inflation, which is associated with lower inequality. Based on these results, globalization cannot be said to cause increased inequality within countries. On the other hand, Lundberg and Squire (1999) found evidence that opening up an economy leads to higher inequality. The effect is not statistically significant for the share of the poorest two quintiles of the population, but it becomes larger (and highly significant) for richer quintiles. As a result, openness has a statistically significant effect on the Gini index.

Reconciling these results is not an easy task (see Ravallion, 2001). Rather than trying to replicate or extend them, this section reports new estimates obtained using a broader set of explanatory variables. These estimates are from work in progress by Rama and Ravallion (2001), and they should be treated as preliminary at this stage. The data set is a revised version of the one assembled by Deininger and Squire (1996). A total of six inequality indicators are considered in the analysis. Five of them refer to the share of each of the population quintiles in total consumption, or earnings, measured in logs. When both data on consumption and on earnings are available, the former are preferred. The sixth indicator is the Gini index for the distribution of consumption or earnings, also in logs. A distinctive feature of these new estimates is to take into account most of the explanatory variables that can be found in the literature on the determinants of inequality, plus a series of interactive and quadratic terms that improve the fit of the regressions. One among those explanatory variables is the share of foreign trade to gross domestic product (GDP), measured in logs. This variable can be interpreted as an openness indicator; its level should increase with globalization.

The contrast between the results in Tables 1 and 2 highlights the difficulties faced when trying to assess the impact of openness on inequality. The specification in Table 1 considers a parsimonious set of explanatory variables; namely those used by Li et al. (1998) plus the openness indicator. All variables are entered linearly in the regressions. According to the results

in Table 1, the share of trade to GDP is largely irrelevant. In more open economies, the share of the richest population quintile is higher, and those of all other quintiles lower, but these effects are small in absolute terms. More importantly, they are statistically insignificant. The same holds true for the effect of openness on the Gini index. Table 1 thus supports the findings of Dollar and Kraay (2001).

Table 2, on the other hand considers an expanded set of explanatory variables, plus several quadratic and interactive terms. Although the specification can be considered somewhat arbitrary, the larger number of controls should reduce the risk of confusing the effects of openness with those of other economic forces. In this specification, the openness indicator is interacted with two variables that could, in principle, modify the impact of globalization on inequality. The first of these two variables is the share of government expenditure in GDP, measured in logs. Government expenditure is in large part associated with redistribution, under the form of transfers or public sector salaries. It has been even argued that more open economies have larger governments as a way to mitigate their higher exposure to external shocks (Rodrik, 1998). The other variable interacted with openness is the mean years of schooling in 1960, also measured in logs. This variable can be interpreted as an indicator of the initial educational attainment of the population. The interaction term is in this case aimed at testing the hypothesis that only those who have the skills needed to adjust to new technologies and organizational structures benefit from globalization. Few workers are likely to have those skills in countries with a low educational attainment.

With this richer specification, openness appears to have a substantial impact on inequality. All the coefficients multiplying this variable are statistically significant when the inequality indicator considered is the Gini index. The coefficient on the interaction term between openness and schooling is also significant for most of the inequality indicators, and especially so for the share of the lowest two quintiles. Based on these results, globalization can lead to higher or lower inequality depending on government expenditure and, especially, on educational attainment. The net outcome might be difficult to grasp based on the coefficients reported in Table 2, because of the interactive terms. But Figures 1 and 2 summarize it in a simple way. These figures are drawn for a wide range of government expenditure and educational attainment levels. In Figure 1, the mean schooling of the population is seven years,

but the government spends either 10 or 30 percent of GDP. In Figure 2, the government spends 20 percent of GDP, but the mean years of schooling varies from 3 to 11.

Overall, the figures suggest that globalization benefits the rich more than it benefits the poor. The elasticity of the share of the richest group to openness is always positive, as is the elasticity of the Gini index. All of the other elasticities are negative. However, it does not follow that the poor are worse off with globalization. The decline in their share of earnings or consumption could be more than offset by an increase in total earnings or consumption resulting from increased openness.

The results summarized in these Figures also suggest that both redistribution and increased education, could mitigate the impact of globalization on inequality. In Figure 1, a larger government expenditure reduces the absolute size of all elasticities. The impact is considerable for the share of the poorest quintile, as the corresponding elasticity goes from -0.77 to -0.44 . But again, it does not follow that the poor would be better off. The figure is constructed assuming a staggering 20 percent of GDP in additional government expenditure. The additional tax burden associated with this higher spending could substantially reduce economic efficiency. As will be shown below, the negative impact on total earnings or total consumption could be especially large if the additional government expenditure was used to expand public sector employment.

Increased education, on the other hand, should have a positive effect on total earnings or total consumption. This positive effect may or may not outweigh the cost of raising the average schooling of the population, depending on the actual returns to education. But Figure 2 suggests that the poor could have more to gain from increased education than from increased government expenditure. For the share of the poorest quintile, the elasticity goes from -0.88 to -0.40 . The absolute value of the elasticity declines for all other quintiles, as well as for the Gini index.

While the results summarized in Figures 1 and 2 are sensible, at this stage they can only be considered indicative. The key explanatory variable used in the regression analysis, namely the share of foreign trade to GDP, is only one among several possible openness indicators. The next section also considers other indicators, such as the ratio of foreign direct investment (FDI) to GDP. When included in the regressions, this other ratio does not lead to clear-cut results. An additional and potentially more important problem is endogeneity. Despite the fact that a large number of determinants of inequality are taken into account in the regressions, some other

important explanatory variables are certainly omitted. If the omitted variables have an incidence on both openness and inequality, the estimated elasticities would be biased. To correct for the effects of endogeneity, it would be necessary to rely on variables that have an impact on openness but not on inequality. Finding such variables, or instruments, is a very difficult task when dealing with cross-country regressions.

An alternative to improving the econometrics is to focus on the transmission mechanisms through which globalization may affect inequality. For the relationship suggested by Figure 2 to be true, globalization has to affect factor prices in general, and wages in particular. Admittedly, in many developing countries wage earners are only a fraction of the labor force. But international trade and foreign direct investment usually involve enterprises, which employ salaried workers and often operate in the formal sector of the economy. The most direct impact of access to world markets, import penetration or capital inflows should be on the demand for labor by those enterprises. Competition in the labor market could subsequently translate this direct impact into changes in expenditure or earnings among the self-employed or unpaid family workers. But the first-order effect of globalization should be noticeable in the level of wages in general, and of formal sector wages in particular.

3. Is the Labor Market an Important Transmission Mechanism?

Three new data sets, recently released or still under construction, can be used to analyze the links between globalization and wages. The first one was assembled by Freeman and Oostendorp (2000) based on the *October Inquiry* by the International Labour Office (ILO). This inquiry, conducted since 1924, requests governments around the world to submit data on wages by occupation. The Inquiry has barely been used for research purposes, because the raw data in it suffer from comparability problems. Occupations (e.g. bricklayer, teacher, etc.) are defined quite precisely. But depending on the country and occupation, the raw data may refer to wages or to earnings. The reported figure may be minimum, a maximum, an average or a median. Figures can also refer to men, women or both. And the reference period can be the hour, the day, the week or the month. What Freeman and Oostendorp did was to re-calibrate these data so as to make them comparable, assuming a stable relationship between different wage measures. The data used in this paper correspond to the average monthly wages of men, measured in current

PPP dollars. The earlier observations correspond to 1983, but the occupations for which data are available vary across countries and years. An effort is currently under way to extend this recalibration back to 1953 (Freeman, Oostendorp and Rama, 2001).

The second data set contains information on average labor costs per worker in manufacturing. It is part of a broader set of labor market indicators being constructed by Rama and Artecona (2001). The raw data on labor costs in manufacturing are predominantly from plant-level surveys of relatively large establishments, mainly in the formal sector of the economy. The size threshold is low by industrial country standards, as most surveys include plants with personnel of ten or more. The average labor cost is computed by dividing the total payroll, including social security contributions and labor taxes, by the number of salaried workers. A large number of observations are from the plant-level surveys collected by the United Nations Industrial Development Organization (UNIDO). But the data set by Rama and Artecona also relies on several hundreds of country-specific sources. Average labor costs per worker are measured in current PPP dollars, as averages over five-year periods. Most of the data refer to periods 1970-74 to 1990-94. There are few observations prior to 1960.

The third data set refers to returns to education. It is being collected as part of work in progress by Rama (2001b), building on previous work by Psacharopoulos (1993). A variety of studies around the world have tried to estimate the impact of an additional year of education on labor earnings, using individual records from household surveys or labor force surveys. Many of these studies rely on a Mincerian earnings function, explaining the log of earnings as a function of the number of years of schooling, the number of years of work and its square. Admittedly, the estimates suffer from comparability problems. Data sources have different coverage and quality, whereas labor earnings are not measured consistently. The Mincerian equations reported in these studies include different control variables, and involve different sub-set of workers (e.g. in the private sector, in urban areas, males only, etc.). But as long as the “noise” in the estimated returns to education is not correlated with openness, those returns provide a valuable source of information to study the impact of globalization on labor markets. The third data set reports the estimated coefficient for the years of schooling, in the “preferred” specification, in each of the available studies. For some countries and years, there is no estimate available. This may be due to the fact that no household or labor force survey was carried out on that year, or to the fact that no study was conducted, or simply to the fact that the Mincerian approach was not used. For

some other countries, there can be many estimates for a single year. As long as they come from different studies, they are all included in this third data set.

A simple way to assess whether globalization leads to a “race to the bottom” is to regress wage level indicators on openness indicators.² This is done in Tables 3 and 4. The explained variable in Table 3 is the log of wages by occupation, based on the data set by Freeman and Oostendorp. In the regressions in this table, there is a maximum of one observation per country, year and occupation. The explained variable in Table 4 is the log of average labor costs in manufacturing, based on the data set by Rama and Artecona. In the regressions in this table, there is a maximum of one observation per country and five-year period. In addition to the trade-to-GDP ratio, three other openness indicators are considered. One of them is simply a variant of this ratio, where PPP dollars (instead of current dollars) are used to measure the numerator and the denominator. Another indicator, constructed by Sachs and Warner (1995), focuses on economic policies. This indicator considers that an economy is open if it meets five criteria: low tariffs, a limited number of non-tariff barriers, no marketing boards, no central planning and a small or non-existent black market premium for the exchange rate. The last openness indicator is the ratio of foreign direct investment to GDP; in computing this indicator, both the numerator and the denominator are measured in current dollars.

All the regressions reported in Tables 3 and 4 are run using fixed effects. This is the same as including dummy variables for each country, period and (in the case of Table 3) occupation. The coefficients on these dummy variables remove the effect of unobservable characteristics, so that the estimated coefficient on an openness indicator measures the impact of the change in exposure to world markets on the change in wage levels. The implicit hypothesis, when assessing the sign and significance of this coefficient, is that globalization has a systematic impact, in one direction or the other, on all the wages considered in the analysis. For instance, a significantly negative coefficient should be interpreted as evidence that wages are lower in more open economies, everything else equal.

