

The Impact of Reforms on Equity in Latin America

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Report submitted to the World Bank, July 1999

Over the last 25 years a dramatic change in development policy has occurred in Latin America. Increasingly it has come to be accepted that the old model of state directed import substituting industrialization was not sustainable and had to be replaced. That has led to profound structural reforms in tariffs, taxes, the control of the international and external financial system, and to a lesser extent, the role of state enterprise and labor regulation. The common characteristic of all of these reforms is to: 1) open up the internal economy to foreign competition, 2) reduce the role of the government in directing the allocation of resources and production in the economy, and 3) reduce the distorting effect of the tax system on private decision-making.

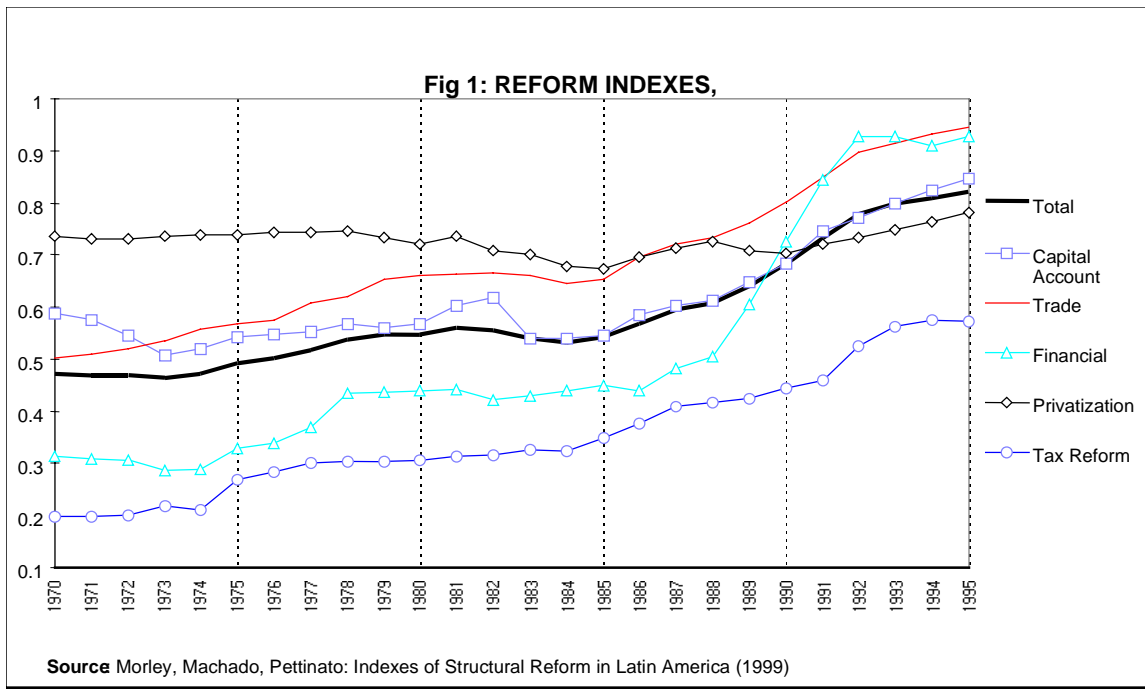
A group at CEPAL has just completed a study of the impact of these structural reforms in five areas: investment, technology, growth, employment and equity. This paper is a summary of Morley's study of the impact of the reforms on equity, done as a part of the CEPAL project. (Morley, 1999).

The Adoption of Reforms

The Morley study attempted to measure the impact of these various reforms on the distribution of income. In order to do that it was essential to have some sort of quantifiable index with which one can compare the extent of reforms between countries or the progress of reforms over time in a single country. Morley et. al. (1999) has constructed a set of reform indexes, which were used in an econometric analysis. These indexes give a good idea of what was reformed in each country, when it occurred and how far the process has proceeded. They are a useful benchmark to use in both econometric analysis and simple comparisons of distributions before and after the reforms.

To the greatest extent possible, these indexes measure the efforts that governments have made to implement the reform package. Each index is normalized to be between zero and one, with one being the most reformed or free from distortion or government intervention. We have a total of five indexes: trade reform, domestic and international financial liberalization, tax reform, and privatization. Each of these indexes are comprised of a number of components that were chosen to reflect the degree of government control or, in the case of taxes and tariffs, the degree of non-neutrality of the tax system.

Reforms by component: Figure 1 is a graphic presentation of the region wide averages for each of our reform indexes. It gives a quick picture of what has been reformed most and when the process has occurred.



A. Trade Reform: The reform process started in the 1970s with significant trade, tax and finance reform in the Southern cone countries. The biggest and earliest changes were in tariffs and trade regimes. Argentina, Chile and Uruguay were the leaders. For example, Chile went from having the second highest level of tariff protection in the region in 1970 to the lowest in 1982. Uruguay lowered its tariff rates by an even greater percentage. But they were not the only countries opening their internal markets. For the seventeen countries for which we have data, average tariffs were cut in half over the 1970s. Similarly, tariff dispersion and non-tariff barriers such as import quotas were also reduced.

After the debt crisis in 1982, there was a temporary reversion in trade liberalization as in other areas of reform, particularly in Chile and Argentina. Quantitative import restrictions were increased until the crisis passed after mid decade. Subsequently, the trade reform process started again and spread to all the remaining countries of the region. The average tariff in the region, which had been 46% in 1985, was reduced to only 12% ten years later. By 1995 no country in the region was using its tariff system to protect domestic industry or to promote particular sectors except for the Brazilian automobile industry. The highest average tariff rate was 18% in the Dominican Republic, and the average variance of tariff rates between products within countries had been reduced from 20% in 1986 to 6.4% in 1995.

B. Domestic financial liberalization: At the beginning of the 1970s government ceilings on interest rates, particularly on loans, were present in most countries in the region. A good deal of credit was allocated by government decision rather than by supply and demand. To try to maintain the financial soundness of the banking system, the Central Bank typically imposed quite high reserve requirements. The net result of all this was what the development literature called financial repression; that is, a system in which savings and financial intermediation were discouraged. Not only was the resulting volume of investment funds likely to be smaller than they would have been in a reformed system they were also likely to be misallocated because of credit controls.

As in the area of trade, financial reforms started first in the 1970s in a few countries, in the case

of Colombia, in addition to Chile and Uruguay. Then there was a pause, or even a reversal, for several years after 1982 with the process starting again in earnest in most of the countries of the region in the late 1980s and 1990s. During this period, there were two widely accepted reforms: decontrolling interest rates and abandoning directed credit. By 1995 only Venezuela had controls on loan rates, and no country in our sample had them on deposit rates. Information on credit controls is less precise, but clearly the private market, not the government, is now the primary allocator of credit.

C. International financial liberalization: Opening the internal financial market to external capital is more recent, more controversial, and less widespread than the two reforms we have considered so far. There has always been a debate in the literature over the proper sequencing and role of opening economies to trade and foreign capital. Latin American policy makers have reached a clear consensus on the advisability of trade liberalization. There is less consensus on how to treat restrictions or controls on external capital transactions. Partly, this is due to the risks and increased volatility that come with better integration of domestic and foreign capital markets. No one doubts that foreign capital can play a positive role in investment and development. But the rapid inflow of foreign capital, particularly in the 1990s, in addition to increasing the exposure to volatility, have also tended to increase the value of the local currency with deleterious effects on the domestic production of tradable goods. (See Rodrick, (1998) and Ffrench-Davis and Reisen (1997))

In 1970, all but a couple of Latin American countries maintained a high degree of control over external capital transactions both for their citizens and for foreigners wishing to invest. Many countries limited the sectors that were open to foreign investors and placed ceilings on the repatriation of interest and dividends. Domestic banks were limited in their ability to borrow abroad; and in most countries, capital outflows required previous authorization of the Central Bank.

Unlike trade and domestic financial reform, opening up external capital transactions did not start in a general way in the 1970s. Argentina, Costa Rica, Honduras, Peru and Venezuela had relatively open systems in 1970. But other than Uruguay, no country made a major opening in its system prior to the 1982 debt crisis. Indeed, in Argentina and Peru, there was a significant increase in governmental control of external financial transactions. Only in the late 1980s did capital account liberalization start in earnest, and even then in only a handful of countries, among them Argentina, Costa Rica and Guatemala. In the 1990s many additional countries adopted this reform. Most of them were smaller economies such as El Salvador, Jamaica and the Dominican Republic. The bigger economies, Brazil, Mexico, Colombia and Chile, all continued to maintain significant controls over foreign capital transactions.

D. Tax reform: The fourth component of the reform package is tax reform. Two major components have been widely adopted. The first was the value-added tax. Reformers favored this tax because they argued that while all taxes have distorting effects on private decisions, these are less with an across the board VAT than for either tariffs or high marginal income tax rates. In addition, of course, there should be less tax evasion with a VAT than with an income tax based system. The VAT was introduced in the 1970s in nine of the 17 countries for which we have data. In the 1980s the VAT was adopted in all the remaining countries in the region and; in addition, there was an increase in the coverage or efficiency of the VAT in most countries.

A second element of tax reform was the reduction in marginal tax rates on corporate and personal income which significantly reduced the progressivity of the income tax. Every country in the region has reduced its top marginal tax rate since 1970. Not all have gone as far as Uruguay, which eliminated the personal tax altogether, but overall the average marginal rate on personal income, has fallen from around 50% in 1970 to about 25% in 1995. The corporate rate has fallen

from 37% in 1970 to 29% in 1995. Almost all these changes have taken place since 1985.

