IMF Staff Papers
Vol. 48, No. 3

Reform and Growth in Latin America: All Pain, No Gain?

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This paper addresses the adequacy of post-reform growth in Latin America in the 1990s on the basis of international comparisons as well as historical and other relevant standards. The paper analytically explores and empirically tests a number of hypotheses to explain the perceived dissatisfaction with growth performance in the region. We find that there is no "growth puzzle" in Latin America. Growth has not been higher in the post-reform period not because of a failure of reforms to yield the growth payoff that they should have been expected to do on the basis of international experience, but because of the combination of an unfavorable external environment with the insufficient depth and breadth of reform. We also estimate the long-run growth payoff of macroeconomic reforms, the additional gains that can be achieved by deepening this first generation of reforms, and the potential payoff from broadening the scope of reform into a second generation of reforms encompassing deeper structural and institutional areas. [JEL 011, 019, 042, 054]

The wave of market-oriented reforms that has swept developing countries in recent years has been most visible in Latin America, where such reforms have signified a particularly sharp break with the previous policy regime. The implementation of such a drastic change in policies has been politically difficult and owed in no small measure to the widespread expectation that the new policy

*This paper does not necessarily represent the views of the Inter-American Development Bank's management or its Board of Executive Directors. The authors would like to thank Martin Loser for excellent research assistance and Felipe Barrera for both helpful comments and assistance. The paper has benefited from comments by Michael Gavin, Ricardo Hausmann, Eduardo Lora, Ernesto Talvi, and participants at a conference at the Brookings Institution.

regime would usher in a new era of rapid and widespread economic growth. This era would reverse the experience of the "lost decade" of the 1980s, which left many countries in the region with living standards below those achieved at the beginning of the decade.

Despite the extent and depth of the reforms, however, the acceleration in economic growth recorded by countries in the region to date has been modest, and has particularly fallen short of the standards of success established by some observers. Latin American countries as a group, for example, have not achieved the rates of growth in the post-reform period that they had previously attained during the 1970s; have not managed to grow as fast as the East Asian "miracle" economies to which they are often compared; and have not achieved the absolute rates of growth considered by informed observers to be necessary for achieving progress in ameliorating a variety of social problems that were aggravated during the last decade.[1] Moreover, some observers have interpreted whatever gains have been achieved on the growth front as potentially transitory, reflecting a temporary boom generated by recovery from crisis or by the excessive exuberance of international creditors.[2]

Does this imply that the reforms have failed and should be reconsidered as an instrument to achieve their primary growth objective? Obviously, a simple comparison of actual to desired growth rates is not sufficient to answer this question, since the desired growth target may simply represent an excessively ambitious policy objective. But even if the desired growth rates are reasonable, an indictment of the reforms implemented to date for failing to reach them may nevertheless be unwarranted. This is partly because the size of the growth payoff depends not only on the merits of reforming but also on the magnitude of the actual reform effort, and partly because growth is also affected by variables other than those influenced by recent reform efforts in the region.

Nonetheless, it is important to assess whether the reforms are "working," in the sense of delivering an appropriate growth payoff. There are several ways to approach this question. One could measure, for example, the *growth impetus* of reform. This can be computed as the product of the marginal effects of reforms estimated from international experience and the actual changes in the set of variables measuring reform in Latin America. This can be evaluated by some standard of the adequacy of the growth payoff of reform. It may fall short of that standard during the post-reform period, either because the marginal effects on growth of unit changes in the set of reform measures implemented by countries in the region have not been of the expected magnitude, or because the reform variables did not register changes of sufficient magnitude.

This "growth impetus" approach essentially asks whether the policies undertaken have delivered the results—that is, the growth acceleration—that they could

[1]The World Bank, for example, has estimated that the region needs to grow at an average annual rate of 6 percent to generate the resources required to cope with social and infrastructure needs. See Edwards (1995).

[2]Krugman (1995).

reasonably have been expected to do. But it does not specifically address whether the reforms undertaken were in principle capable of attaining the desired growth rates. Measured in this way, the reforms could have "worked" (in the sense of having delivered an "appropriate" growth increase) while nonetheless leaving growth rates in the region far short of their desired levels. Simply measuring the growth impetus associated with the reforms would provide no indication as to why this might be so.

A broader approach to the question takes the desired growth outcome as its point of departure and seeks to account for the gap between actual and desired outcomes. A failure of policies to deliver the growth response that they could reasonably have been expected to do, an insufficient magnitude of adjustment in the reform variables, and/or unfavorable values of growth determinants other than those captured in the set of reform measures could all contribute to such a gap. To the extent that the factors contributing to the existence of a gap between actual and desired post-reform growth rates can be identified—and their individual contributions to the magnitude of this gap measured—this broader approach, which we label the *growth gap* approach, has the advantage that it can potentially tell more about the possibility of identifying and adopting measures to close the gap between actual and desired growth rates.