Regressions of this sort raise several important problems. Reverse causality, omitted variables and structural instability are among the most important ones. Regarding reverse causality, if a significant relationship were found, it could be difficult to tell whether openness has an impact on wages or the other way around. To address this problem, the explanatory

² This analysis is based on work in progress by Freeman, Oostendorp and Rama (2001).

variables were lagged one period, meaning that the key coefficient measures the relationship between openness in one period and the wage level in the subsequent period. Lags of this sort do not affect the estimated impact much in the case of wages by occupation, but they do attenuate it in the case of labor costs per worker in manufacturing. This attenuation is hardly surprising, because a one-period lag involves five years, which is long enough for the effect of openness to fade away. Therefore, the results in Table 4 are for explanatory variables corresponding to the same five-year period as the dependent variable. In Table 3, explanatory variables are lagged one year with respect to the dependent variable.

Regarding omitted variables, it could well be the case that some other economic force explains both openness and the wage level, so that the estimated relationship is misleading. To address this problem, all regressions were re-run adding three control variables, accounting for the level of economic development, political freedom and economic freedom. The inclusion of political freedom was based on previous evidence on its relevance when explaining wage levels across countries (Rodrik, 1999). The level of economic development is measured by the log of GDP per capita in PPP dollars, political freedom is measured by the Polity III index, and economic freedom by the Fraser index. Other regressions, not reported in this paper, consider alternative development indicators, such as the educational attainment of the population or the urbanization rate. The results do not change substantially, but the statistical significance of the estimated coefficients falls as the number of usable observations becomes smaller.

Finally, there would be structural instability problems if the relationship between globalization and wages were different across sub-sets of countries. In particular, the simple international trade model predicts that the impact of openness on inequality should have opposite signs in industrial and developing countries. All regressions were therefore re-run excluding industrial countries from the sample. The results are not reported in the paper, but the estimated coefficients remained very similar in all cases. Their statistical significance declined, however, due to the smaller sample size.

The results reported in Tables 3 and 4 suggest that globalization has a mixed impact on wages. Openness to trade, as captured by either trade flows or economic policies, is associated with a lower level of wages by occupation. Except in one specification, all the effects are statistically significant. In addition, the magnitude of the effects appears to be considerable. In the specifications that do control for development level, political and economic freedom, an

increase in the trade-to-GDP ratio by 20 percentage points leads to a 5 to 6 percent decline in wages. The impact is similar when an economy opens up, according to the indicator constructed by Sachs and Warner. The effect of the latter indicator on labor costs in manufacturing is even bigger. But in Table 4, the size and significance of the coefficient multiplying the trade-to-GDP ratio varies across specifications, suggesting that the estimated impact on labor costs in manufacturing is not robust. On the other hand, foreign direct investment appears to have a positive impact on wages. This impact is large and statistically significant in the case of wages measured by occupation. When foreign direct investment increases by one percentage point of GDP, wages grow by roughly one percent. The effect seems even bigger in the case of labor costs in manufacturing, but it is statistically insignificant.

A simple way to test whether globalization also leads to increased inequality among workers is to repeat the analyses in Tables 3 and 4 using indicators of wage dispersion as the explained variable. In Table 5, the chosen indicator is the standard deviation of the log of wages by occupation, based on the data set assembled by Freeman and Oostendorp. This standard deviation can be interpreted as the typical gap, in relative terms, between wages in any occupation and the average wage. The higher the standard deviation, the more important the inequality among workers. In the regressions in Table 5, there is a maximum of one observation per country and year. In Table 6, the explained variable is the percentage increase in labor earnings associated with one additional year of education, based on the data set under construction by Rama (2001b). The bigger this increase, the wider the earnings gap between skilled and unskilled workers. In the regressions in Table 6, there can be several observations per country and year, but missing values are common.

The specification of the regressions in Tables 5 and 6 is the same as in Tables 3 and 4, with one exception. In the data set assembled by Freeman and Oostendorp, the number of occupations for which wage data are available varies substantially across countries and years. The standard deviation of the log of wages is sensitive to the number of occupations for which wage data are available. In the limit, if there were only one observation for a specific country and year, the estimated standard deviation would be equal to zero, as there would be no difference between the only observed wage and the average wage. To correct the effects of this measurement error, the regressions in Table 5 include the number of occupations considered in each country and year as an additional explanatory variable.

According to the results reported in Tables 5, globalization has no systematic impact on the dispersion of wages across occupations. The sign of the coefficient of interest varies across specifications, and is almost never statistically significant. There appears to be no relationship between openness to trade and returns to education either. However, foreign direct investment is associated with a huge increase in the premium to skills. If interpreted literally, the coefficients in Table 6 mean that one extra point of GDP in foreign direct investment is associated with an increase by five percentage points in the returns to an additional year of schooling. Such an impact is probably too large to be credible. But it suggests that the “digital divide” effect, if it does exist, operates through the technology embedded in foreign capital, rather than directly through foreign trade. This finding is consistent with microeconomic evidence on the effects of *maquiladoras* in Mexico (Feenstra and Hanson, 1997).

It is important to point out that the results in Tables 3 to 6 refer to impacts over one year, or five years at most. Impacts over the longer run could be different. Figures 3 and 4 report the results of a regression along the lines of those in Table 3, but using longer time lags. Figure 3 focuses on the coefficient multiplying the ratio of trade to GDP, measured in dollars. Figure 4 focuses on the coefficient multiplying the ratio of foreign direct investment to GDP. The solid lines in these figures reflect the point estimate of the coefficient of interest; the dotted lines indicate the 95 percent confidence interval. One difference between Figures 3 and 4 and the regressions in Table 3 is that the latter include either the trade ratio or the foreign direct investment ratio among the explanatory variables, but not both. The regressions underlying Figures 3 and 4 include the two ratios simultaneously. This is why the impact after one year is slightly different in both cases.

Figure 3 shows that the impact of openness to trade on wages shifts from significantly negative in the short run to significantly positive in the medium run. This change in sign happens after the three years. It takes five years to offset the negative effect on wages when openness is measured using the policy indicator constructed by Sachs and Warner (1995). On the other hand, Figure 4 shows that the impact of foreign direct investment remains always positive, but it becomes statistically insignificant after five years.

In the longer run, openness could affect wages levels through its impact on output. It is generally accepted that openness is associated with higher growth in output per capita (see for instance, Sala-i-Martin, 1997). The level of wages is, in turn, highly responsive to economic

development. In all the regressions that control for the latter, in Tables 3 and 4, the coefficient multiplying the log of income per capita is positive and highly significant. If openness is good for output growth, then it could be good for wage growth over the long run. What the econometric results presented in this section suggest is that, for some workers, the impact could be negative in the short run.

In fact, it could be even more negative than suggested by these results. Many workers in protected industries could lose their jobs as a result of trade liberalization and market deregulation. For them, the resulting decline in earnings would be larger than the decline in wages predicted by the regressions in Tables 3 and 4. Optimistically, one could argue that laid-off workers would find other jobs subsequently. But the experience of various “successful” reformers indicates that unemployment rates may remain stubbornly high for long periods of time. Figure 5 illustrates the cases of Chile, Mauritius, Poland and Sri Lanka in the years following a major liberalization effort. It shows that unemployment rates climbed to the double digits, and stayed there for more than one decade. Of course, it could always be possible to blame this outcome on economic policy mistakes. But this criticism has limits, as the countries considered in Figure 5 are “success stories” in their own regions. It would probably be difficult for other developing countries to do much better than they did.

Similarly, there are countries where economic reforms (including greater openness to trade) could be associated with a sharper increase in returns to education than suggested by the econometric results presented in this section. The experience of former socialist economies is revealing in this respect. Those economies were characterized by highly “compressed” salary structures under central planning. Market forces widened the wage distribution, introducing a substantial premium to skill. This trend is illustrated in Figure 6, which displays returns to education in formerly socialist countries over the years following the beginning of their transition to a market economy. For some of the countries in this chart, the observed increase in returns to education amounts to widening the wage ratio between workers with college education and workers with primary education by eighty percentage points. Freeman and Oostendorp (2000) also report a marked increase in the dispersion of wages across occupations in formerly socialist economies.

Overall, the conclusion reached in the previous section, namely that globalization may be associated with increased inequality, is somewhat supported by the analyses in this section.

Openness should benefit workers in the long run, and has the potential to benefit skilled workers even in the short run. But it may also penalize wage earners who are unskilled or work in protected activities. In the short run, the net impact depends on whether globalization is associated with more trade only, or also with more foreign direct investment. The latter has the potential to raise wages, but it may also widen the gap between the skilled and the unskilled. Another way to state the findings of this section is to say that openness may create winners and losers. Skilled workers are the most likely winners, even in the short run. Young workers, who can expect to benefit from wage growth in the long run, should be among the winners too. Unskilled and old workers, especially in protected industries, could be the main losers. This heterogeneity of outcomes has important political economy implications, that will be analyzed in section 5.

4. Can Labor Market Policies Reduce Inequality?

Among the government policies that could mitigate the impact of globalization on inequality, the most obvious candidate is outside the labor market. That candidate is increased schooling. Both in the analysis of inequality indicators and in the analysis of wage indicators, education levels play a key role. The elasticity of the income or expenditure shares of the poorest quintiles of the population to openness is higher, and that of the richest quintile lower, in countries with a higher school attainment. In the same vein, the negative impact of increased foreign trade on wages could be offset, for educated workers, by the positive impact of foreign direct investment on the returns to education. While this section deals with labor market policies, it is important to keep in mind that their ability to mitigate the impact of globalization on inequality could be of a second order compared to that of education policies.

This said, given that the labor market is an important transmission mechanism between world markets and the distribution of consumption or earnings, it is sensible to consider labor market policies as a potential instrument to reduce inequality. In recent years, there has been substantial debate about the merits and demerits of minimum wages, mandated benefits, collective bargaining, job security or public sector employment in developing countries. There are even proposals to make the link between labor market policies and openness explicit, by including compliance with “labor standards” among the rules of the multilateral trading system.

Those standards usually take the form of the seven “core” ILO conventions. A pertinent question is whether labor market policies, including “core” labor standards, can effectively reduce inequality in countries where only a fraction of the labor force is salaried, and the ability of governments to enforce regulations is limited.

One way to address this question is to review the available evidence on the effects of labor market policies and institutions in developing countries. While the literature was limited to industrial countries until not long ago, there are now many labor market studies dealing with less advanced areas. Many of these studies are based on microeconomic data, which makes them more credible. From the point of view of this paper, their main shortcoming is that they refer mainly to effects on wage employment and wage levels, and not directly on inequality. However, the existing literature can be used to discuss, conceptually, the ability of different labor market interventions to counter the effects of globalization.