E. Privatization: The final component of reform on our list is privatization. State enterprises were an important component of the old development model. It not only depended critically on tariff protection and directed credit allocation, but also on ownership of key elements of the production structure, in particular basic industries such as mining and petroleum companies and infrastructure. Many of these companies performed badly. They often ran significant deficits, which added to the government fiscal problem.¹ They were chronically short of capital for expansion, depending as they did on central governments for funding. In addition, the level and quality of public utility services failed to keep abreast of either public expectations or demand. With the increased demand for accountability and objective standards of resource allocation came a decision to turn these companies into private enterprises which subjected them to the discipline of private capital and product markets.

While privatization may make sense to reformers on objective economic grounds, it has often sparked acrimonious political battles in practice. Thus privatization has been less widespread across countries or across public entities within countries than the other reforms we have considered so far. Chile started the process in the 1970s. Between 1974 and 1978, it privatized more than 500 firms, most of which had been nationalized during the Allende regime. There was a short reversal of the process after the 1982 banking crisis, but by 1992 96% of all Chilean state enterprises had been sold. (Edwards, (1995), 171, 186).

The second country to embark on a significant privatization campaign was Mexico under Salinas. By the end of his presidency in 1993, the number of state-owned enterprises had been reduced from 1155 to less than 80. (Edwards (1995), 191) In both countries it should be noted that the government did not privatize their biggest mining companies (CODELCO in Chile and PEMEX in Mexico). As a result, there has been a far smaller change in the share of government enterprise in the value of production than in the number of such enterprises. In terms of the volume of transactions between 1985 and 1994, Bolivia, Argentina, Peru and Jamaica were other countries that embarked on significant privatization programs in the 1990's. In terms of the volume of sales, Mexico and Argentina were the largest reformers with sales representing between 1% and 2% of GDP.

Not all countries have been privatizers. For some, like Guatemala, El Salvador or the Dominican Republic, government enterprise has never been a significant component in the economy. For others such as Venezuela, Jamaica and Ecuador, it is because they have resisted privatizing important oil or mining enterprises.

Labor market reform: The labor market is the area which has had the least reform in laws and institutional arrangements, with the very important exception of changes under the Southern Cone military regimes in the 1960s and 1970s. According to Lora (1998) only five countries made any significant changes in the 1985-95 period. (Argentina, 1991, Colombia, 1990, Guatemala, 1990, Panama, 1995 and Peru 1991).

The basic idea of labor market reform is to increase flexibility and reduce distortions. By flexibility, reformers mean make labor demand more responsive to changes in demand and changes in production technology. All countries have regulations stipulating how much a firm has to pay an permanent employee whom they want to fire. After one year Ecuador, Mexico and Bolivia require a payment of from three to 5.5 months of salary. (Lora, 1998, 41). After ten years, the majority of countries in the region require at least six months and more than 12 months

¹ Operating losses by government enterprise do not necessarily indicate inefficiency. Some result from government price controls on the goods or services these enterprises provided to the public.

in eight countries. Complementary regulations limit the ability to hire temporary labor in 14 countries, and only four (Argentina, Colombia, Ecuador and Peru have introduced partial liberalizations.

Whether this sort of regulation looks good or bad depends on the situation of the observer. Clearly for workers in permanent jobs, the regulations increase job security and reduce the competition of temporary employees. But at the same time the regulations have two costly side effects. (See Burki and Perry, 1997) First they are likely to induce a substitution of capital for labor. They turn labor into a semi-fixed factor of production and that is risky in an uncertain world, for unlike capital, workers have to be paid whether or not product demand justifies their presence. The second effect, and this one is regressive, is that the regulations create a distorted or segmented labor market. A privileged subgroup of workers hold the permanent, well paid jobs, and the rest of the labor force works in unprotected, temporary jobs, many no doubt in the informal sector. The idea of the reforms was to reduce the cost of firing, increase the use of temporary labor contracts, and set up some sort of unemployment insurance scheme for workers. Except for the sub-group of countries mentioned above, little progress has been made in carrying out this project. In distribution terms the reform should help capital, since it increases flexibility and lowers the cost of labor. At the same time, it should help those at the bottom of the labor pyramid relative to those in protected, permanent jobs.

A second component of the labor reforms is to reduce the fixed charges or taxes that are based on worker salaries and levied on firms, particularly those in which the benefits bear little relationship to the contribution. Examples are social security contributions, disability, death, sickness, family allowances, maternity benefits. If these contributions were linked to benefits, they could be regarded as worker compensation which could reasonably be accounted for in determining pay packages. Where they are not benefit linked, they are essentially a tax on labor, which again tends to make production more capital intensive than it should be, given that labor is an abundant factor in the region. In general, these wage surcharges are high in Latin America and they have not been significantly reduced during the 1985-95 period. (Lora, 1998, 42).

We did not include Lora's index of labor market reforms in our quantitative work. That is because there is very little change in the index over the period after 1985 which is when his indexes start, and there was no reform of the sort we have been considering during the 1970-85 period for which we extended Lora's other indexes except for the special cases of Chile and Argentina under the military.

In Chile the military government reduced the coverage of the minimum wage, relaxed conditions for dismissal of workers, suspended labor unions, closed the labor courts, limited the permissible activities of labor unions and encouraged the organization of competitive labor unions within enterprises. (French Davis and Racinski, 1990, p. 8.) In Argentina under the military regimes between 1976 and 1983 union activities were prohibited and wage increases were set by the government. This new regime coupled with inflation and the drastic recession after 1982 led to a sharp decline in real wages between 1976 and 1983. (See Beccaria, 1991 and Altimir and Beccaria 1999a) Some part of these changes are similar to the labor reform package, but most are not. Rather what Chile and Argentina had in the 1970's was a regime change which drastically curtailed the power of independent labor unions vis a vis either management or the government, and which reduced the influence of labor in wage setting. To some extent the latter, which also took place in Brazil in the 1960s and Uruguay in the early 1970s was part of an anti-inflation stabilization program not labor reform as we have been describing it here. As we will see further on, this regime change had dramatic and regressive effects on the distribution in each of the four countries where it occurred.

On the impact of the structural reforms

The previous section has described the massive structural policy changes implemented over the last two decades in Latin America. What might one expect the effect of these changes to be on equity? When one stops to think about the entire reform package, the broad thrust is to remove any sort of insulation from the market determination of the allocation of resources. Commercial reforms remove tariff protection to domestic production, financial reforms and privatization reduce government influence over the allocation of resources. Balance of payment reforms integrate foreign and domestic capital markets and reduce the capacity of government to control capital movements. Similarly, labor market reform increases labor flexibility or to put it another way, reduces labor's ability to defend against either market-driven fluctuations in demand, or alternatively wage reductions. Altogether this adds up to quite a breathtaking leap into a new world which is justified by expected increases in efficiency, income and growth. Whether or not the reforms have had these positive expected benefits, it is quite clear that very little attention has been paid to the winners and losers in the process or to its distribution implications.

There have been several recent attempts to examine the relationship between reforms and the distribution. Albert Berry recently published a set of case studies in nine countries of the region. (See Berry, 1998). He finds that in every case but Costa Rica, and possibly Colombia, the period of reforms coincided with a very sharp increase in inequality. The expectation that commercial reform would lead to a narrowing in wage differentials has not been borne out in practice, indicating either that Latin America's comparative advantage does not lie in unskilled, labor intensive products or that the opening has forced a shift in technology in favor of more capital and skill-intensive production. The data for his study end fairly early in the decade of the reforms, so it is unclear whether the rises in inequality that he observed are part of a short run adjustment or an unfavorable long run trend.

Victor Bulmer-Thomas' study (Bulmer-Thomas, 1996) comes to equally pessimistic conclusions, though for somewhat different reasons. A theoretical analysis of each of the different reforms leads the contributors to his volume to the conclusion that taking all the reforms together, real wages will fall, unemployment will go up, real interest rates will rise, there will be a rise in informalization and there will be an increase in the concentration of wealth, all of which are regressive. But the evidence to decide whether or not these predictions are reasonable was weak, since his study went only through 1992. Therefore his main conclusion was that the problem with the new economic model had less to do with equity than with whether or not the new dependence on markets and private sector would be capable of producing the adequate, steady and sustainable growth rates in income per capita.

Londono and Szekely (1998) at the IDB come to a quite different conclusion. Using cross country regressions as opposed to country case studies, they find that equity is positively related to both growth and investment. These in turn are positively related to the structural reforms of the new economic model, leading to the conclusion that the reforms are progressive. This is confirmed by a direct correlation of income shares of different quintiles of the population with indexes of the different reforms. While there was no significant relationship between income shares and most of the indexes, trade liberalization was positively related to the income share of the bottom quintile and negatively related to the share of the top quintile. For them, unlike many other researchers, trade reform helped the poor and unskilled.

There is a growing literature on the effects of commercial reform on wage inequality. (Robbins, 1995, 1996, Wood 1994, 1997, Edwards, 1997, Ocampo and Taylor, (1998). A general conclusion of all of this work is that wage inequality has risen in those countries which opened their internal markets to external competition. While an increase in wage inequality does not necessarily translate into an increase in inequality of total income, these results suggest caution in

accepting the Heckscher-Ohlin assertion that trade should help countries with large supplies of unskilled labor. Wood (1995) argues that the experience of E. Asia in 60's and 70's supports the theory that greater openness to trade tends to narrow the wage gap between skilled and unskilled workers in developing countries. In Latin America, since the mid 80's however increased openness has widened wage differentials. Wood (1997) thinks that this conflict of evidence is probably not the result of differences between E. Asia and Latin America. Rather it is probably the result of differences between the 1960's and the 1980's, specifically the entry of China into the world market and perhaps the advent of new technology biased against unskilled workers.