A paper by Easterly, Loayza, and Montiel (1997, hereafter ELM) implemented the growth impetus approach. They found that the response of economic growth to reform in Latin America has not, in fact, been disappointing during the reform period. Rather, given the estimated effects of the reform variables on economic growth and the actual changes that the values of the reform indicators have undergone in Latin America during recent years, the *change* in the observed rate of growth in the region was not statistically different from what would have been predicted on the basis of international evidence.

This paper extends ELM's work in two ways. First, we broaden the scope of their analysis of the growth impetus approach in several important directions—that is, by extending the sample, allowing for dynamic effects of the reform measures, and broadening the scope of the reform indicators. We then present new empirical evidence designed to test whether their conclusion that the reforms have "worked" in the narrow growth impetus sense is robust to these extensions. We find that it is. We then use our more general specification to produce two alternative measures of the contributions of reform to changes in growth performance within the region. The first measure involves estimating the contribution of our broadest set of reform measures to increasing the long-run growth rates both of individual Latin American countries and of the region as a whole. We estimate that the reforms implemented to date will have persistent—albeit quite different—growth effects for almost all of the countries in our sample, as well as a significant positive effect on sustainable growth for the region in the aggregate, estimated at 1.8 percent a year. The second measure of performance is based on the observed growth acceleration in the region between 1991–95 and 1986–90. We conclude that the growth acceleration

payoff to the reforms was significant, but was partly offset by an adverse external environment during the reform period.

We then implement the growth gap approach to assessing the adequacy of the growth effects of reform. To do so, we require a measure of the "desired" growth rate. We use three alternative definitions, based on growth in the region in the 1970s and contemporaneous growth in two other regions, and decompose the corresponding growth gaps based on our results. Regarding the historical comparison for Latin American countries, we find that in most countries current macroeconomic policy is significantly more conducive to growth and, in the absence of a substantial deterioration of exogenous factors, would have led to surpassing the growth target. The central finding in the cross-region comparison is that, in the aggregate, while there is room for intensifying reforms in the directions already implemented to substantially increase growth, achieving the desired growth rates is likely to require a broadening of the scope of the reform effort. We conclude by summarizing the results, offer some tentative interpretations, and point to potentially fruitful areas of future research.

I. Reexamining the Evidence

This section consists of four parts. After discussing our statistical methodology, we take up the extensions listed above one at a time, and examine in each case whether the conclusion that the growth payoff to reform has not been disappointing in the narrow sense proves to be robust to the specific extension.

Statistical Methodology

Our empirical methodology is based on the estimation of panel growth regressions. The panel consists of a sample of 69 countries, 18 of which are in Latin America, with data spanning the period 1961–95. This is the largest panel of countries for which relevant information is available. We divided the period into seven five-year subperiods, two for each decade, and constructed five-year averages of our variables where appropriate, both contemporaneous and lagged.[3] The use of a large panel of countries over an extended period of time allows us sufficient degrees of freedom to enrich the menu of variables used to measure reform and to control for nonreform growth determinants, as well as to engage in some exploration of growth dynamics associated with the adoption of macroeconomic reforms.

Since one of our objectives in this paper is to use our estimated relationship between macroeconomic policies and economic growth to implement the growth gap approach, we have conducted our estimation in level form to permit us to esti-

[3]The data were averaged over time in an attempt to eliminate short-run business cycle dynamics while allowing us to test for longer-run reform dynamics. Failure to eliminate short-run dynamics typically leads to highly correlated time series and to gross overestimation of true statistical accuracy. The choice of five-year periods follows a common practice in the growth literature, implicitly reflecting the view that a five-year period is sufficiently long to remove business cycle effects in international data.

mate the growth effects of country-specific "permanent" structural factors through country-specific intercept terms (that is, we adopt a "fixed-effects" model). Consequently, the resulting estimation of the growth contribution of the macroeconomic reform variables included in the regression is not distorted by the attribution of permanent cross-country differences in growth to differences in time-invariant aspects of the policy environment.[4] We controlled for time-specific growth effects emanating from changes in the external economic environment (resulting from technological, financial, or other sources) across periods by including time dummies. Finally, our explanatory variables also included a set of traditional cross-country growth determinants as control variables.[5] The basic static estimation equation is thus:

$$g_{it} = s_i + w_t + ar_{it} + bc_{it} + u_{it}, \tag{1}$$

where g_{it}, the explained variable, is the real per capita growth rate of GDP in country i (i ranging from 1 to 69) during period t (t ranging from 1 to 7). The first two terms are the structural country dummy and the time dummy, respectively. Macroeconomic reform variables are denoted by r and control variables by c. Our reform variables included the rate of inflation, the share of government consumption in GDP, the ratio of broad money to GDP, the black market premium, and a conventional measure of openness (the ratio of the sum of exports and imports to GDP). The set of control variables consisted of the GDP per capita and the level of educational attainment inherited from the previous period (that is, at the beginning of each five-year period), and the international terms of trade prevailing for each country on average during the current period.[6] The empirical counterparts of all of the variables are described in the data appendix.[7]