Studies on minimum wages suggest that their impact is likely to be small. In many developing countries, it is difficult to find a sizeable “spike” in the distribution of wage earnings for full-time workers around the minimum wage level (Maloney and Nuñez, 2001). Even in countries with a relatively high administrative capacity, the fraction of full-time workers who earn less than the minimum wage is roughly the same in the formal and the informal sectors (Gindling and Terrell, 1995). Not surprisingly, it is difficult to find employment effects of minimum wages, except when the latter are very high compared to the average wage, as in Colombia (Bell, 1997). An interesting “natural” experiment was the doubling of minimum wages in real terms in Indonesia, during the early 1990s. Over this period, the elasticity of average wages to minimum wages at the province level was roughly 10 percent. While there was a mild decline in total wage employment, the disemployment effect was substantial in small establishments (Rama, 2001a).

Studies on mandated benefits indicate that their cost might be shifted to workers, without modifying total compensation much. The fact that workers “pay” for their benefits through lower cash earnings is not surprising when those benefits are indeed valued, in the sense of being perceived as a form of compensation. More strikingly, there also appears to be a one-to-one shift in the case of benefits whose value, from the workers’ perspective, is not so clear. This is what happened with social security reform in Chile, when a reduction in contributions was offset by an increase in wage earnings, despite the fact that benefits were only loosely related to contributions

(Gruber, 1997). Conversely, the cost of some benefits may be shifted to employers, even if they are fully fungible with wages. This is what happened with cash benefits in the public sector and in unionized activities in Ecuador (MacIsaac and Rama, 1997).

Trade unions seem to be effective at raising the wages of their members, but the union wage premia are probably smaller than in industrial countries. This may be due to the “subordinate” nature of the labor movement in many developing countries, where some trade unions were even instrumental in enacting wage freezes during periods of economic adjustment (Nelson, 1991). Thus, the estimated union wage premia range from negligible in Senegal (Terrell and Svejnar, 1989) to small in Mexico (Panagides and Patrinos, 1994). It has been argued that South Africa is an exception, in the sense that the union wage premium could be extraordinarily high (Mwabu and Schultz, 2000). However, this high premium is likely to reflect self-selection, more than bargaining power. An in-depth analysis of the South African data suggests that the wage premium is roughly 15 percent, much the same as in the US. This analysis also shows that trade unions manage to extend part of this premium to non-unionized workers in activities covered by industrial councils (Butcher and Rose, 2001).

The impact of separation costs is more controversial. In a few countries there is mandated job security, meaning that some employers (typically, large ones) cannot dismiss a worker without explicit approval from the government. As this approval is political in nature, employers might be reluctant to hire workers on permanent contracts, for fear of not being able to fire them in bad times. There is evidence that the tightening of job security regulations depressed labor demand in India and Zimbabwe (Fallon and Lucas, 1991). In most developing countries, however, separation costs take the form of mandatory severance pay, whereby the employer has to pay an indemnity to workers who lose their jobs due to no fault of their own. This indemnity is usually a function of wage and seniority. Based on cross-country data, it has been claimed that separation costs of this sort reduce the level of employment (Heckman and Pages, 2000). However, microeconomic data from Peru reveals that workers “pay” for some of their separation package, under the form of lower wages (MacIsaac and Rama, 2001).

Finally, there are relatively few studies on the impact of public sector employment on labor market outcomes. In countries where the formal sector is very small, as in Sub-Saharan Africa, public sector wages could have a substantial impact on the wages paid by the private sector (Rama, 2000). The fact that public sector jobs are “better” than their private sector

counterparts could also be at the roots of “queuing unemployment”, as in Egypt (Assaad, 1997). On the other hand, public sector jobs could serve as a form of insurance, especially in countries where intra-household transfers are substantial. This possibility has been explored by Rodrik (2000), using cross-country data.

This admittedly brief and sketchy revision of the literature suggests that labor market policies could have an impact on inequality, but this impact is probably small and its direction is unclear. Higher minimum wages and stronger trade unions could raise the earnings of those who manage to keep their jobs, but reduce labor demand and depress the earnings of those in the informal sector. Formal sector workers usually belong to the “middle class” in developing countries; whereas informal sector workers are more likely to be poor. The direction of the impact could be similar in the case of more generous mandated benefits and higher separation costs, provided that workers do not “fully” pay for their coverage. And public sector employment could also benefit “middle class” groups, rather than the poor. Still, all of these effects could be too small to make a difference.

One way to quantify the impact of labor market policies on inequality is through cross-country analysis. Until recently, the literature on the determinants of inequality had not focused on labor market indicators. The discussion of the link between globalization and inequality, in section 2, is revealing in this respect. While the “extended model” considered in Table 2 considered a variety of determinants of inequality, none of them was directly related to the labor market. Only Bourguignon and Morrisson (1998) have included a labor market indicator among the determinants of inequality. But that indicator, namely the ratio between labor productivity in manufacturing and in agriculture, measures a labor market outcome rather than a labor market policy or institution.

The database currently being constructed by Rama and Artecona (2001) can be used to redress this shortcoming. This database contains information on a variety of labor market indicators across countries, averaged over five-year periods. Some of these indicators capture aspects of the regulatory framework, such as the number of ILO conventions ratified, the number of “core” conventions ratified, the number of days of maternity leave with pay, or the percentage of the salary that has to be paid to the social security system. Other indicators refer to direct and indirect outcomes of government policies, such as the ratio of minimum wages to average wages, the revenue of the social security agency in percent of GDP, the union membership rate or the

share of the labor force employed by the government. Unfortunately, there are relatively few observations available on separation costs. But the other four aspects of labor market policies and institutions (i.e. minimum wages, mandated benefits, collective bargaining and public sector employment) are relatively well covered.

Ideally, labor market policies and institutions should be included among the explanatory variables in a regression on the determinants of inequality (i.e. in the spirit of Table 2). But labor market indicators are often unavailable for the same periods as inequality indicators. This ideal approach would thus reduce the number of observations that can be used in the regression analysis, some times dramatically. The alternative considered in this paper is to assess the correlation between labor market indicators and inequality indicators.³ Table 7 reports “crude” correlations, not taking into account any other determinants of inequality. Table 8 correlates the labor market indicators with the “unexplained” part of inequality indicators, i.e. with the residuals of the regressions reported in Table 2.

On the surface, most labor market policies are effective at reducing inequality. A vast majority of the correlation coefficients in Table 7 are statistically significant. They are associated with a lower Gini index, and also with a lower consumption or income share for the richest population quintile. Labor market policies also appear to increase the share of all other population quintiles, including the poorest one, despite the fact that very few among the poor have formal sector jobs. However, these results are affected by omitted variable bias. After controlling for other characteristics of the countries, most of the correlation coefficients become statistically insignificant, as shown by Table 8.

Only two, closely related labor market indicators have a consistent impact on all inequality indicators. These are the number of ILO conventions ratified by the country, and the share of its GDP that is channeled through its social security system. The regulatory regime promoted by the ILO tends to be protective of workers, and include many benefits that are usually managed by social security administration. In fact, the correlation coefficient between the number of ILO conventions ratified and the share of GDP channeled by social security, is quite high. Across all countries and periods covered in the database by Rama and Artecona (2001), it reaches almost 0.6.

³ This analysis is based on work in progress by Rama and Ravallion (2001).

The only other labor market policy or institution displaying a statistically significant correlation with inequality indicators is the share of the labor force covered by collective bargaining agreements. But the effect is significant only for the consumption or income share of the fourth richest quintile in the population. In developing countries, many formal sector workers are likely to belong to this quintile. The evidence in the previous two sections suggests that the fourth richest quintile, and formal sector workers, may be adversely affected by globalization, at least in the short run. However, other population quintiles may be affected even more adversely. Focusing on a labor market policy that only works for one of the richest groups in the population is probably not the most effective way to reduce inequality.

All other labor market policies and institutions appear to be ineffective, once the other determinants of inequality are controlled for. In particular, minimum wages and core labor standards have no significant impact on any of the inequality indicators. This irrelevance is in contradiction with popular perceptions, and casts doubts on the usefulness of including compliance with “labor standards” among the rules of the multilateral trading system. Public sector employment and public sector wages also appear to be ineffective at reducing inequality. Based on the results in Table 8, only traditional “social protection” instruments have an impact.

5. Do Labor Market Policies Reduce Efficiency?

While it might be tempting to use social protection instruments and other labor market policies to mitigate the adverse impact of globalization on inequality, the cost in terms of economic efficiency should not be overlooked. All forms of redistribution entail some deadweight loss, and labor market policies should be no exception. But the deadweight loss may vary substantially across different government interventions. To some extent, that loss can be inferred from the microeconomic evidence on the effects of labor market policies in developing countries, reviewed in the previous section. However, this evidence is not precise enough to compare the efficiency costs of any two pairs of government interventions in the labor market. Again, cross-country analyses may provide a more useful starting point.

The long-run impact of labor market policies on economic efficiency can in principle be quantified using “Barro regressions”. These are relationships linking average growth rates across countries with some of the characteristics of those countries, including their economic

policy choices (Barro, 1997). This approach has been used to assess the consequences of trade policies, monetary policies, financial policies, fiscal policies, and the like. But so far it has not been applied to labor market policies, due to the unavailability of a reliable cross-country database of labor market indicators. Cukierman et al. (2001) have tried to fill this gap, using the information compiled by Rama and Artecona (2001). This section reports on some of their preliminary findings.

In addition to the usual explanatory variables included in Barro regressions, Cukierman et al. consider labor market indicators like those used in the previous section. None of them appears to have a significant impact, positive or negative, on long-run growth. The only exception is the minimum wage. When the latter is very low, its increase is associated with a higher growth rate. The effect vanishes when the minimum wage reaches roughly 20 percent of the average labor cost in manufacturing. Preliminary work on the transmission mechanism for this effect suggests two possible avenues. At very low levels of the minimum wage, its increase is associated with a higher educational attainment, which would be consistent with investments in children's schooling being profitable but being constrained by lack of access to credit. An increase in the minimum wage is also associated with higher levels of employment, which would make sense if employers had enough market power to set wages below their competitive equilibrium level. But the positive effects on educational attainment and employment vanish at higher levels of the minimum wage.

The weakness of the effects of other labor market policies on long-run growth suggests that deadweight costs could be small or negligible. Such a conclusion would be consistent with the view that the capitalist system is diverse, rather than "single peaked". In this respect, Freeman (2000) has argued that similar outcomes are achieved under very different labor market policies and institutions. From this perspective, the main effect of these policies and institutions is on the distribution of labor market rents between workers and employers, not on economic efficiency. The long-run growth regressions by Cukierman et al. (2001) provide some support to this view. But it is worth noting that, due to data availability, those growth regressions do not include separation costs among their arguments. Separation costs could in principle have more sizeable efficiency effects. More importantly, an analysis of the medium-term impact of those policies and institutions on economic growth leads to a less sanguine conclusion.