Spilimbergo, Londono and Szekely (1997) point out that what really matters is each country's factor endowments, including land relative to the average world effective supply of each factor. They too find that trade openness is associated with higher inequality-holding endowments constant. But the effect depends on the relative abundance of each type of factor. Inequality increases in countries that are relatively well endowed with skills, but it declines in countries which are well endowed with physical capital and land. Since in their sample, factor endowments in Latin America are relative close to world averages, the effect of opening on inequality is modest—a rise of 10% in their openness index only raises the average Gini Coefficient by .63 of a point. Latin America, in their empirical specification, does not have a high level of unskilled labor relative to the weighted average of the factor endowments of the rest of the world which is consistent with the entry of China and other large Asian countries into the world trading system. If true, that would explain why, even in a Heckscher-Ohlin world, openness has not reduced the wage differential.

One should not ignore the demand side in considering this question. The purpose of commercial reform is to switch the production of tradables away from inefficient import substitutes to exportables in which countries have a comparative advantage. The connection to the distribution of income comes from the differences in factor demands between these two types of products. That is a supply-side effect. But there is a demand-side to consider as well. The success of the old import-substitution, inward-looking development strategy depended to a large extent on a growing internal market. If there is going to be satisfactory growth in that sort of strategy, there has to be a growing middle class with growing purchasing power. Growing real wages are an integral part of that strategy. The mature capitalist economies long ago discovered that both the owners of capital and their workers could profit from a strategy in which rising wages increased both costs and profits at the same time because of increases in the size of the internal market induced by rising wage payments.

The export-led growth strategy is completely different from this. Its success depends on controlling costs. The internal market is irrelevant. Rising real wages are a clear threat to growth in the export model. They do not have the positive indirect effect through demand that they have in the inward-looking growth strategy. Countries embarking on the outward-looking growth path are making their wage levels hostage to wage levels and labor costs in other countries. It may well be that the advantages of greater efficiency in export production than import-substitutes outweigh the disadvantages of this wage competition so that workers are better off. But that certainly is not immediately obvious, particularly in the large economies.

What is the likely effect of liberalizing the capital account? What this reform does is to integrate more closely the local and international capital markets making local interest and profit rates, adjusted for risk, closer to rates in the rest of the world. Whether or not this is progressive depends on the reactions of foreign and domestic owners of capital. If foreign investors have been deterred from a country because of controls on capital and profit repatriation, the reforms should induce a foreign capital inflow. The distributional effect of this is ambiguous. Wage/profit ratios should fall because of the rise in the capital/labor ratio. That is progressive. But at the same time if capital and skilled labor are complementary, the skill differential will rise

which is regressive. A similar ambiguity results from the actions of domestic owners of capital. Part of the liberalization of the capital account was to lift restrictions on capital outflows by domestic savers and investors. If there was an excess demand for foreign exchange under capital controls, the reforms should cause a capital outflow, with results just the reverse of those described for foreign capital inflows.

Aside from the effect of these reforms on factor supplies and factor demands, removing barriers to capital movements increases the bargaining power of capital in its negotiations with both labor and the government. That is likely to be regressive. For if investors are free to move from one country to another, government will find it far more difficult to tax capital or to pass regulations that force businesses to shoulder more of the cost of infrastructure or labor regulation. Indeed, in a world of perfect capital mobility, countries will be forced to compete in offering generous tax holidays, subsidized credits and other costly assistance as a way of attracting foreign capital. But it is not only foreign capital that is affected. The same argument is valid for domestic capital. Both government and labor will be forced to accept arrangements that are sufficiently generous that domestic entrepreneurs and holders of wealth are content to leave their money invested in their home country. In this way, opening up the capital account shifts the balance of power in favor of the holders of capital. This is one of the reasons why there has been a shift away from the taxation of corporate profits and a big reduction in the top marginal income tax rate in most Latin countries in recent years.

The fourth component of the reform project is tax reform. Two major components have been widely adopted. The first was the value added tax. Reformers favored this tax because they argued that while all taxes have distorting effects on private decisions, these are less with an across the board VAT than for either tariffs or high marginal income tax rates. In addition of course, there should be less tax evasion with a VAT than with an income tax based system. The VAT was introduced in the 1970's in nine of the 17 countries for which we have data. In the 1980's the VAT was adopted in all the remaining countries in the region and in addition, there was an increase in the coverage or efficiency of the VAT in most countries.

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From the distribution perspective, the effect of these changes in the tax system was to shift the burden of the tax system away from the wealthy and toward the middle and lower classes. The introduction and later expansion of the value-added tax was a shift away from the taxation of income toward the taxation of consumption. Since the poor consume a greater fraction of their income than the rich, this change must have been regressive, except in certain countries which exempted basic necessities from the tax.

Changes in the income tax amplified the trend toward greater regressivity. Top marginal tax rates on personal income were lowered and the corporate tax rate was cut by over 20%. While a full analysis of the incidence of all these changes is beyond the scope of this paper, it is almost certain that they were regressive.

Another important component of reform in the region was privatization. State enterprises were a key component of the old development model which has been dramatically redesigned by the reforms we are analyzing. The impact of privatization on the distribution depends on three elements. First whether or not the sales price of the assets of the state-owned enterprises reflect their true market value. If it is less, buyers have received a gift from taxpayers. Second, for

public utilities like electricity, telephone and water companies, the impact depends on what happens to the price of the services they provide to the public. In many cases publicly-owned utilities subsidized their customers by selling below cost. Transferring that sort of company to the private sector and eliminating the subsidy could be either progressive or regressive, depending on whom their customers were. One might expect that to be regressive. However a recent study of gasoline and electricity pricing in Venezuela and Peru came to the opposite conclusion because those wealthy enough to have electric utilities and cars came from the top, not the bottom of the distribution. It is probably the case that most of this sort of subsidy benefited the middle class.

Neither of the effects we have been discussing so far will be reflected in our distribution data because it reflects earnings and not either expenditure or wealth. But an effect of privatization which is reflected in the earnings data is its effect on labor demand and employment. Labor productivity in the typical SOE was low. For political reason many governments seemed more interested in using these enterprises to create jobs than to provide good service at the lowest possible cost. When the SOEs were sold, all of this had to change. Privatizations in places like Chile and Argentina were blamed for a good deal of the job destruction and rising unemployment that accompanied reform. The distributional impact of this depends on who the displaced employees were. There is no good study of this question, but judging by the profile of the labor force of the typical SOE, these jobs came in large part from the middle of the earnings distribution. Thus privatization is likely to have mainly hurt the middle class, both because they were the main users of subsidized SOE services and also the main employees of State-owned firms.

Econometric Evidence

We examined the impact of the reforms on equity more formally in two ways, first using an econometric model of the distribution in which the reform indexes were entered as one among a number of exogenous variables, and second with a detailed comparison of pre and post reform distributions and factor prices and factor ratios for a nine countries in the region.

The model for the level of the distribution

We can write the general regression model for the level of the distribution as follows:

$$(1) \text{ Gini}_{it} = A_i + B_i Y_{it} + C_i 1/Y_{it} + DZ_{it} + ER_{it} + FS_i + G*T*Y_{it} + \text{error}$$

where i denotes countries and t denotes year.

A is a regression constant which may vary across countries but, in our model, not across years. Y is income. Z is a vector of variables such as inflation, land distribution and education which we hypothesize may have an effect on the distribution. R is our index of reform and S is a vector of dummies which reflect various sample characteristics such as whether it is urban, whether it is based on household income or income per capita, and on expenditure rather than income. T is a trend variable.

If one assumes that there are no country-specific effects, $A_i = A$ and $B_i = B$. If in addition there are no sample characteristics effects, $F = 0$ and all the countries in the sample are assumed to be on the same Kuznets Curve. If there are no country specific effects, but sample characteristics are significant, then F is different from zero. Here the observed level of the Kuznets Curve differs according to the type of survey, but the slopes are the same. Alternatively, we may test this assumption by permitting B_i to differ between countries and testing whether this alternative

specification significantly improves the fit of the regression. The trend term tests for possible shifts in the Kuznets curve over time.

Equation (1) gives us a systematic way to see whether there is a relationship between the reforms and the distribution holding other factors constant such as income, land distribution, inflation and education which might influence the distribution. To estimate the model we collected all the consistent distribution estimates we could find for 16 countries in the region and combined them into a pooled time series cross section. Clearly there are serious econometric difficulties in attempting to use pooled cross section-time series evidence to capture a time series relationship for a single country. In most of the studies in the literature there are at most two or three observations per country which means that one is assuming that when low income countries reach the income level of more advanced countries their income distributions will also be equal. In other words country-specific effects on the distribution are not sufficiently important to offset the effect of income growth. In this study we deal with this problem by assembling a data base with a relatively large number of time series observations per country. Second, we incorporate factors other than income which vary across countries, and which might be expected to have an impact on the distribution or on its responsiveness to changes in income. Third we use a fixed effects or random effects model which permits country specific constants.

The data base contains both urban and national observations, and was run for the combined sample and for the urban and national observations separately. Some of the results are displayed in tables 1-3. In these regressions we used either the average of our five subindexes of reform or different combinations of the subindexes.