Our reform variables are among the most widely used policy indicators in the cross-country growth literature. Since these variables are in effect macroeconomic outcomes themselves, however, endogeneity is a potentially important problem under Ordinary Least Squares (OLS) estimation, possibly leading to a magnification of estimated growth effects through reverse causality. In principle, this

[4]In contrast, purely cross-country studies cannot control for structural country-specific differences unless untestable statistical assumptions are made to justify a "random-effects" model—that is, the absence of correlation between the structural terms and the explanatory variables. In this context, this practice appears particularly worrisome because, as explained later, our testing of that assumption with this panel indicates that random-effect growth models are biased.

[5]Note that since investment is not included among the control variables in the regressions reported below, growth effects should be interpreted as overall effects, inclusive of effects operating through investment rates.

[6]The estimated effects of "initial" GDP per capita and education should be interpreted with care because they refer to convergence effects within a five-year period, especially when compared with estimates from cross-section regressions.

[7]As is customary, many of the explanatory variables are used in logarithmic form and their corresponding coefficients have a semi-elasticity interpretation. However, neither the statistical significance of these variables nor their overall growth effects is sensitive to this specification.

problem could be addressed (at least in part) by using as reform indicators variables that more narrowly capture specific policy instruments. However, aside from the availability of such variables, the presumed superiority of using policy reform variables is weakened by the fact that policies that lack credibility are ineffective and would introduce biases if credibility is not controlled for, while outcome variables implicitly filter out ineffective policies. Moreover, the very presumption of positive biases under OLS is itself doubtful under close scrutiny. The traditional argument that outcome reform variables yield positive endogeneity biases because of reverse causation misses the opposite effect attributable to the so-called crisis hypothesis, according to which crises help the implementation of reform, thus inducing *negative* reverse causality.

Nevertheless, to test the appropriateness of OLS estimation, we conducted instrumental variable estimation using the lagged values of inflation and financial depth as instruments (as well as the rest of the explanatory variables). Under the reasonable assumption that these instruments are exogenous, *IV* estimation is consistent. A comparison of the point estimates of the macroeconomic reform variables, however, did not point to a systematic OLS magnification bias, since the *IV* estimates of the effects of openness, government consumption, and financial deepening—three out of the five policy proxies—were larger than the OLS estimates. In fact, the point estimate of the overall growth effect of reform obtained under both estimation methods is almost identical. A Hausman specification test showed very strongly that the consistency of OLS could not be rejected on the basis of this *IV* estimation. At the same time, the accuracy of the *IV* estimates was clearly lower than that of OLS; this implies that, all things considered, OLS appears to be the best choice between the two estimation methods.

Because the imprecision of the *IV* estimates may derive from the poor quality of the exogenous instruments available in this case, we also resorted to indirect evidence to satisfy ourselves that it was not worthwhile to complicate the statistical approach to the problem and that OLS would be reasonably unbiased, by comparing our results to those of ELM. We found that our simple methodology was able to closely reproduce the results of the more sophisticated econometric methodology employed in ELM to implement *IV* estimation in a dynamic panel. For all of these reasons, we used OLS as our estimation method.

A second econometric issue concerns the appropriate technique for panel estimation. Under the assumption that the country-specific effects are orthogonal to the regressors r and c, a random-effects model, in which the country-specific effects are controlled for within the regression error term, is consistent and more efficient than the fixed-effects model posited above. However, a Hausman specification test shows that the estimations from the fixed-effects model and those from the random-effects model are significantly different at extremely high confidence levels, thus indicating that the random-effects model yields inconsistent estimates in this case. In other words, the validity of the orthogonality assumption required for consistency is rejected with virtually total confidence. Therefore, the best choice between the two methods to analyze this panel appears to be fixed-effects OLS. An important implication is that the convenient use of the orthogonality assumption in the context of cross-section growth regressions, in which context

fixed-effects estimation is not feasible and the consistency of random effects cannot be tested, is not only unwarranted but very likely invalid.