A cross-country study of economic growth during periods of economic reform shows that some of the government interventions considered in the previous section can be associated with poor performance (Forteza and Rama, 2001). This study compared output rates across countries with different degrees of labor market rigidity. The latter was measured based on an index that combined the level of minimum wages relative to average wages, the generosity of social security benefits, the membership of the labor movement, and the government share of the labor force. The comparison was run over four periods: long before (i.e. ten to four years before) the launching of major economic reforms, short before, short after and long after. The timing of reforms was identified based on the accumulated volume of World Bank lending for structural and sectoral adjustment programs.

The results of this cross-country study are summarized in Figure 7. The lines in this figure represent average growth rates for three different groups of countries in the four phases of the reform process. The results are similar when controls for past performance and external shocks are taken into account, as shown by Forteza and Rama (2001). The figure confirms that labor market rigidity does not affect long-run performance much, as the growth rates of all groups are very similar long before the reforms. But countries with rigid labor markets have a much worse economic performance in the years preceding the launching of the reforms, and a much slower recovery afterwards. A possible interpretation of this pattern is that countries with rigid labor markets reform later when confronted with adverse shocks, which could explain why they have a harder time when they reform.

Interestingly, the pattern in Figure 7 is not driven by minimum wages or mandated benefits, but rather by unionization and, especially, by government employment. This is consistent with a “political” interpretation of the role of labor market rigidity. In developing countries, a large portion of the union membership is made of public sector employees. Workers in protected industries and banking tend to be unionized as well. These two groups stand to lose from reforms such as trade liberalization, financial deregulation, or privatization of state-owned enterprises. The more powerful they are, the more likely that reforms will be delayed first, and once they are adopted, implemented only half-heartedly. Based on this political interpretation, figure 7 suggests that the payoffs to the “compensation” of those who stand to lose from globalization can be large. It also casts doubts on the wisdom of using public sector employment

as an insurance mechanism against the increased economic volatility from globalization. A high level of public sector employment may hamper the adoption of economic reforms subsequently.

Political economy considerations raise interesting issues regarding the “targeting” of labor market policies. The analysis in the previous section suggested that traditional “social protection” could be an effective redistribution tool, raising the consumption or income share of the poorest quintiles of the population. On the other hand, the political economy argument emerging from the analysis in this section implies that transfers should be aimed at those who stand to lose more from globalization. These could be, for instance, relatively unskilled wage earners in protected sectors of the economy, and public sector employees. Mitigating the losses of these workers may be the key for trade liberalization and similar reforms to be accepted. But wage earners in protected sectors and public sector employees are not poor by developing country standards. Therefore, there is some tension between the poverty alleviation goal and political economy considerations, at least in the short run.

Policies aimed at mitigating the impact of job loss are among the most obvious candidates to compensate the losers from globalization. These policies can be classified in two groups: one-time interventions and permanent programs. Regarding the former, generous compensation and assistance to those bound to lose their jobs have been frequently relied upon to defuse resistance to privatization, trade liberalization or market deregulation in industries where insiders are vocal and powerful (Haltiwanger and Singh, 1999). If perfectly designed, compensation packages for redundant workers would turn them indifferent to job loss, thus making economic reforms optimal in the sense of Pareto. However, the experience suggests that the design of these packages is based on rules of thumb, which can lead to a substantial over-compensation or under-compensation of redundant workers. A more sensible basis to assess the amount of compensation needed to achieve indifference is the analysis of microeconomic data on the earnings redundant workers could hope to make after separation (Assaad, 1999; Chong and Rama, 2001).

As regards more permanent mechanisms to help workers cope with job loss, a variety of programs have been tried in developing countries. Table 9 summarizes the findings of a comparative study for Latin America (World Bank, 2000). This study considered five programs: public works, training for the unemployed, mandatory severance pay, unemployment insurance, and forced savings. Table 9 shows that these programs have vastly different costs per assisted

worker. The distribution of these costs among workers, employers and taxpayers varies substantially as well. From the point of view of this paper, the most interesting feature of the table is the difference among beneficiaries. Whereas public works and training programs for the unemployed reach the poorest population groups, forced savings reach the richest. Mandatory severance pay and unemployment insurance fall in between. These differences should be kept in mind when thinking about the “targeting” of social protection programs in the context of integration with world markets.

6. Conclusion

This paper has tried to address questions that are at the center of the policy debate nowadays. The answers it offers are based on an analytical review of the literature. The few “novel” results in it should not be seen as contributions of the paper, as they are drawn from studies currently under preparation. Its value added, if any, is to make sense of the microeconomic and macroeconomic evidence available. What the paper does is to propose a story line that is consistent with different bits and pieces of knowledge accumulated so far. Reassuringly, this story line is much more nuanced than the ideological views of either free-marketeters or anti-globalizers. But it could be wrong nonetheless. While all research papers conclude with the assertion that more research is needed, such a conclusion seems really warranted in this particular case. This said, in finishing it may be useful to summarize the (tentative) story line emerging from this analytical survey.

Does globalization lead to an increase in inequality? The answer is a cautious yes. On the surface, there is no link between openness and the consumption or income share of different population quintiles. But a more careful analysis, considering the interaction between openness on the one hand, and government spending and the average schooling of the population, on the other hand, reveals important disequalizing effects. Because this conclusion is based on cross-country analyses, and the latter are subject to serious econometric problems, it needs to be taken with great skepticism. If the conclusion is tentatively accepted, however, it implies that education policies may be one of the most important policy instrument to counter the impact of globalization on inequality.

Is the labor market an important transmission mechanism? The answer is again yes, but with a qualification. Exposure to world markets is associated with lower wages, and somewhat lower labor costs in manufacturing, but foreign direct investment is associated with higher wages. While the overall dispersion of wages by occupation does not seem to change much, returns to education seem to increase. These direct effects somewhat vanish after a few years. And over the longer run, the positive impact of globalization on output per capita should lead to a sustained increase in all wages. In the short run, however, unskilled and older workers are likely to lose. The decline in their well being could be much larger than indicated by the decline in wages, as trade liberalization may also be associated with higher unemployment.

Can labor market policies reduce inequality? The answer here is a qualified yes. The most effective interventions are not those that increase the bargaining power of labor relative to capital, but rather those falling under the “social protection” heading. In particular, the “core” labor standards which are so much favored by the anti-globalization movement appear to be quite ineffective. Minimum wages do not appear to make a significant difference either. Conversely, the amount of resources channeled through the social security system (which is highly correlated with the number of ILO conventions ratified by a country) is associated with lower overall inequality and appears to benefit the poor.

Finally, do labor market policies reduce efficiency? The answer depends on the time horizon. In the long run, labor market interventions do not seem to have a sizeable impact on economic performance. If anything, minimum wages could be associated with higher growth rates, provided that they are set at very moderate levels. Mandated benefits and other interventions falling under the “social protection” heading appear to be benign in the short run too, as they do not interfere with the effectiveness of economic reforms. But this effectiveness is substantially reduced when the bargaining power of labor is important. High union membership rates and, especially, large public sector employment are associated with delays in the adoption of economic reforms and slow recovery afterwards.

In sum, social protection mechanisms could be an important complement for policies aimed at further integrating developing countries with the rest of the world. These mechanisms can take the form of one-time interventions or permanent programs. The most appropriate mechanisms in each circumstance depend on the resources available and on the target group. In countries where resistance to globalization is potentially strong, the targeting may be aimed at

compensating the most vocal groups. In other cases, the focus could (and should) be on the poorest population groups. In practice, the optimal policy probably involves the combination of several mechanisms, such as public works and unemployment insurance, or public works and severance pay for redundant workers.

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Table 1

Determinants of Inequality: Basic Model

Explanatory variables	The dependent variable is the log of					
	Income or consumption share by quintile					Gini index
	Poorest	2 nd	3 rd	4 th	Richest	
Mean secondary school (School)	0.100 (1.51)	0.077 * (1.90)	0.058 ** (2.14)	0.041 ** (2.28)	-0.048 ** (-2.29)	-0.103 *** (2.72)
Civil liberty index (Liberty)	-0.036 (-1.15)	-0.035 (-1.66)	-0.034 ** (-2.23)	-0.030 *** (2.81)	0.034 *** (3.25)	0.029 ** (2.60)
Log of M2 to GDP (Finance)	0.153 * (-1.84)	0.158 *** (2.70)	0.141 *** (3.34)	0.107 *** (3.74)	-0.108 *** (3.59)	-0.080 * (-1.72)
Log of land Gini index (Land)	-0.249 *** (-3.90)	-0.203 *** (-4.65)	-0.158 *** (-4.90)	-0.118 *** (-5.13)	0.125 *** (5.45)	0.165 *** (4.93)
Constant	-1.677 *** (-3.06)	-0.816 ** (-2.20)	-0.326 (-1.24)	0.013 (0.07)	-1.481 *** (-8.16)	2.914 *** (10.20)
Log of trade to GDP (Trade)	-0.010 (-0.12)	-0.003 (-0.05)	-0.006 (-0.15)	-0.005 (-0.19)	0.009 (0.33)	-0.003 (-0.07)
R-squared	0.267	0.367	0.435	0.497	0.499	0.406
F test	7.62	10.95	12.80	14.49	16.18	15.11
Number of observations	97	97	97	97	97	109

Source: Based on work in progress by Rama and Ravallion (2001). The figures reported in parentheses are robust t statistics. Significant correlation coefficients at the 10, 5 and 1 percent level are indicated by one, two and three asterisks respectively.