Results:

1. Distribution and income: In contrast to almost all other studies, this one finds evidence of the existence of a so-called Kuznets Curve, i.e. an inverted U shaped relationship between income and inequality, shown by the negative coefficients on the two income terms in equation (1). The sign and significance of these coefficients is robust across equation specifications, which is fairly strong evidence in favor of the inverted U-shape relationship.
2. Trend: Our results indicate that there are important shifts in the K-Curve over time. We attempted to capture this by introducing two trend terms, one in the constant and the other in the K-Curve itself. Regression three in table 1 puts the trend in the intercept term. It is negative but not significant suggesting a gradual improvement in inequality over time, other things equal. But the interaction term tells a different story. It is positive and significant in all of the regressions including the one with the common constant, and in the regressions for the urban and national samples considered separately. That says that the slope of the K-Curve changes over time. Since the coefficient is positive, it means that to the left of the inflection point where the curve itself is upward sloping, the slope is gradually getting steeper. To the right of the inflection point where the slope itself is negative, the trend is making the slope gradually flatter. Not only that, the interaction term makes the inflection point itself shift gradually to the right over time, extending the range over which growth is regressive. Thus the trend terms tell two opposing stories. The trend term on the intercept is progressive. It shifts the K-Curve down. But the interaction term is regressive. The positive interaction means that growth has become systematically less progressive than it used to be.

Table 4-1

Estimated Kuznets Curves

Variable	Estimated Kuznets Curves							
	Pooled LS		Fixed Effects		Cross Sec Wts		Single Intercept	
	-1	-2	-2	-3	-3	-4	-4	
	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
INCOME	-0.0001	-7.0504	-0.0001	-7.3174	-0.0001	-7.9707	-0.0001	-5.2978
1/INCOME	-260.3067	-2.9407	-208.7411	-2.8671	-336.4263	-4.0021	-69.3106	-1.1264
URBAN	-0.0336	-5.3983	-0.0333	-6.9739	-0.0320	-6.7043	-0.0278	-3.7291
CEPAL	-0.0522	-8.3100	-0.0510	-9.2131	-0.0530	-9.4478	-0.0568	-6.8944
EXPEND	-0.0874	-4.6603	-0.0875	-2.9325	-0.0838	-2.8620	-0.1109	-9.4870
INFLATION	0.0114	1.2774	0.0112	1.3838	0.0138	1.7027	0.0510	3.8580
HHL D	-0.0089	-1.5645	-0.0118	-2.3858	-0.0154	-3.0176	-0.0144	-1.8140
HIGH	-0.0065	-2.8047	-0.0082	-3.2362	-0.0039	-1.3811	-0.0080	-5.4828
PRIMARY	0.2482	3.1068	0.1965	2.7995	0.2311	3.2581	0.0167	0.3300
TREND*INCOME	0.0000	6.0880	0.0000	6.2408	0.0000	7.1460	0.0000	4.6505
REFORM	0.0261	1.2573	0.0303	1.6333	0.0633	2.8999	-0.0095	-0.3703
TREND					-0.0030	-3.1760	-0.0015	-1.4856
LANDDIST							0.0364	4.5922
CONSTANT							0.7387	8.2049
Fixed Effects								
AR--C	0.5400		0.5539		0.7732			
BO--C	0.6083		0.6198		0.8894			
BR--C	0.5789		0.6025		0.8308			
CO--C	0.5388		0.5552		0.7970			
CR--C	0.4476		0.4765		0.6927			
CH--C	0.6063		0.6213		0.8414			
EC--C	0.5714		0.6000		0.8255			
ES--C	0.4753		0.4880		0.7658			
HO--C	0.5273		0.5381		0.8224			
JA--C	0.4917		0.5042		0.7628			
ME--C	0.5211		0.5441		0.7689			
PA--C	0.4939		0.5061		0.7726			
PE--C	0.5747		0.5971		0.8200			
UR--C	0.5152		0.5326		0.7464			
VE--C	0.5532		0.5679		0.7916			
DR--C	0.4720		0.4899		0.7437			
R-squared	0.8620		0.9756		0.9755		0.9341	
Adjusted R-squared	0.8468		0.9729		0.9726		0.9306	
S.E. of regression	0.0274		0.0273		0.0268		0.0467	
Log likelihood	1789.3480		1791.4680		1792.1660		1577.077	
Durbin-Watson stat	1.5275		1.6061		1.6065		0.6725	
Mean depend. var.	0.4758		0.5256		0.5214		0.5387	
S.D. dependent var.	0.0701		0.1659		0.1623		0.1772	
Sum sq. residual	0.1768		0.1751		0.1687		0.5402	
F-statistic	146.8103		940.4532		845.5984		270.2431	
Prob(F-statistic)	0		0		0		0	
D.F.	262		262		262		262	

Source: Morley (1999)

Table 2: Urban Sample

Variable	Coefficient	t-Statistic	Coefficient	t-Statistic	Coefficient	t-Statistic
	-1-		-2-		-3-	
C	0.638532	7.192282	0.63856	7.220107	0.64272	7.573593
INCOME	-6.55E-05	-3.460007	-6.49E-05	-3.458332	-6.13E-05	-3.502406
1/INCOME	-77.0826	-0.834087	-78.90591	-0.858713	57.34615	0.633523
CEPAL	-0.058326	-6.515791	-0.058633	-6.613158	-0.067288	-8.141843
INFLATION	0.050199	3.27413	0.049649	3.271231	0.034843	2.458605
REFORM	0.012198	0.320243				
NOSCHOOL	0.001908	3.415206	0.001871	3.437436	0.001456	2.318449
TREND	-0.003353	-1.493729	-0.003089	-1.485051	-0.003263	-1.587047
TREND*INCOME	1.36E-06	2.952585	1.35E-06	2.946409	1.56E-06	3.64106
TRADE					0.013151	0.435331
FINANCE					0.041569	2.327227
TAX					0.030098	1.255619
CAPITAL					-0.136489	-4.821436
PRIVATIZATION					-0.043319	-1.70211
R-squared		0.499424		0.498985		0.610982
Adjusted R-squared		0.465197		0.469264		0.56967
S.E. of regression		0.040767		0.040611		0.036569
Sum squared resid		0.194446		0.194616		0.151112
Log likelihood		229.0684		229.0132		244.9528
Durbin-Watson stat		0.721265		0.716844		1.07592
Mean dependent var		0.449939		0.449939		0.449939
S.D. dependent var		0.055745		0.055745		0.055745
Akaike info criterion		-3.49315		-3.508146		-3.681791
Schwarz criterion		-3.290558		-3.328065		-3.389158
F-statistic		14.59135		16.78887		14.78958
Prob(F-statistic)		0		0		0

Source: Morley 1999

<i>Table 3: National Sample</i>						
<i>Variable</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>	<i>Coefficient</i>	<i>Std. Error</i>	<i>t-Statistic</i>
C	0.909964	0.063274	14.38141	0.617703	0.066328	9.312883
INCOME	-7.88E-05	1.30E-05	-6.047558	-2.91E-05	1.28E-05	-2.266974
1/INCOME	-557.4071	92.23302	-6.043466	-194.1939	90.52984	-2.145082
TREND	-0.003769	0.001257	-2.996997	-0.001197	0.001085	-1.103537
PERHOUSE	-0.063041	0.009068	-6.952319	-0.035718	0.008227	-4.341743
EXPEND	-0.076538	0.014753	-5.187983	-0.054946	0.012991	-4.229492
TREND*INCOME	1.24E-06	3.36E-07	3.677888	6.02E-07	2.95E-07	2.038764
HIGH	-0.010499	0.001451	-7.236491	-0.009492	0.001248	-7.60405
NOSCHOOL	0.002566	0.000463	5.538963	0.002715	0.000413	6.58017
REFORM	0.136146	0.039375	3.457715			
INFLATION	0.02444	0.0204	1.198074			
TRADE				0.081856	0.02642	3.098284
FINANCE				0.017831	0.018675	0.954765
TAX				0.108429	0.029547	3.669748
PRIVATIZATION				0.025497	0.025525	0.998892
CAPITAL				-0.12167	0.019743	-6.162735
R-squared		0.705668		R-squared		0.811166
Adjusted R-squared		0.682121		Adjusted R-squared		0.791045
S.E. of regression		0.041473		S.E. of regression		0.033625
Sum squared resid		0.215004		Sum squared resid		0.137939
Log likelihood		245.6077		Log likelihood		275.7889
Durbin-Watson stat		1.062467		Durbin-Watson stat		1.380068
Mean dependent var		0.49977		Mean dependent var		0.49977
S.D. dependent var		0.073559		S.D. dependent var		0.073559
Akaike info criterion		-3.450113		Akaike info criterion		-3.849836
Schwarz criterion		-3.21453		Schwarz criterion		-3.550004
F-statistic		29.96904		F-statistic		40.31313
Prob(F-statistic)		0		Prob(F-statistic)		0

Source: Morley (1999)

3. Education is an important qualifier to our discussion of the Kuznets Curve. We included three education variables in the model, one the percentage of the adult population with no school, two the percentage with no more than primary school, and three the percentage with university education. We report the results for the university and primary variables in the table. High percentages of poorly educated workers has a quite large and regressive effect on the distribution. In Argentina, for example, the share of adults with no more than primary school education has

fallen from 81% in 1974 to .64% in 1996.² According to the regression, that improvement alone should have lowered the Gini Coefficient by about three percentage points. (197*.17) At the same time the negative coefficient on high tells us that increasing the share of university graduates in the adult population is progressive (shifts the Kuznets Curve down). Note that the absolute size of the effect of expanding the university graduate proportion is much smaller than the effect of reducing the share of the poorly educated, suggesting that one gets a bigger distribution bang by spending money to reduce the size of the primary school or less group by expanding the coverage of high school education than on universities. That is exactly the same message that we got from the comparison of education profiles between East Asia and Latin America in chapter three.

4. Inflation: As hypothesized, episodes of high inflation (more than 500% per year in our model) are regressive. On average these episodes add about one percentage points to the Gini. This effect is robust to alternative estimation methods, but it is not significant in any regressions with an interaction term between the trend and income.

5. Reforms: We look first here at the effects of the average reform index, deferring consideration of each of the subindices for later. As the reader can see from the three tables, overall the reforms have a regressive effect on the distribution. The coefficient is positive and the effect is regressive in all three samples, and is significant in both the combined and national samples. The effect however is relatively small. According to the reform coefficient in table 4-1 increasing the average reform index by 10% can be expected to increase the Gini Coefficient by only a third of a percentage point. While this effect is not large, the sign does confirm the assertions of Berry (1998) and Bulmer-Thomas (1996). They used historical evidence up to about 1994 for a smaller cross section of countries to show that inequality had widened after the imposition of the neoliberal reform package. The evidence here comes from a much larger cross-section of countries and a far longer time period, but it points to the same conclusion.

Two notes of caution: first it should be remembered that when we talk here about the effect of reforms, we are holding other things constant. If the reforms increase the growth rate, or lead to lower inflation, as they seem to have done in some countries, the positive effect of those two factors may outweigh the direct regressive effect on inequality of the reforms themselves. Second, as we will see, different reforms appear to have quite dramatically different and offsetting effects on the distribution. One will get quite different conclusions if the pattern of reform differs from the across the board change measured here.

We summarize the regression results for the subindexes of reform in table 4. Two results stand out. On average the reforms were mildly regressive, but that is partly because the various different reforms have different and offsetting effects on equity. Second, there are significant differences between the urban, national and combined samples which give valuable evidence on how robust our results are.

² This finding is consistent results from other cross section studies. See the discussion in Bruno, Ravallion and Squire. (1996).

Table 4
IMPACT OF INDIVIDUAL REFORM INDEXES ON INCOME
DISTRIBUTION

	Combined Sample	Urban Sample	National Sample
Privatization	Regressive*	Progressive	Regressive
Financial	Progressive*	Regressive*	Regressive
Tax	Regressive*	Regressive	Regressive*
Trade	Regressive	Regressive	Regressive*
Capital Account	Progressive	Progressive*	Progressive*

Source: Morley (1999)

Comparing the combined with the separate urban and national regressions, the results for trade, capital and tax reform are a good deal more robust than the other two reforms. Trade reform has been regressive, more so in the national than in the urban regressions. That suggests the negative effect on agriculture of the loss of protection and price subsidies was more significant than the loss of protection in the manufacturing sector. . The theoretical case for trade reform rested on the idea that increased openness should favor Latin America's abundant factor, which was expected to be unskilled labor. That should have improved the distribution. But our econometric evidence says that it has not worked out that way in practice. If anything, the effect is the opposite. That is consistent with the findings of Donald Robbins (1996) who has presented evidence that trade liberalization has led to widening of skill differentials. These results are somewhat stronger than those of Spilimbergo et al, (1997) who found that "Trade openness also has a negligible effect over income distribution in Latin America." mainly because relative factor endowments in Latin America are very close to world averages weighted by population and openness.(Spilimbergo et al, p. 30) Our evidence is not consistent with the work of Londono and Szekely (1998) who found a significant positive relationship between commercial reforms between 1985 and 1995 and the income share of the bottom quintile for a panel of 13 countries in the region. Their regression did not include urban observations such as Argentina or Bolivia. Nor did it include any of the other variables other than the reform indexes in the regressions. Thus the effects that they assign to the reforms may well be coming from other policies or variables.

In contrast to trade reform, opening the capital account has been progressive. Reducing barriers to capital mobility has attracted a great deal of foreign capital to Latin America. That theoretically should have reduced profit rates and increased the demand for labor, all of which should be progressive. These results say that it has been. Tax reform like trade reform shifts the Kuznets Curve up toward more inequality. There are clear theoretical arguments why that might be the case. Switching from progressive income taxes to a flatter tax structure, and substituting VAT or consumption taxes for income taxes and tariffs should shift the tax burden away from the rich. As to the other two reforms, the variations in the signs and significance of the coefficients on privatization and financial reforms, suggest that our data is not good enough to give an unambiguous answer to what effect these reforms have had.

Evidence from the Country Case Studies

Our basic hypothesis is that if there were changes in the distribution caused by the structural reforms we should see some evidence of that from changes in relative factor prices, changes in production structure and factor intensity between the pre-reform and the post reform period. To investigate this, we collected evidence from a sample of nine countries on skill differentials, capital labor ratios, factor shares and production structure. Obviously this sort of simple comparison is no guarantee that the observed changes in these variables were in fact caused by the reforms. All sorts of other things were going on at the same time, which could be responsible. Virtually all investigation of causal links in economics is open to this sort of criticism. In our econometrics in the previous section we attempted to deal with the problem by including all the other factors that we had reason to believe might be influencing the distribution. But in time series work it is often difficult to separate different factors because of multicollinearity. Another method to investigate impact is to construct a general equilibrium model, which contains factor markets, and behavioural equations and which can be used to simulate the response to reforms. The data requirements of such an exercise are large, and we will not attempt to apply it here.

First, with respect to changes in the distribution itself, there are three reforming countries, Argentina, Chile and Mexico, in which the distribution is clearly worse than it was before the reform process began.³ (See table 5) It would appear that in the 1990's these three countries are now in a new equilibrium in which the distribution indexes have stabilized, but at a much higher level than before. That is, the reform process seems to have permanently shifted the distribution toward higher inequality. In Peru the reverse seems to be true. Adopting the reform package and stopping hyperinflation shifted the inequality indexes down between 1985 and 1991, and the improvement has continued during the 1990's.

In three of the remaining countries, Costa Rica, Colombia and Brazil the changes in the distribution pre and post reform are insignificant, but in one case that disguises important sectoral changes. In Colombia the urban distribution has deteriorated significantly, but there has been an offsetting improvement in the rural distribution. That is at least in part a result of significant rural to urban migration in the 90's which is a good example of why one would study national as opposed to urban distributions.

In Costa Rica the overall distribution has stayed remarkably stable since the late 1980s despite both the adopting of reforms, and a fairly unstable macroeconomic growth environment. Brazil, too has had little changes in its household distribution since the mid 1980s but one cannot really be sure that the country is on a stable, post reform growth track. Not only is Brazil one of the most recent of the reformers, but also its distribution record in the 1990s is blurred because of the simultaneous adoption of reforms and the control of inflation. Nonetheless what one does see in the data for Brazil, as for Costa Rica, is a distribution which is very stable, despite big changes in underlying conditions.

The remaining two countries, Bolivia and Jamaica require special comment. In Bolivia, unfortunately there is no rural survey until 1996, so we cannot be sure what has happened to levels of inequality at the national level. For the urban economy the distribution has improved significantly since 1985, but it has gotten worse since 1990. Most of the reform package was adopted between 1985 and 1987, but at the same time a successful stabilization stopped hyperinflation. One cannot therefore attribute the big improvement in inequality to the reform

³ Note that in Chile and Argentina the reform process started in the mid 1970s, so the comparison we are making is between the early 1970s and the 1990's in these two countries.

package alone. Some or all of it may instead be due to the successful stabilization program. For Bolivia, we neither know trends in the national distribution data nor do we know what the distribution was like in a low inflation environment prior to reform. What we can say, is that post reform, there has been a significant rise in inequality at least in the urban economy. Bolivia, along with Colombia are the only two countries where that has happened.

Jamaica is different from our other eight countries both because its adoption of reforms has been gradual and intermittent and because it has not been growing in the 90s. To complicate matters, it has been forced to adopt contractionary macro policy to stop rising inflation. Despite all of this, its distribution has improved since 1989. But it is an improvement in relative terms in an economy in decline, unlike any of our other economies.

What we have for six of our countries is rigidity or stability in the distribution in the 90s, in the period after reform. With the possible exception of Bolivia, there is no case where the trend in inequality is up in the post reform world, and at least two (Peru and Jamaica) where it is down. For the rest the distribution is virtually unchanged over the decade despite growth and despite structural change and reform. In several countries this overall distributional stability masks important sectoral changes. In Colombia and Mexico and possibly Bolivia, urban and rural distributions move in the opposite directions. In Mexico and Chile changes in the distribution of labor income are offset by changes in the share of profits. For Argentina and Chile, there has been a one-time upward shift in inequality, but there too the distributions have been approximately unchanged since the early 1990's. We cannot find any evidence in any of the remaining countries of a one time shift toward higher inequality during or after the reforms.

Historical evidence on factor prices and relative factor supplies

We start our investigation with a look at the historical evidence on factor supplies and factor prices. (See table 5-1) The first is an indicator of relative capital intensity which we will measure by the capital labor ratio. Capital is the non-residential capital stock measured in constant purchasing power dollars of 1985, and is taken from the Penn tables with an upgrade to 1996 from CEPAL data. (See Summers and Heston, 1995). Labor is defined as the employed labor force. The second indicator is the skill differential, a key element in our story. There is some differences across countries in how this variable is measured, but it generally is defined as the ratio of wages of university graduates to those with no more than primary education. Where available, this information is drawn directly from the household surveys. The third measure is the Theil index of inequality for the primary distribution. This is the measure that was used in decompositions of inequality or changes in inequality to which we will refer further on. And finally, we display the Gini Coefficient measure of the distribution of family income per capita. This is the distribution we have been using for our empirical statements about trends pre and post reform.

In every country we know that there has been a rise in the share of better educated labor. In some countries the wage differential for the better educated as gone up as well. We will label such countries as skill-intensive by which we mean that the increase in demand for the better educated has been greater than the increase in supply. If we use that classification scheme, the countries with skill-intensive growth (an increase of more than 5% in the skill-differential) are Argentina for the entire period since 1974, Bolivia, Brazil, Mexico, and Peru. In Chile the differential

widens between 1968 and 1987, but then falls back sharply to below its initial level.⁴ It is the only country where there has been a significant reduction in the skill differential in the 1990's. In Colombia the differential narrowed from 1976 to about 1990, and then increased slightly. In the two remaining countries (Costa Rica and Jamaica) the post reform skill differential is roughly equal to what it was in our pre-reform observation.