Table 2

Determinants of Inequality: Extended Model

Explanatory variables	The dependent variable is the log of					
	Income or consumption share by quintile					Gini index
	Poorest	2 nd	3 rd	4 th	Richest	
Mean secondary school (School)	-1.208 *** (-3.36)	-0.661 ** (-2.38)	-0.351 * (-1.66)	-0.172 (-1.18)	0.309 * (1.89)	0.497 ** (2.31)
Civil liberty index (Liberty)	-0.152 (-1.12)	-0.151 (-1.66)	-0.137 ** (-2.05)	-0.118 ** (-2.61)	0.128 *** (2.84)	0.149 *** (2.84)
Liberty squared	0.010 (0.45)	0.012 (0.86)	0.012 (1.18)	0.012 * (1.69)	-0.014 * (1.96)	-0.016 ** (-2.08)
Log of land Gini index (Land)	0.373 (1.26)	0.308 (1.39)	0.239 (1.44)	0.179 * (1.66)	-0.140 (-1.24)	-0.103 (-0.72)
Log of M2-to-GDP (Finance)	-1.510 (-1.25)	-1.474 (-1.61)	-1.262 * (-1.82)	-1.020 ** (-2.17)	0.839 (1.65)	0.676 (1.00)
Finance squared	0.228 ** (2.31)	0.156 ** (2.29)	0.126 *** (2.68)	0.086 ** (2.62)	-0.112 *** (3.24)	-0.161 *** (-3.65)
Finance x Land	0.545 * (1.84)	0.485 ** (2.17)	0.405 ** (2.42)	0.320 *** (2.77)	-0.284 ** (-2.35)	-0.274 * (-1.79)
Log of government spending to GDP (Government)	-1.328 (-1.39)	-1.025 (-1.33)	-0.875 (-1.50)	-0.734 * (-1.90)	0.771 * (1.83)	1.091 * (1.96)
Log of urbanization rate (Urban)	-0.021 (-0.07)	-0.066 (-0.29)	-0.097 (-0.57)	-0.074 (-0.67)	0.075 (0.62)	0.140 (0.97)
Urban x Government	0.001 (0.39)	0.001 (0.49)	0.001 (0.75)	0.000 (0.75)	-0.001 (-0.85)	-0.001 (-1.48)
Log of initial GDP per capita (Initial GDP)	-5.568 *** (-4.85)	-3.829 *** (-4.51)	-2.785 *** (-4.42)	-1.813 *** (-4.09)	1.961 *** (4.14)	3.234 *** (5.53)
Initial GDP squared	0.349 *** (4.67)	0.241 *** (4.37)	0.176 *** (4.31)	0.116 *** (4.05)	-0.125 *** (-4.11)	-0.203 *** (-5.44)
Black market premium (BMP)	0.156 *** (4.31)	0.114 *** (4.23)	0.083 *** (3.87)	0.058 *** (3.66)	-0.049 *** (-3.19)	-0.063 *** (-3.67)
Constant	21.55 *** (4.60)	15.17 *** (4.42)	11.59 *** (4.63)	8.022 *** (4.79)	-1.328 *** (6.54)	-12.19 *** (-5.51)
Log of trade to GDP (Trade)	-0.797 (-1.37)	-0.619 (-1.31)	-0.557 (-1.55)	-0.482 * (-1.98)	0.547 ** (2.05)	0.799 *** (2.35)
Trade x Government	0.300 (1.24)	0.241 (1.23)	0.220 (1.47)	0.190 * (1.90)	-0.205 * (-1.87)	-0.302 ** (-2.13)
Trade x School	0.367 *** (3.74)	0.206 *** (2.74)	0.112 * (1.95)	0.056 (1.42)	-0.093 ** (-2.09)	-0.160 *** (-2.74)
R-squared	0.667	0.710	0.739	0.773	0.776	0.771
F test	15.77	16.21	16.23	18.01	21.36	25.41
Number of observations	97	97	97	97	97	107

Source: Based on work in progress by Rama and Ravallion (2001). The figures reported in parentheses are robust t statistics. Significant correlation coefficients at the 10, 5 and 1 percent level are indicated by one, two and three asterisks respectively.

Table 3

Wages by Occupation and Openness

Explanatory variables	Explained variable: log of wages by occupation, in PPP							
Trade-to-GDP ratio (\$ based)	-0.125 *** (-7.41)	-0.284 *** (-14.74)						
Trade-to-GDP ratio (PPP based)			-0.017 (-0.78)	-0.318 *** (-11.73)				
Open economy (yes = 1)					-0.131 *** (-14.18)	-0.046 *** (-4.25)		
FDI-to-GDP ratio (\$ based)							1.062 *** (8.71)	1.178 *** (8.38)
Log of GDP per capita (PPP)		0.662 *** (37.92)		0.794 *** (25.80)		0.718 *** (32.61)		0.691 *** (39.26)
Political liberty index (0 to 1)		0.103 *** (6.53)		0.110 *** (4.82)		0.065 *** (3.63)		0.102 *** (6.36)
Economic liberty index (0 to 1)		-0.129 *** (-3.39)		-0.052 (-0.97)		-0.193 *** (-4.10)		-0.212 *** (-5.45)
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Occupation effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.438	0.456	0.465	0.465	0.446	0.450	0.437	0.454
F test	261.1	227.9	196.3	166.7	212.0	192.3	246.7	219.2
Number of observations	59292	48934	38852	33647	45884	41557	56317	47506

Source: Based on work in progress by Freeman, Oostendorp and Rama (2001). Data on wages by occupation are from Freeman and Oostendorp (2001); data on the trade-to-GDP ratio in PPP terms are from the Penn World Tables; data on openness are from Sachs and Warner (1995); data on political liberties are based on the Polity III index by Jagers and Gurr, as re-scaled by Rodrik (1999); the economic liberty index is produced by the Fraser Institute, re-scaled; all other data are from the World Bank. All regressions are estimated using fixed effects. All explanatory variables are lagged one year.

Table 4

Average Wages in Manufacturing and Openness

Explanatory variables	Explained variable: log of labor costs in manufacturing, in PPP							
Trade-to-GDP ratio (\$ based)	0.018 (0.12)	-0.094 (-0.52)						
Trade-to-GDP ratio (PPP based)			-0.222 (-1.42)	-0.501 *** (-2.67)				
Open economy (yes = 1)					-0.342 *** (-4.74)	-0.245 *** (-3.13)		
FDI-to-GDP ratio (\$ based)							2.433 (1.07)	3.047 (1.37)
Log of GDP per capita (PPP)		0.466 *** (4.44)		0.555 *** (4.72)		0.335 *** (2.77)		0.395 *** (3.44)
Political liberty index (0 to 1)		-0.081 (-0.77)		-0.098 (-0.96)		-0.032 (-0.30)		-0.122 (-1.11)
Economic liberty index (0 to 1)		-1.060 *** (-3.23)		-1.013 *** (-3.16)		-0.772 ** (-2.23)		-1.252 *** (-3.61)
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Five-year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.672	0.719	0.701	0.732	0.696	0.728	0.650	0.702
F test	94.8	68.0	123.4	79.8	122.2	76.8	79.1	58.8
Number of observations	337	310	308	296	313	295	313	294

Source: Based on work in progress by Freeman, Oostendorp and Rama (2001). Data on labor costs in manufacturing are from Rama and Artecona (2000); data on the trade-to-GDP ratio in PPP terms are from the Penn World Tables; data on openness are from Sachs and Warner (1995); data on political liberties are based on the Polity III index by Jagers and Gurr, as re-scaled by Rodrik (1999); the economic liberty index is produced by the Fraser Institute, re-scaled; all other data are from the World Bank. All regressions are estimated using fixed effects.

Table 5

Dispersion of Wages by Occupation and Openness

Explanatory variables	Explained variable: standard deviation of the log of wages by occupation							
	0.052 *		0.025		-0.028		-0.056	
Trade-to-GDP ratio (\$ based)	0.052 *	0.025						
	(1.88)	(0.68)						
Trade-to-GDP ratio (PPP based)			-0.028	-0.056				
			(-0.76)	(-1.04)				
Open economy (yes = 1)					-0.008	-0.006		
					(-0.46)	(-0.29)		
FDI-to-GDP ratio (\$ based)							0.295	-0.171
							(1.31)	(-0.60)
Log of GDP per capita (PPP)		-0.052		0.012		-0.045		-0.055
		(-1.46)		(0.20)		(-0.99)		(-1.50)
Political liberty index (0 to 1)		0.034		0.015		0.021		0.032
		(1.10)		(0.35)		(0.60)		(1.02)
Economic liberty index (0 to 1)		-0.067		-0.176 *		-0.174 *		-0.063
		(-0.91)		(-1.70)		(-1.84)		(-0.81)
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Number of occupations considered	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.001	0.303	0.000	0.001	0.012	0.254	0.019	0.291
F test	1.95	1.35	1.37	1.30	1.40	1.57	2.53	1.31
Number of observations	858	642	575	445	661	535	784	611

Source: Based on work in progress by Freeman, Oostendorp and Rama (2001). Data on wages by occupation are from Freeman and Oostendorp (2001); data on the trade-to-GDP ratio in PPP terms are from the Penn World Tables; data on openness are from Sachs and Warner (1995); data on political liberties are based on the Polity III index by Jagers and Gurr, as re-scaled by Rodrik (1999); the economic liberty index is produced by the Fraser Institute, re-scaled; all other data are from the World Bank. All regressions are estimated using fixed effects. All explanatory variables are lagged one year.

Table 6

Returns to Education and Openness

Explanatory variables	Explained variable: additional earnings per year of schooling, in percent								
Trade-to-GDP ratio (\$ based)	3.151 *	2.420							
	(1.88)	(0.90)							
Trade-to-GDP ratio (PPP based)			2.545	0.475					
			(1.45)	(0.16)					
Open economy (yes = 1)					0.258	-0.088			
					(0.41)	(-0.10)			
FDI-to-GDP ratio (\$ based)							50.91 **	54.56 **	
							(2.45)	(2.03)	
Log of GDP per capita (PPP)		-3.091 *		-0.412		-3.229 *		-3.085	
		(-1.68)		(-0.19)		(-1.69)		(-1.62)	
Political liberty index (0 to 1)		-2.224		-2.382		-3.260 *		-2.289	
		(-1.43)		(-1.52)		(-1.93)		(-1.46)	
Economic liberty index (0 to 1)		-0.628		-1.336		-1.003		-1.094	
		(-0.19)		(-0.34)		(-0.27)		(-0.33)	
Country effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Year effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
R ²	0.008	0.072	0.011	0.087	0.028	0.083	0.026	0.110	
F test	1.94	1.80	1.70	2.10	1.78	2.04	2.24	2.07	
Number of observations	507	352	462	318	503	340	432	344	

Source: Based on work in progress by Freeman, Oostendorp and Rama (2001). Data on the trade-to-GDP ratio in PPP terms are from the Penn World Tables; data on openness are from Sachs and Warner (1995); data on political liberties are based on the Polity III index by Jagers and Gurr, as re-scaled by Rodrik (1999); the economic liberty index is produced by the Fraser Institute, re-scaled; all other data are from the World Bank. All regressions are estimated using fixed effects. All explanatory variables are lagged one year.

Table 7

Correlation between Inequality and Labor Market Policies

Labor market indicator	Income or consumption share by quintile					Gini index
	Poorest	2 nd	3 rd	4 th	Richest	
ILO conventions ratified	0.23 *	0.24 *	0.26 *	0.25 *	- 0.33 *	- 0.28 *
Core ILO conventions ratified	0.03	0.03	0.04	0.05	- 0.11	-0.09
Minimum wage (% of average)	- 0.02	0.04	0.04	0.05	- 0.04	-0.01
S. sec. Contribution (% of wage)	0.41 *	0.40 *	0.38 *	0.36 *	- 0.42 *	- 0.42 *
S. sec. revenue (% of GDP)	0.51 *	0.52 *	0.53 *	0.52 *	- 0.53 *	- 0.50 *
Days of paid maternity leave	0.36 *	0.37 *	0.37 *	0.37 *	- 0.42 *	- 0.44 *
Union membership rate (%)	0.24 *	0.31 *	0.38 *	0.43 *	- 0.49 *	- 0.47 *
Coverage of coll. Bargaining (%)	0.52 *	0.55 *	0.56 *	0.58 *	- 0.57 *	- 0.58 *
Number of strikes and lock-outs	0.29 *	0.27 *	0.26 *	0.25 *	- 0.27 *	- 0.30 *
General govt. (% of labor force)	0.26 *	0.38 *	0.46 *	0.53 *	- 0.56 *	- 0.52 *
Govt. wage (% of average)	- 0.17	- 0.21	- 0.22	- 0.22	0.21	0.18

Source: Based on work in progress by Rama and Ravallion (2001). The figures reported in the table are correlation coefficients between inequality indicators and labor market policies. The number of observations considered varies from cell to cell depending on data availability. Significant correlation coefficients at the 10 percent level are indicated by an asterisk.