As for capital intensity the table tells us that there are only three countries (Chile, Costa Rica and Mexico) with a significant increase in the K/L ratio, pre and post reform or in the 1990's. In Brazil, Colombia and Jamaica the ratio is roughly constant, while in Argentina, Bolivia and Peru the ratio has clearly fallen. In short, the skill differential is either constant or growing in 8/9 countries but there is a rise in capital intensity in only 3/9.

One might expect that there would be a relationship between changes in capital intensity and skill differential since skilled labor and capital are generally considered to be complementary. But we do not observe that pattern in the table. For the five countries with widening skill differentials, only one, Mexico, has a significant increase in capital

⁴ Note that comparable evidence for the entire period comes only from Greater Santiago. The evidence from the CASEN surveys from 1987 to 1996 also shows a narrowing of wage differentials but it is much less pronounced than the narrowing for Greater Santiago. (J. Weller, wage work sheets).

Table 5 Trends in capital labor ratios, skill differentials and inequality

country	1974	1986	1991	1996	
Argentina (urban)					
K/L	9060	11869	10953	10617	
Skill Differential	78	98	94	116.5	univ/prim 1980=100
Primary Dist. (Theil)	0.176	0.293	0.268	0.283	Altimir & Beccaria
Family Dist. (Gini)	0.354	0.407	0.461	0.486	Altimir & Beccaria
Bolivia (urban)	1985	1989	1996		
K/L	6987	5946	5196		
Skill Differential	100	146.9	202.4		univ/prim
Primary Dist. (Theil)	0.668	0.486	0.595		Jemio
Family Dist. (Gini)	0.59	0.43	0.48		Jemio
Brazil	1976	1985	1990	1997	
K/L	10765	16007	17290	17511	
Skill Differential	100	98.5	93.9	107.8	univ/prim
Primary Dist. (Theil)	0.83	0.68	0.7	0.71	Neri
Family Dist. (Gini)	0.62	0.59	0.61	0.59	Neri
Chile	1968	1987	1996		
K/L	5840	7527	14269		
Skill Differential	100	123.8	97.8		univ/<secondary
Primary Dist. (Theil)		0.653	0.636		Larranaga
Family Dist. (Gini)		0.56	0.553		Larranaga
Colombia	1988	1993	1995	1996	
K/L	12919	12554	12343	12180	
urban					
Skill Differential	71.5	73.3	75.2	76.6	univ/sec1976=100
Primary Dist. (Theil)	0.432	0.522		0.457	Cardenas & Bernal
Family Dist. (Theil)	0.582	0.596		0.625	Cardenas & Bernal
Family Dist. (Natl)	0.552	0.523	0.533	na	Ocampo et al
Costa Rica	1988	1995			
K/L	29777	34547			Trejos
Skill Differential	88.9	86			skill/unskilled 1980=100
Primary Dist. (Theil)	0.49	0.478			Trejos
Family Dist. (Gini)	0.387	0.377			Trejos
Jamaica	1989	1993	1996		
K/L	3424	3505	3682		
Skill Differential	100	101.9	102		avg wage in fin/construction
Family Dist. (Theil)	0.313	0.258	0.252		King
Family Dist. (Gini)	0.436	0.382	0.369		King
Mexico	1984	1989	1994	1996	
K/L	14357	12963	14304	14849	
Skill Differential	100	122.1	138.7		skill/unskilled Lustig-Szekely
Primary Dist. (Theil)	0.31	0.37	0.37	0.61	de la Torre
Family Dist. (Gini)	0.474	0.537	0.54		Londono-Szekely
Peru	1985-6	1991	1996		
K/L	9480	8651	8151		
Skill Differential	100	94.8	142.9		univ/prim
Primary Dist. (Theil)	0.579	0.502	0.485		Saavedra-Diaz
Family Dist. (Gini)	0.519	0.467	0.435		Saavedra-Diaz

All family distributions are family income per capita, except for Mexico which family income, and Jamaica which is family expenditure per capita. The last observation for Argentina is 1997. The Chilean relative wages are averages groups of years. 68=64-69, 87 is average of 87-90 and 96 is average of 91 For Jamaica underreporting of income makes household survey unreliable ; source of average wages. Establishment surveys reported average wages finance relative to construction are used as a proxy.

intensity. Actually there is a larger proportion of rising capital intensity in the four countries without an increase in the skill differential. Costa Rica and Chile in particular are cases to be examined further because they combine a rapid increase in capital intensity with constant or declining wage differentials.

Factor Shares and the rate of return to capital

In the previous section we presented the available evidence on the skill differential, the capital/labor ratio and the distribution of income. But as is well known, the household surveys on which the distribution statistics are based do not adequately reflect the income from capital. To some extent that is simply because of conscious underreporting. But in addition a large part of that income is not distributed as profits, and so never appears in the surveys. One could attempt to correct for the underreporting of profit income by blowing up whatever profits and interest income is reported using the differences between the reported total and the national accounts. CEPAL in its analysis of the surveys has attempted to do this. However the distribution statistics in table 5 do not reflect that sort of correction. As a result it is important to supplement the survey distribution evidence with estimates of factor shares as estimated and reported in the national accounts. Unfortunately, the national accounts breakdowns by factor incomes suffer from the problem of being unable to divide up between labor and capital the income that is generated in the informal sector or by people working for themselves. In table 6, that component of national income is lumped together with capital.⁵ What we get from the table is the income from salaries and wages as a fraction of total income at factor cost.

There are three countries, (Colombia, Costa Rica and Bolivia where the surplus clearly fell between the pre and post reform periods, and one (Peru) where it increased. It also rose during the first stage of reforms in Mexico (84-89) and Chile (70-87) and in Argentina, (74-86), exactly the same periods when there was a one time shift up in inequality. Subsequently the labor share recovered in all three countries, but only in Chile did it return to its pre-reform level. Thus it would appear that an important component of the one-time upward shift in inequality pre and post reforms in these three countries was a shift from labor to capital in the distribution.

The rate of return information is only available for five of our countries, and is sketchy even there. Each national series is constructed with a different definition and is therefore useful only for intracountry comparisons over time. Note in particular that for Costa Rica we only have an index of the rate of return. From the available data we draw the conclusion that the rate of return has been either constant or declining, over the period of the reforms. It is constant in Bolivia and Chile since 1987, and it falls in Costa Rica, Colombia and Mexico. At the very least we do not see evidence of any increase in the return to capital.

⁵ Except for Argentina, where the labor component of the informal sector was separately estimated and added to wage income.

Table 6: Factor Shares and Rate of Return to Capital

country						
Argentina	1974*	1980	1986	1991	1996	1997
labor/GDP	45	34.3	28	33.3	32	32
Surplus/GDP	55	65.7	72	66.6	68	68
rate of return						
Bolivia	1985	1989	1996			
labor/GDP	35.6	39.4	39.8			
Surplus/GDP	64.4	60.6	60.2			
rate of return	13.7	13.4	14.6			
Brazil	1976	1985	1990	1997		
labor/GDP	na	na	na			
Surplus/GDP	na	na	na			
rate of return	na	na	na			
Chile	1970	1987	1996			
labor/GDP	47.8	42.9	48.0			
Surplus/GDP	52.2	57.1	52.0			
rate of return		15.1	15.4			
Colombia	1988	1993	1995	1996		
labor/GDP	42.7	45.0	46.3			
Surplus/GDP	57.3	55.0	53.7			
rate of return	31	22.1	23.3			
Costa Rica	1988	1995				
labor/GDP	56.3	60.1				
Surplus/GDP	43.7	39.9				
rate of return	101.88	91.15				
Jamaica	1989	1993	1996			
labor/GDP	51.2	50.9	50.6			
Surplus/GDP	48.8	49.1	49.4			
rate of return	na	na	na			
Mexico	82-87	1989	1994	1995	1996	
labor/GDP	46.6	35.3	42.6	37.4	35.7	
Surplus/GDP	53.4	64.7	57.4	62.6	64.3	
rate of return	14.5	12	10	7.5	7.5	
Peru	1985	1991	1994	1996		
labor/GDP	30.5	24.9	24.4	23.0		
Surplus/GDP	69.5	75.1	75.6	77.0		
rate of return						

Source: Consultant reports

Note: 1974 observation for Argentina from Beccaria (1991), table 1. That source value for labor share for 1980 is 35%, comparable to the remainder of the series.

Drawing together all the available evidence from the factor markets, we conclude that growth has been more skill-intensive during the post-reform period, but not necessarily more capital intensive. In fact there seems to be very little relationship between trends in capital intensity and the skill differential. It also appears that there has been a reduction in the rate of return to capital and possibly the share of capital in national income although the evidence on this is incomplete and unsatisfactory. If true, that pattern is consistent with the clear message of the previous chapter on the progressive effect of capital account liberalization. It is also consistent with commercial reform having reduced monopoly profits in protected sectors as pointed out by Londono and Szekely (1998).

Decomposition of the inequality indexes:

In looking at inequality indexes, one of the first questions that one would like to have answered is what factors or characteristics of the population are important contributing causes of inequality. How much of inequality is explained by education, sector of employment, age, gender or ethnicity?

Differences between mean incomes across different education levels are the single most important determinant of inequality. In our decompositions of inequality, the between groups component explains anywhere from a fifth to a third of inequality in the primary distribution.⁶ Furthermore, that contribution has increased in every country except Brazil and Chile. In some cases such as Bolivia and Peru the differences between the pre and post reform surveys are very large. This evidence is consistent with the evidence on trends in the skill differential which we presented in table 5, except for Jamaica and Costa Rica. It suggests that differences in education which have always been an important factor in the distribution, have become even more important in recent years. As to Costa Rica, as elsewhere our measure of the skill differential is dominated by the relative income of university graduates. A separate decomposition for Costa Rica shows an almost constant between groups contribution to total inequality for university graduates alone.