Table 8

Correlation between “Unexplained” Inequality and Labor Market Policies

Labor market indicator	Income or consumption share by quintile					Gini index
	Poorest	2 nd	3 rd	4 th	Richest	
ILO conventions ratified	0.30 *	0.26 *	0.24 *	0.23 *	- 0.25 *	- 0.26 *
Core ILO conventions ratified	0.03	0.01	0.03	0.06	- 0.03	- 0.01
Minimum wage (% of average)	- 0.22	- 0.21	- 0.20	- 0.20	0.22	0.18
S. sec. contribution (% of wage)	0.31	0.29	0.27	0.21	- 0.28	- 0.29
S. sec. revenue (% of GDP)	0.32 *	0.33 *	0.30 *	0.26 *	- 0.31 *	- 0.33 *
Days of paid maternity leave	0.22	0.18	0.12	0.09	- 0.06	- 0.05
Union membership rate (%)	0.14	0.14	0.16	0.18	- 0.17	- 0.10
Coverage of coll. Bargaining (%)	0.24	0.33	0.48	0.60 *	- 0.44	- 0.33
Number of strikes and lock-outs	0.07	- 0.05	0.04	0.02	- 0.01	- 0.13
General govt. (% of labor force)	0.13	0.14	0.14	0.13	- 0.12	- 0.12
Govt. wage (% of average)	0.08	0.06	0.03	0.03	0.04	- 0.06

Source: Based on work in progress by Rama and Ravallion (2001). The figures reported in the table are correlation coefficients between “unexplained” inequality indicators and labor market policies. Unexplained inequality is measured as the residual of a regression linking each inequality indicator with a large number of explanatory variables, none of which is directly related to the labor market. The number of observations varies from cell to cell depending on data availability. Significant correlation coefficients at the 10 percent level are indicated by an asterisk.

Table 9

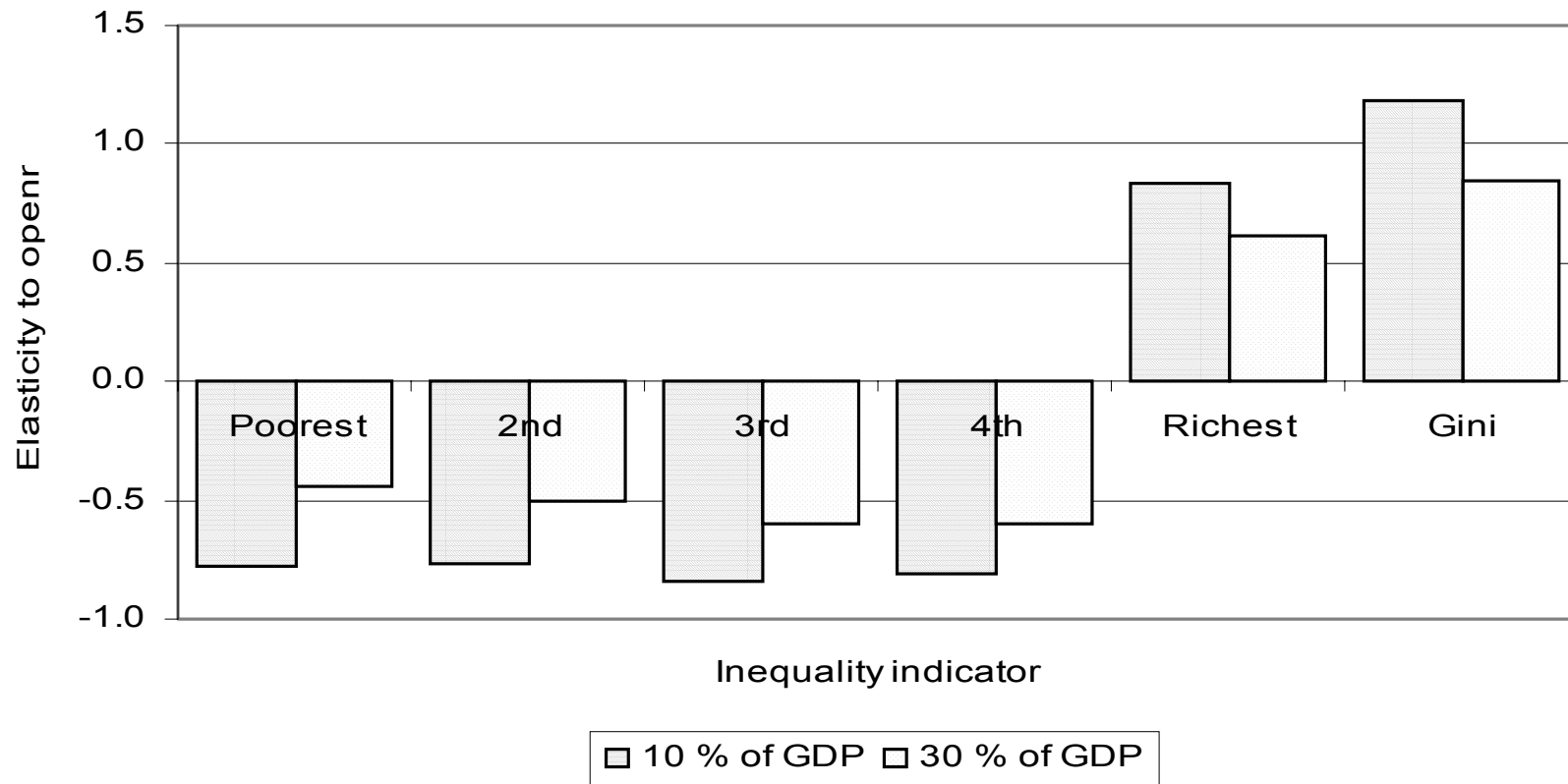
Income Support Programs for the Unemployed

Program and country	Workers legally covered by the program	Spending per beneficiary (US\$)	Cost of the program falls on	Share of beneficiaries by earnings or consumption (%)				
				Poorest	2 nd poorest	Middle	2 nd richest	Richest
Public works in Argentina	In principle all	3,100	Taxpayers	78.6	15.3	3.5	2.1	0.4
Training in Mexico	Eligible on age, education	393	Taxpayers	69.9	15.5	8.1	5.0	1.5
Severance pay in Peru	Salaried, with given seniority	760	Workers and employers	4.7	9.5	28.6	33.3	23.8
Unemployment insurance in Brazil	Salaried in social security	664	Workers and employers	10.6	24.6	19.1	25.1	13.6
Individual accounts in Colombia	Salaried in social security	Not available	Workers	0.0	4.3	Not applicable	19.1	76.6

Notes: Constructed using data from World Bank (2000).

Figure 1

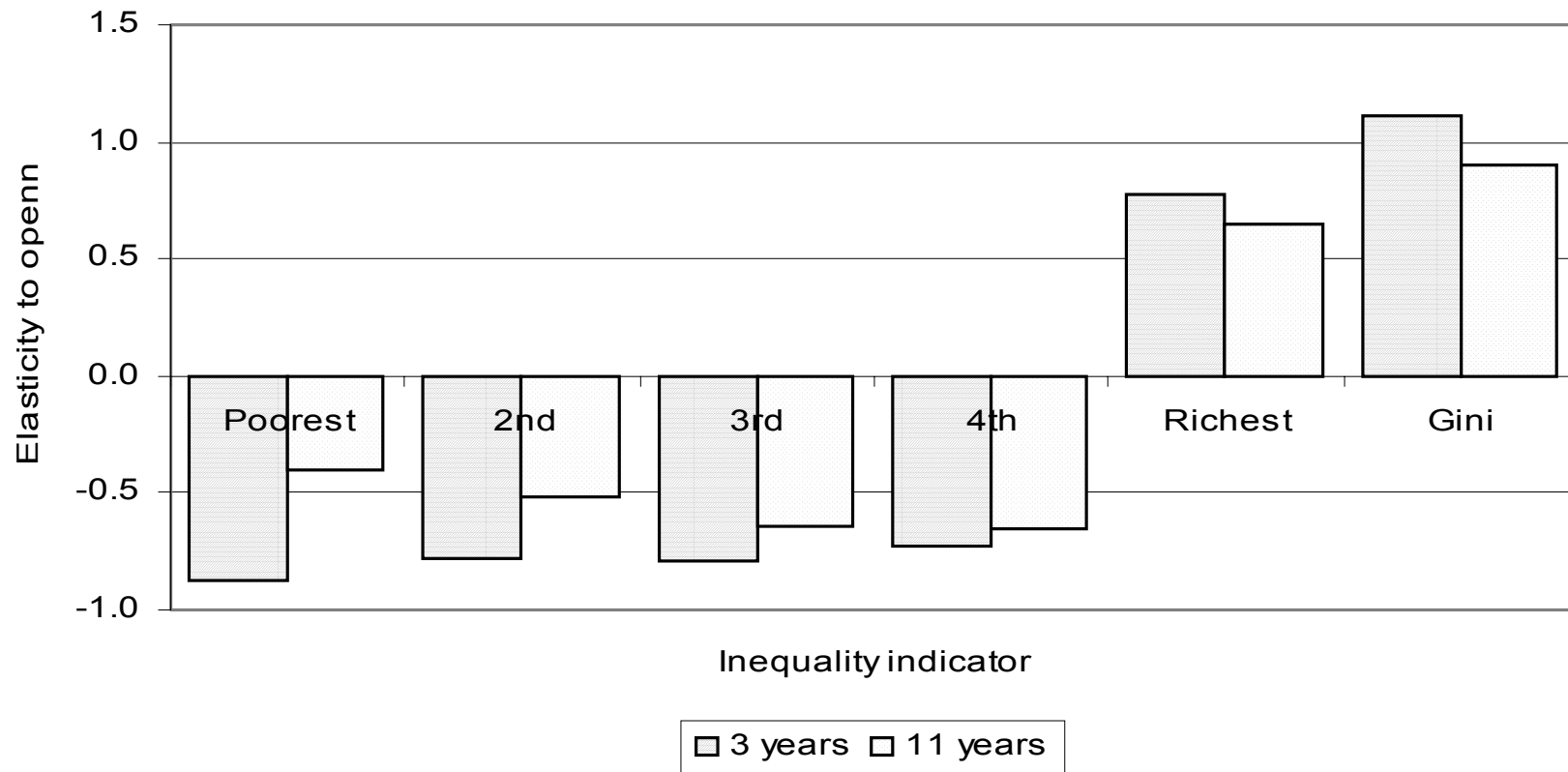
Elasticity of Inequality Measures to Openness by Government Expenditure



Source: Based on work in progress by Rama and Ravallion (2001). Inequality measures are based on an adjusted version of the data set assembled by Deininger and Squire (1996). The preferred variable to compute the inequality measures is expenditure. Income is used when data on expenditure are not available. Trade openness is measured as the share of exports to GDP. The reported elasticities are point estimates for different levels of government expenditure when the mean schooling of the population is 7 years.

Figure 2

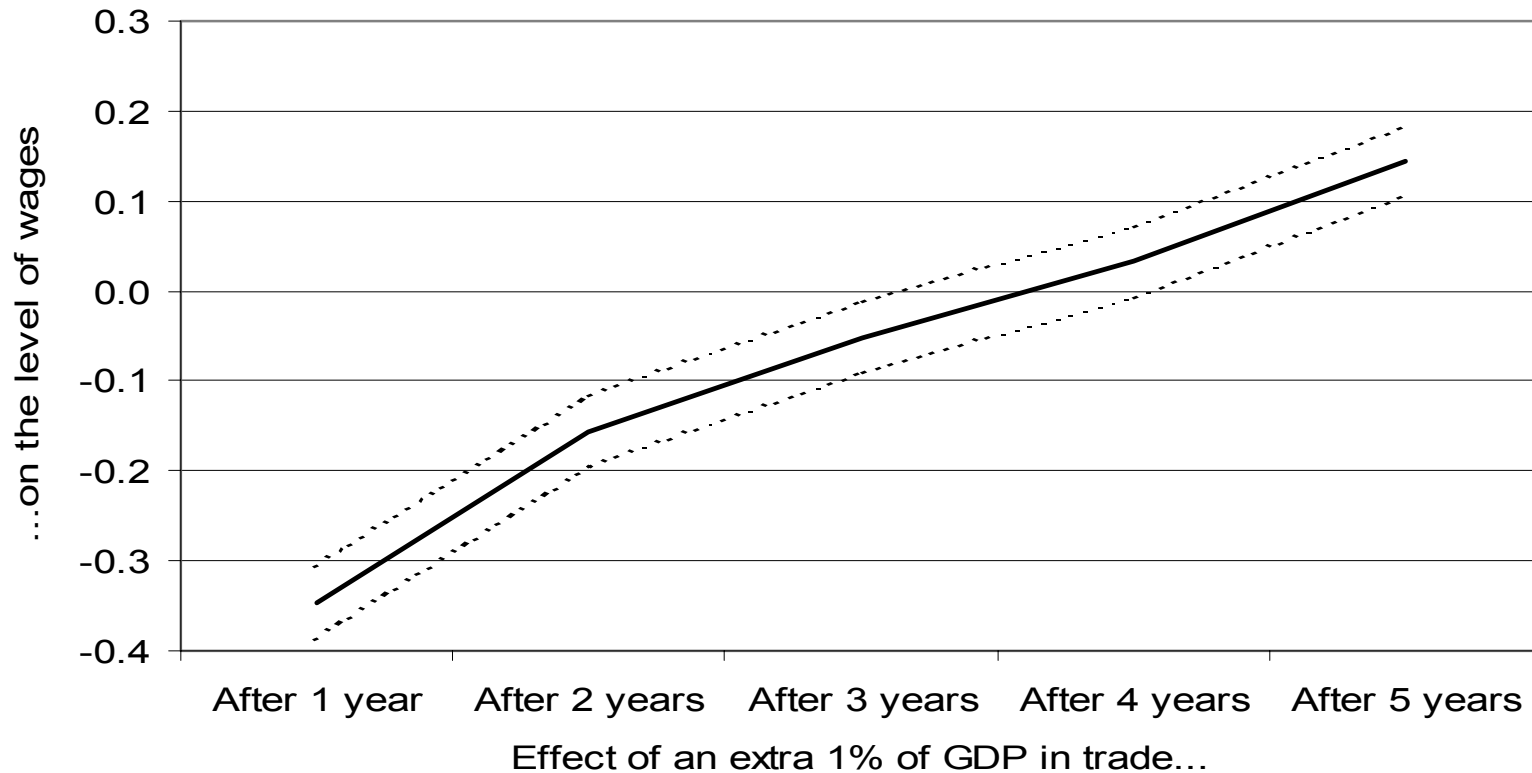
Elasticity of Inequality Measures to Openness by Education Level



Source: Based on work in progress by Rama and Ravallion (2001). Inequality measures are based on an adjusted version of the data set assembled by Deininger and Squire (1996). The preferred variable to compute the inequality measures is expenditure. Income is used when data on expenditure are not available. Trade openness is measured as the share of exports to GDP. The reported elasticities are point estimates for different mean years of schooling when government expenditure represents 20 percent of GDP.

Figure 3

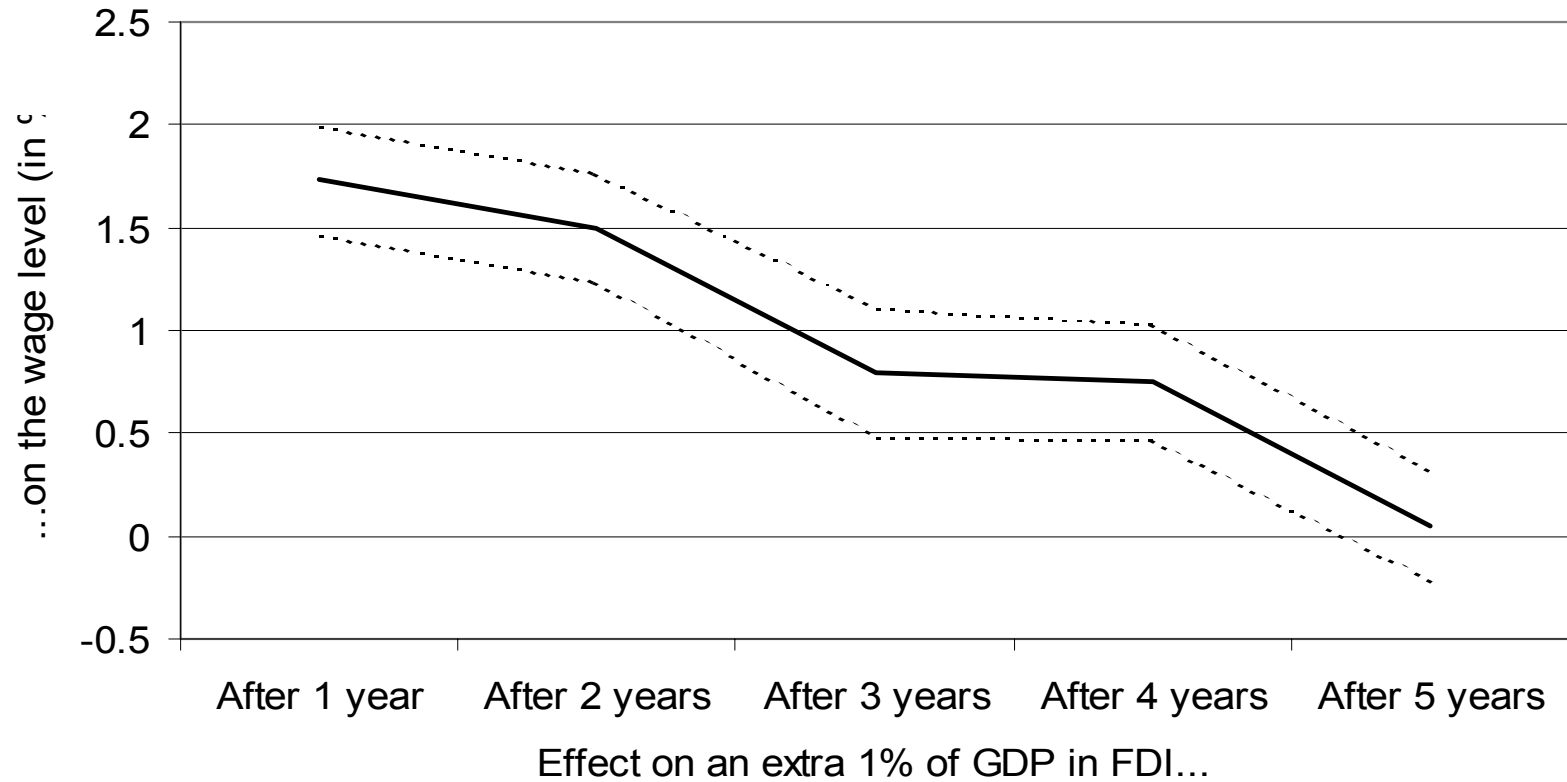
Wages by Occupation and Openness to Trade



Source: Based on work in progress by Freeman, Oostendorp and Rama (2001). This figure reports the results of a regression explaining the log of wages, in PPP dollars, as a function of the trade-to-GDP ratio (based in dollar figures). There is one observation per country, occupation and year, over period 1983-1998. The regression includes fixed effects for all countries, occupations and years. It also controls for the ratio of foreign direct investment to GDP. Data on wages are from Freeman and Oostendorp (2000) and data on other variables from the World Bank. The solid line reflects the point estimate of the coefficient of interest. The dotted lines indicate the 95 percent confidence interval.

Figure 4

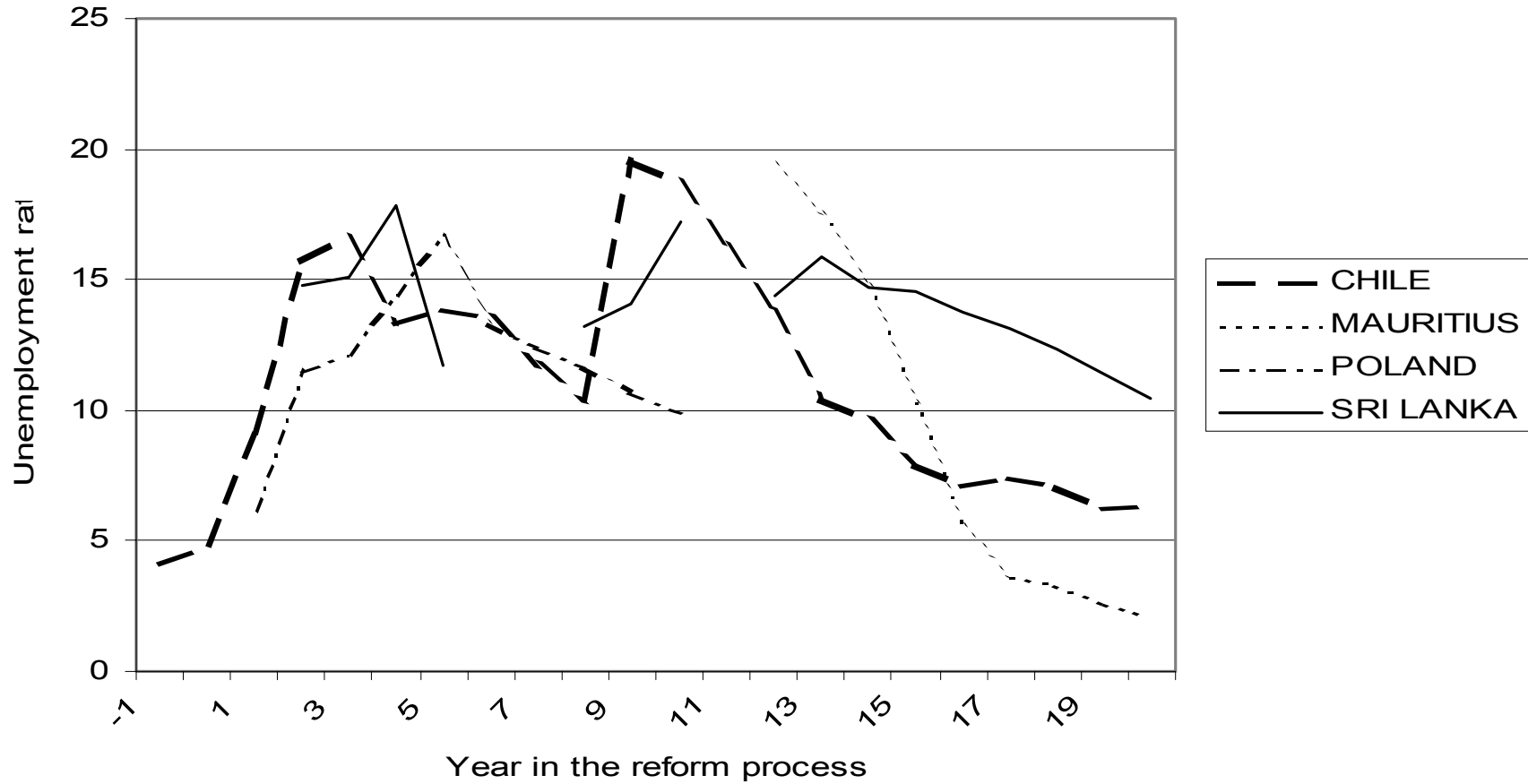
Wages by Occupation and Foreign Direct Investment