At the same time that differences in mean incomes between education classes have been increasing, the variance within education classes must have been declining at least relatively since the two components have to add up. It must have declined absolutely in those seven cases where the overall distribution has either stayed the same or become more equal over the reform period. (all but Colombia and Mexico) If one looks at some countries where we have detailed information to see how that has happened, we find that the reduction in within group inequality is among those with primary education or less. Those at the top of the education pyramid had an increase in within group inequality, but it did not offset the reduction in inequality among those at the bottom. For example, in Costa Rica the within group contribution of those with incomplete primary school fell by five points between 1988 and 1995 while it rose by two points for the university graduates. (Trejos, 1999, table b11) In Colombia the within group Theil for those with less than five years fell 3.4 points just about offsetting a rise of 2.6 points for university graduates. (Cardenas and Bernal, 1999, table 1) That suggests that the post reform economies have either equalized incomes for workers at the bottom or reduced the size of the group while creating special earnings opportunities for an expanding subgroup of winners at the top. In most cases in relative terms at least, the gains to equity of the former are bigger than the losses to equity of the latter so that overall within group inequality has declined, either relatively, or even in some cases absolutely. It could therefore be the case that the overall distributions are remaining about constant because the gains at the top for the university graduates are being balanced by gains at the bottom.

The real implication of this education decomposition is that rising wage differentials do not necessarily imply rising earnings inequality. Reductions in within group income variance and changes in population weights more often than not have offset the disequalizing effect of changes in average incomes. It is also important to remember that important as wage differentials and intergroup inequality are, they only explain about one third of total income variance. That means that two-thirds must be coming from other sources such as talent, effort, experience or luck.

⁶ Jamaica's contribution of education is less, but the reader should remember that this survey refers to expenditure per person per family, and is therefore not really comparable to the primary distributions from the other eight surveys.

Changes in these other factors may well dampen or offset the regressive effect of rising wage differentials.

One of the puzzles that requires explanation is why there seems to be such rigidity in the overall distribution in so many countries despite rising wage differentials and skill-intensive growth. We have rising wage differentials in eight of our nine countries. Yet in four or perhaps five of those (Argentina, Bolivia? Brazil, Costa Rica, Jamaica) plus Chile the distribution has moved hardly at all since around 1990. Mexico and Colombia are special cases in that the aggregate distribution data cover significant shifts among the component parts (a fall in the profit share offsetting rising wage inequality in Mexico and a fall in rural inequality offsetting rising urban inequality in Colombia). Only in Peru is there an unambiguous trend, and it is progressive.

This apparent rigidity seems to be the result of two offsetting features of changes over time in the education structure of the labor force, and its effect on the labor market. On the one hand improvements in education have moved people up the distribution. That is progressive because a smaller fraction of the labor force is in the bottom tail. This is reinforced by the fact that the variance of income among the less educated is in many cases bigger than it is for the more educated. Thus reducing the size or more accurately the fraction of the labor force with low education reduces total within group variance in the Theil decompositions at the same time that it reduces between group variance. Both of these effects are progressive. For example, in Peru the reduction in the relative size of the group with no more than primary education between 1988 and 1995 reduces the within group Theil by 8 points, more than offsetting the regressive effect of rising wage inequality. (Saavedra and Diaz, 1999, 69) In Costa Rica the weighted within group Theil falls by 3.5 points almost enough to offset all the other factors that were pushing up inequality. (Trejos, 1999, table B10)

Offsetting this progressive change is the fact that improving education increases the right hand tail of the distribution at the same time that it reduces the left hand tail. That tends to make the distribution less equal. But perhaps more interesting than this effect is the fact that skill-intensive growth in the 1990's has increased the variance of incomes among the educated. That is post-reform growth has created opportunities that are primarily open to the well educated. That has increased within group variance at the top of the education pyramid. When this is combined with the expansion in the fraction of the labor force at the top, the result is a quite powerful interaction effect tending to increase overall inequality. It is exactly this interaction effect that we found in our Kuznets Curve estimations in the previous section. On balance, it seems that in most countries, even those with rising wage inequality, these various effects just about cancel each other out and the distribution appears to be roughly stable.

Patterns of Sectoral Growth in the 70s and 90s

One of the ways by which the adoption of reforms could be expected to affect the earnings distribution would be if it particularly favored those sectors which are big users of either skilled or unskilled labor. That is, reforms could affect the sectoral composition of demand, and that in turn could affect the relative skill intensity of labor demand. When one looks at the evidence, however, that does not seem to have happened. For the most part, the same sectors that were leaders in the 70s before the reforms were still the leaders in the 90s and the same is true for the laggards.

To see this we have collected the sector growth rates at the one digit level for eight of our countries for the 90s and the 70s. We then separated all these sectors into four groups. First there

are those that were leading and lagged in both periods. Then there are those we will call the losers that were leaders in the 70s and laggards in the 90, and the winners- those that were laggards in the 70s but turned into leaders in the 90s.

Table 7: Leading and Lagging Sectors in the 70s and 90s

	<i>Laggards < Avg in 70s & 90s</i>	<i>Leaders >Avg in 70s & 90s</i>	<i>Losers >Avg in 70s, <Avg in 90s</i>	<i>Winners <Avg in 70s >Avg in 90s</i>
<i>Argentina</i>	<i>Ag, Gov</i>	<i>Fin, Elec, Com Const</i>	<i>Serv</i>	<i>Mfg, Trans</i>
<i>Bolivia</i>	<i>Min, Com</i>	<i>Fin, Trans, Mfg, Elec</i>	<i>Gov, Serv, Ag</i>	<i>Const</i>
<i>Brazil</i>		<i>Trans, Mfg, Elec</i>	<i>Min, Const</i>	<i>Ag, Com</i>
<i>Chile</i>	<i>Mfg, Gov</i>	<i>Elec, Const, Com, Trans, Fin</i>	<i>Ag, Min, Serv</i>	
<i>Colombia</i>	<i>Ag, Min, Fin, Hous</i>	<i>Com, Trans, Gov, Serv</i>	<i>Mfg, Elec</i>	<i>Cons, Fin</i>
<i>Costa Rica</i>	<i>Ag, Hous</i>	<i>Fin, Trans, Elect, Mfg</i>	<i>Con, Govt, Serv</i>	<i>Com</i>
<i>Mexico</i>		<i>Min, Mfg, Elec, Com, Trans, Const</i>		<i>Ag</i>
<i>Peru</i>	<i>Ag, Hous</i>	<i>Fin, Trans, Com, Const, Elec</i>	<i>Govt, Serv, Min</i>	<i>Mfg</i>
Total	14	35	17	10

Source: CEPAL data base.

It seems clear from the table that the reforms have not led to dramatic changes in the sector characteristics of growth. Those sectors that had above or below average growth rates in the 70s tend to continue the same pattern in the 90s. The sectors finance, electricity, transportation and communications are generally leaders in both periods, while agriculture and housing are laggards. Altogether there are only 27 cases of switches in position compared to 49 in which the sector stays in the same classification.

After the reforms, countries are more open, but for the most part they have not switched toward the traded goods sectors-agriculture, mining and manufacturing. Indeed, looking at the winners and losers columns, one finds that more of the losers than the winners come from these three sectors. That would be even more obvious were one to ignore agriculture in Brazil and Mexico two of the “winners” in column four. In both countries agriculture switched positions because the overall growth rate fell sharply between the 70s and the 90s, not because agriculture itself grew more rapidly. Indeed, its growth rate fell in both countries, but not as much as the growth rate of the whole economy. The only clear switches among traded goods are the post reform gains in manufacturing in Peru and Argentina and the loss in Colombia.

One can see another effect of the adoption of reforms in what has happened to the government sector. Of the six countries for which we have data, government is a clear loser in three reforming countries and a laggard in two others. Only in Colombia is government a leading sector in both periods.

The relative stability in patterns of growth implied in table 7 may seem surprising, but in fact it illustrates an important feature of any growth process. Most of the demand for sectoral output is induced through the multiplier effects of exogenous spending. That exogenous spending could come from exports, from government spending, for the replacement of imports, or from investment. Whatever the source, differences in sectoral income elasticities and backward

linkages to intermediate products almost guarantee that manufacturing, finance, transportation and parts of services will be leaders, that agriculture will be a laggard and that commerce and services will reflect the overall growth rate of the economy. In other words, the effects of any change in exogenous conditions will be damped by the time they work their way through a country's input-output table and its demand system. Even when the reform process triggers rapid growth in some export commodities, the factors that produce those exports are likely to spend their income in about the same way, as did the factors in some previous leading sector. The result of all this is a relatively stable pattern of sector growth rates. That in turn implies a relatively stable pattern of growth rates in the demand for skilled and unskilled labor.

We have seen that in every case but Chile, growth was relatively skill intensive-the wage differential in favor of university graduates widened in each case. But that cannot have been because of changes in sector growth rates due to the reforms. It is more likely to have been the result of the pressures of competition in the more open economy, overall trends in the nature of technology, and the effects of restructuring because of privatization. These regressive trends raised the skill differential but they were not sufficiently abrupt to offset the beneficial effects of reducing the share of unskilled labor leaving the earnings distribution pretty much unchanged over the course of the 90s.

What explains the big increases in inequality in Chile, Argentina and Mexico?