Source: Based on work in progress by Freeman, Oostendorp and Rama (2001). This figure reports the results of a regression explaining the log of wages, in PPP dollars, as a function of the ratio of foreign direct investment to GDP (based in dollar figures). There is one wage observation per country, occupation and year, over period 1983-1998. The regression includes fixed effects for all countries, occupations and years. It also controls for the trade-to-GDP ratio. Data on wages are from Freeman and Oostendorp (2000) and data on other variables from the World Bank. The solid line reflects the point estimate of the coefficient of interest. The dotted lines indicate the 95 percent confidence interval.

Figure 5

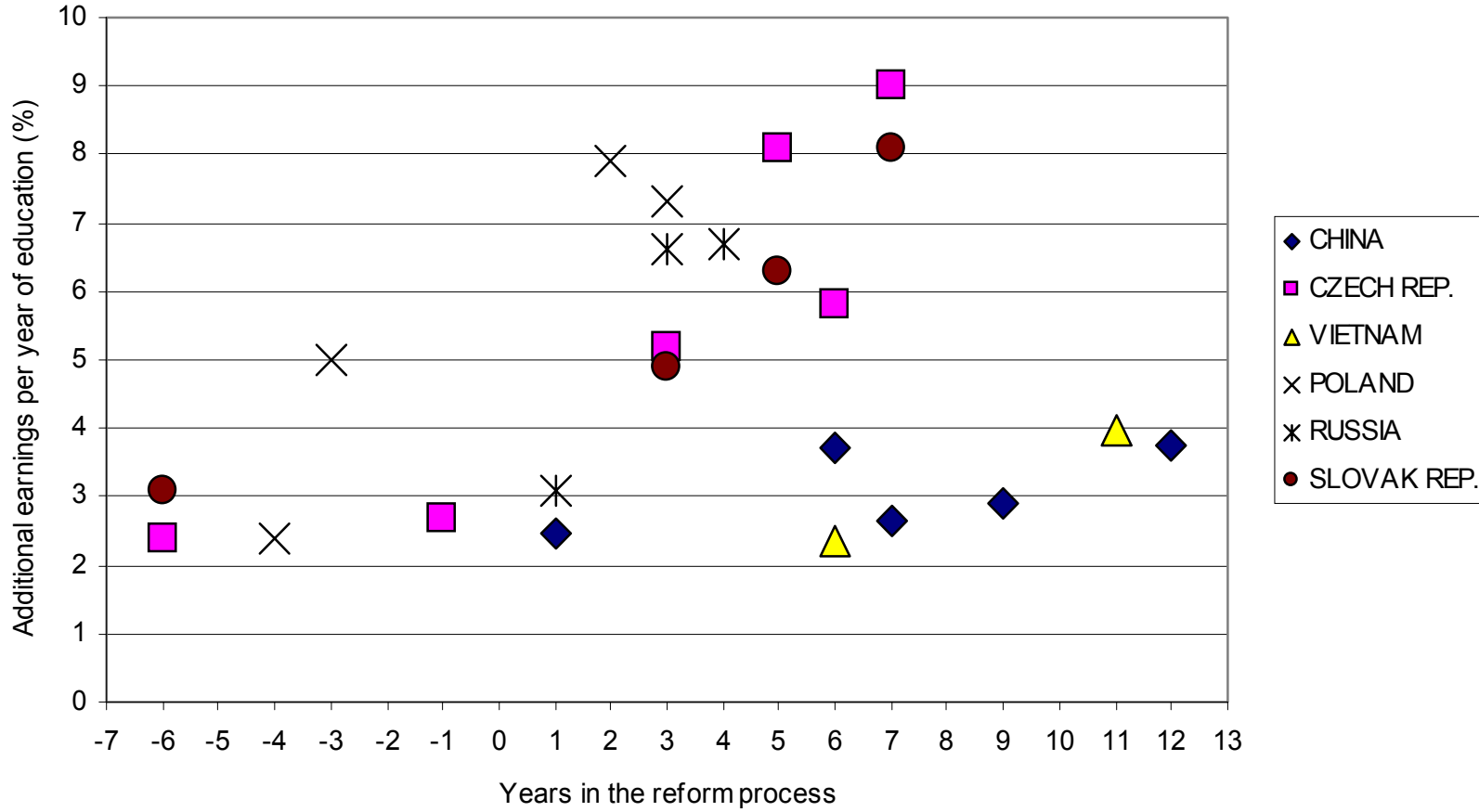
Unemployment Rates in Successful Reforming Countries



Source: Constructed using data from Rama and Artecona (2001). It is assumed that economic reforms start with the end of the socialist experience in Chile (in 1973) and in Poland (in 1991). They start with the adoption of the export processing zone regime in Mauritius (in 1970) and with trade liberalization in Sri Lanka (in 1977).

Figure 6

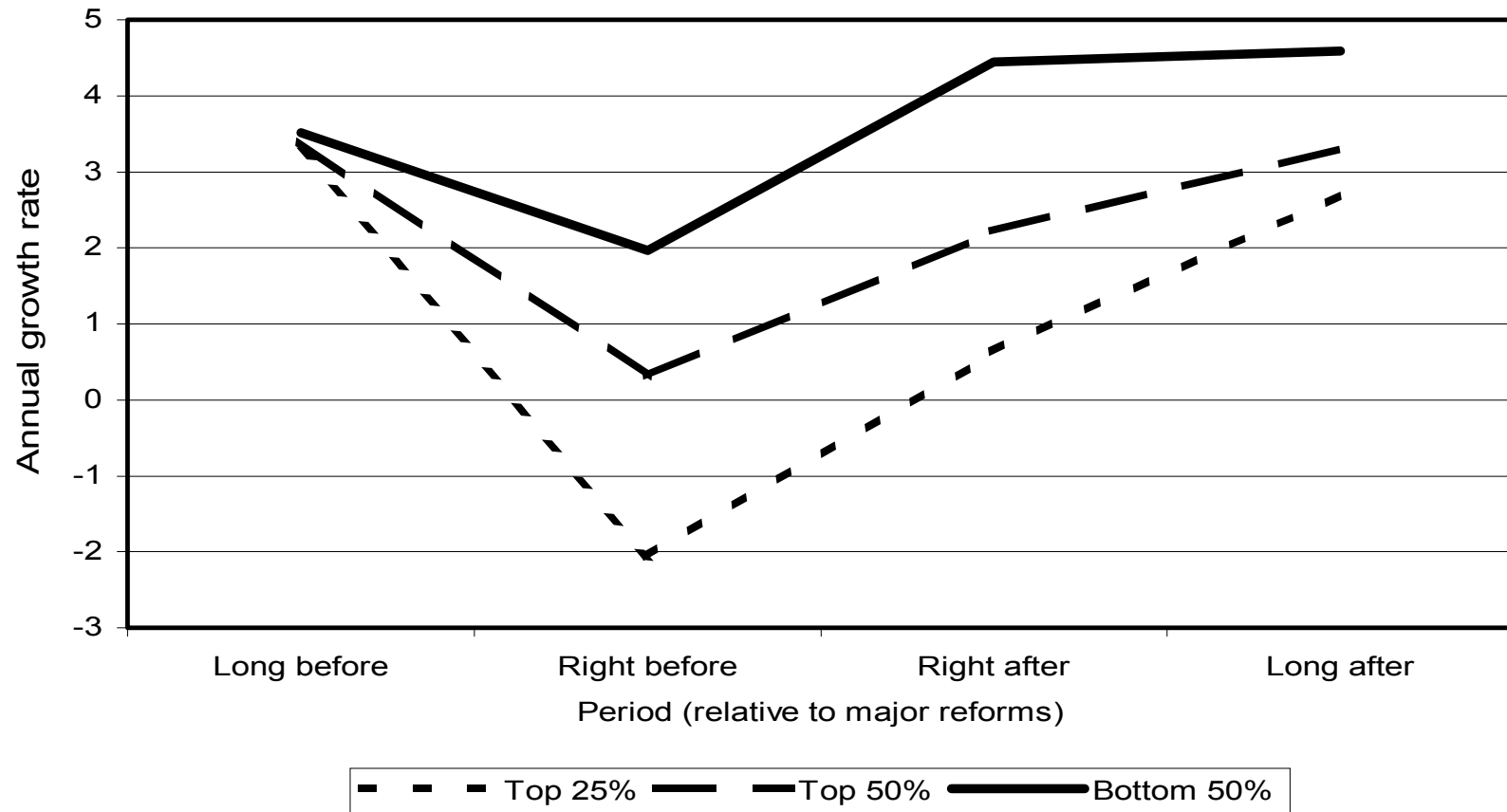
Returns to Education in Transition Economies



Source: Reproduced from Rama (2001b). The figures reported are the coefficients multiplying the years of education in Mincerian earnings functions estimated using microeconomic data.

Figure 7

Labor Market “Rigidity” and the Success of Reforms



Source: Constructed using data from Forteza and Rama (2001). The quantiles refer to an indicator of “actual” labor market rigidity, constructed combining the level of minimum wages, the social security contribution rate, the union membership rate and the share of the labor force employed by the central government. The higher this indicator, the more “rigid” the labor market.