Obviously none of the above discussion implies that income distributions are always constant. There have been many rapid changes over quite short periods. Three in particular demand an explanation because they are not cyclic. (Chile 1970-87, Argentina, 1974-86, and Mexico, 1984-89). These three are significant, one-time increases in inequality that have never been reversed. If we are claiming that distributions tend to be constant, how can we explain these three exceptions, and are they linked to the adoption of reforms? Recall that both Argentina and Chile implemented a significant part of their reform programs prior to the mid 80s. For Chile the aggregate reform index rose from .32 in 1973 to .72 in 1987, making Chile the second most reformed country in the region (after Uruguay). Argentina did less, but still its index rose from .41 in 1976 when the reforms started to .61 in 1986 and to .81 in 1990. (Morley et al, 1999) In both countries, commercial, financial and tax reforms were the central components of the early reform program. Mexico is different. It began with its trade and financial reforms in the 1985-87 period by eliminating quantitative import restrictions and narrowing tariff differentials, but the changes it implemented were far less dramatic than those in the Southern Cone, partly because Mexico had always had lower tariffs than Argentina and Uruguay. (Ros, 1999). This policy change took place during the long downturn that followed the 1982 debt crisis in Mexico, a period in which there was a contraction of real wages, a widening of the skill differential and a shift in the factor distribution toward profits. (Szekely 1998, pp. 64-67), Ros, (1999, table 5))⁷

A factor common to all three countries is macro instability and inflation during the periods we are looking at. Chile suffered through two severe recessions between 1973 and 1987, and Argentina had three between 1976 and 1990, none quite as severe as the 82-3 downturn in Chile. Mexico also had recession or stagnation conditions in the 1984-89 period, with output per capita in 1989 6% lower than it had been five years early.

Another factor, which characterizes Chile and Argentina, but not Mexico, is a regime change in the treatment of labor. The two reforming military governments effectively curtailed unions, increased labor market flexibility, and generally reduced the bargaining power of labor vis a vis

⁷ Szekely also points out that there was a sharp decline in the guaranteed price for corn and beans, and that the per hectare yield fell by 25% between 1984 and 1989. (Szekely, p. 69.)

management.⁸ (See French Davis and Raczynski (1990). In Chile the military government reduced the coverage of the minimum wage, relaxed conditions for dismissal of workers, suspended labor unions, closed the labor courts, limited the permissible activities of labor unions and encouraged the organization of competitive labor unions within enterprises. (French Davis and Raczynski, 1990, p. 8.) In Argentina under the military regimes between 1976 and 1983 union activities were prohibited and wage increases were set by the government. This new regime coupled with inflation and the drastic recession after 1982 led to a sharp decline in real wages between 1976 and 1983. (See Beccaria, 1991 and Altimir and Beccaria 1999a)

It is impossible at this level to determine what role each of these three factors played but the combination of recurrent recession, commercial liberalization and a regime change in the treatment of labor are the best explanations we can find for the one-time upward shift in inequality in these two countries.

Why didn't the other countries in the region have the same experience that Chile and Argentina did with reforms? First of all, we are looking at all the other countries in the 1990's a period which is relatively free of the violent fluctuations observed in the 1980s. That we believe has helped avoid significant increases in inequality because recessions typically have had a strong negative impact on the distribution of income. (Morley 1995, Ravallion and Chen, 1997) Several of the other countries in our study, notably Colombia and Costa Rica, did their reforms gradually and without serious recession. In that environment the reforms seem to have had little effect on the distribution. Bolivia and Peru did make a sudden and quite drastic reform. But they both did it as a part of a broad stabilization package which stopped hyperinflation. Whatever possible regressive impacts these reforms may have had were more than offset by the favorable impact of stopping hyperinflation.

We conclude that where there have been large shifts in the distribution, they have accompanied big changes in wage differentials or real wages and the profit share that have taken place during periods of high inflation, recession, very rapid growth, or regime changes. But the 90s have not had very rapid growth except perhaps for Chile. Nor has it had hyperinflation or deep recessions of the sort that would cause the sudden sharp swings in wage differentials or the profit share that would swamp the long run effects of changes in education structure that we have been discussing here. And in these changes the progressive and regressive components seem to just about cancel each other out.

Gains by University Graduates are the main reason inequality has not fallen in the region

In the study a decomposition of the Theil index of inequality was performed to determine the groups which contributed most to inequality and changes in inequality. Given the skill-intensity of growth in almost all of our countries and the widening wage differential between university graduates and everyone else, it was particularly interesting to look at the contribution of this group.

The decomposition shows that the rise in the university group contribution to overall inequality was so great that it completely offsets favorable trends in the remainder of the population. If one looks at the within group Theils for the non-university group, one can see what inequality would

⁸ These two cases seem somewhat similar to Brazil in the 1963-80 period. Brazil had a reforming military government that sharply curtailed labor bargaining power in the context of a successful inflation control program and a first round of tariff reductions. The result was a long period of rapid growth, wage stagnation and a one time upward shift in inequality, which has so far never been reversed.

look like and how it would have changed over the period. In every country but Argentina in our sample inequality would have declined were it not for the rise at the university level. And even in Argentina the non-university Theil is constant, compared to a 40% rise in the aggregate. That tells us that in our sample overall inequality is constant because the rising skill differential, and widening differences within the university group completely offset progressive trends in the rest of the population. This is a striking confirmation and result we suspect of increasingly skill-intensive growth in the 1990s. Whether that is the result of the opening of the economy or whether it simply reflects changes in the nature of technology we cannot say. Nor can we say with certainty that the pattern observed in our sample is representative of the other countries in the region.

The decompositions permit one to determine how much of the rise in the university contribution comes from the increase in the skill differential and how much comes from increased variance within the university group. Is the rising university component of inequality because growth is raising the return of all university graduates relative to everyone else, or is it because the new economic model is creating a sub-group of big winners among the university group, or is it mainly because the size of the group is getting bigger? In Argentina 46% of the increase in inequality comes from rising variance within the university groups. But for the other countries in our sample the within groups contribution is generally smaller, varying between 20% in Mexico to 33% in Brazil, Bolivia and Colombia. Thus for most countries the main culprit of rising university contributions to inequality is widening average wage differentials for university graduates coupled with a rising share of the labor force with university education.

Brazil offers a curious contrast to the other countries in the sample. In Brazil the contribution of university graduates to total inequality is far lower than elsewhere in spite of the fact that its skill differential is by far the highest in the region. Looking at the table, the reason is that the fraction of the labor force with university education is so small, that it simply does not carry much weight in any inequality computations.

This illustrates an important point, and a serious problem for those wishing for a reduction in observed inequality. As Brazil gradually improves its education profile, the percentage of university graduates in its labor force is going to rise. If nothing else changes, that improvement is going to increase inequality. University graduates made up only .3% of the adult population and earned 8.8 times as much as the non-university group. The total Theil was .81. Suppose now that over time the university group expands until it accounts for 5% of the labor force. If the wage differential stays at 8.8, the group will have about 31.5% of total income. Holding the within group Theils constant at their 1976 levels, we can calculate the hypothetical distribution with this better educated labor force. It turns out to be a full twenty points higher than the 1976 distribution. For countries with very small university educated population, raising the share of the university graduates in the labor force is regressive over a large range or for a very long time unless it is accompanied by a significant decline in the skill differential. In the Brazil case, to hold the overall Theil constant at its 1976 level when the university population share grows to 5%, one would have to cut the skill differential in half. (from 8.8 to 4.2). The reason that countries have this problem is that a small favored group (the university graduates) expands relative to the rest of the population. That is regressive, until the group gets big enough to be representative of the population as a whole.⁹ One could say that Brazil is on the rising portion of an education Kuznets Curve.

⁹ What we are observing is an education Kuznets effect in which we are expanding a small, high income component. Until that group gets sufficiently large so that the poorly educated group is the minority, the change will be regressive, holding the relative incomes of the two groups constant.

Summary of Findings on the impact of the reforms

The evidence on the impact of reforms is mixed. In Argentina, Chile and Mexico, the initial adoption of the reform package coincided with a big one-time upward shift in inequality. In the other countries of our sample the distribution either stayed constant (Colombia, Brazil and Costa Rica) or improved (Bolivia, Jamaica and Peru). In Argentina and Chile the rise in inequality took place during a severe change in institutional arrangements in the labor market under the military in the 1970s.¹⁰ It is unclear whether this was a necessary step that had to be taken in order to quite radically reform economic policy in a short period. Those changes in the labor market did not happen in the other countries in our sample, and none of them, with the exception of Mexico between 1984 and 1989, experienced any dramatic change in inequality as they adopted the reforms.

The before and after reforms evidence has the unavoidable problem that it is impossible to isolate the effect of the reforms from all the other things that were going on at the same time. Econometric analysis is one way to deal with this problem. Our econometric evidence on the effect of the reforms is roughly consistent with what we found in the nine country case studies. In the aggregate the reforms appear to have a regressive effect on the distribution but the effect is both small and only marginally significant. The reason is that reforms in different areas have offsetting effects on equity. Trade reform is regressive in all of our specifications, but it is insignificant in all but the national sample. Tax reform is unambiguously regressive, and opening up the capital account is unambiguously progressive. Our results for tax reform and capital account liberalization are the most robust and significant that we have. For the other two reforms, our data were not good enough to give us a clear answer. In three of the reforms, there are changes of sign and significance between the regressions on the level and the change in inequality, but only one, the capital account, is significant. We conclude that the reforms, taken together are mildly regressive, but that their effect on the distribution is relatively small compared to other factors like growth, inflation and changes in education structure.

¹⁰ The same thing happened in Uruguay in the early 70s and Brazil in the 60's. In both of these cases the intervention was more related to inflation control than it was to the imposition of reforms.

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