In preliminary estimates of the basic equation, the openness variable failed to be statistically significant at conventional confidence levels (*p*-value of 25 percent), while the other four macroeconomic reform variables had estimated coefficients with the theoretically appropriate signs that were statistically significant at least at the 97 percent confidence level. Separating the effects of openness by region, the variable entered with the appropriate sign for all regions except Africa, where it was statistically significantly negative. We concluded that the failure of the openness variable in this panel was associated with the role of the variable for the African countries. One possible explanation is the effect of compensatory external financial aid to Africa, which may induce a negative correlation between growth performance and openness. Given the ambiguity of interpretation, we chose to eliminate openness from the basic static specification.[8]

Basic Static Equation

The results of estimating the basic equation without this variable are displayed in Table 1 (specification 1). Notice first that the Durbin-Watson statistic adjusted by the 68 cross-country residual differences of this panel (2.05) strongly supports the hypothesis of zero serial autocorrelation of residuals. Therefore OLS is efficient and the reported precision of the estimations is reliable. All the stabilization and structural reform variables are correctly signed, and are highly significant (*p*-value of less than 4 percent). In particular, we find a substantial and statistically significant positive marginal growth impact associated with lower public consumption, lower inflation, financial deepening, and exchange rate unification. Control variables all have the expected signs as well: positive for education and changes in the terms of trade, and negative for initial per capita GDP.[9] All but that for the education variable (*p*-value of 40 percent) are also highly significant. Changes in the external environment—captured by the time dummies—appear to have had growth effects that were both substantial and statistically significant. In particular, the external growth environment in the 1990s appears to be about as negative as in the first half of the 1980s, when the debt crisis hit—down by about 1 percentage point relative to the second half of the 1980s. This finding is consistent with other studies and also with casual observation: relative to the previous five-year period, growth slowed in all regions, including East Asia, except in Latin America. Not only in Africa, but also in member countries of the Organization for Economic

[8]Though we chose to eliminate openness as a separate explanatory variable, we capture it below through the Structural Policy Index, as discussed later. Another strategy could have been to eliminate Africa from the study and keep openness as an explanatory variable. Sensitivity analyses comparing runs with and without African countries showed that the removal of Africa does not introduce statistically significant changes in the coefficients of interest. It marginally dampens most of the estimated coefficients (albeit it magnifies the effect of exchange rate unification), but their significance and the overall conclusions of the exercise remain. We chose to keep Africa to gain in statistical precision.

[9]The so-called speed-of-convergence parameter associated with the latter is consistent with that found in ELM.

Table 1. Explaining Annual Per Capita GDP Growth
(percent)

	Excluding Structural Policy Index			
	(1): Static		(2): Dynamic (Lags underneath)	
Explanatory variables				
Stabilization and structural reform				
Lower public consumption	2.9	(0.6)	3.5	(0.8)
			–1.2	(0.8)
Lower inflation	1.5	(0.5)	1.6	(0.6)
			–0.3	(0.6)
Financial deepening	1.0	(0.5)	1.5	(0.6)
			–0.2	(0.7)
Exchange rate unification	2.2	(0.5)	2.3	(0.5)
			–0.3	(0.6)
Control variables				
Initial GDP	–2.4	(0.5)	–3.0	(0.7)
Education	0.23	(0.3)	0.57	(0.4)
Terms of trade	5.5	(2.3)	6.4	(2.5)
Worldwide cycle				
1966–70	0		0	
1971–75	0.66	(0.3)	0.49	(0.4)
1976–80	0.68	(0.4)	0.18	(0.4)
1981–85	–0.92	(0.4)	–1.54	(0.5)
1986–90	0.14	(0.5)	–0.59	(0.6)
1991–95	–0.82	(0.5)	–1.58	(0.7)
Number of observations	441		376	
Adjusted R5	0.56		0.60	
DW statistic	2.05		1.99	
Latin America 1991–95				
Average residual	0.53		0.39	
Dummy	0.94	(0.59)	0.79	(0.61)

Note: Standard error estimates are given in parentheses.

Cooperation and Development (OECD) growth slowed by more than $1^1/_2$ percentage points.

More important, the evidence suggests that the growth response to recent reform in Latin America is not inferior to what international experience would lead us to predict. In fact, growth in Latin American countries during the first half of the 1990s actually exceeds what should be expected according to these estimates (the average residual is positive for countries in the region during the last five-year period, amounting to 0.53 percentage points of growth). Moreover, if a Latin American dummy for the reform period 1991–95 is added, it comes out posi-

tive and has a *p*-value of 13 percent. The implication is that there is no reason for disappointment with the growth response to the reforms undertaken during the 1990s. The full extent of the underlying growth progress owing to reform is partially hidden by an adverse external environment, which accounts for a growth downturn of about 1 percentage point (–0.82 + –0.14 = –0.96). These results suggest that expectations that do not take into account the adverse external environment would be erroneous in finding the post-reform growth acceleration to be disappointing. If anything, the evidence is consistent with the view that recent reform in Latin America led to surprisingly *fast* growth.[10] These results are broadly similar to those obtained by ELM.

Two additional tests lend further support to this conclusion. First, the hypothesis that the coefficients of the four policy variables in Latin America were statistically equal to those in the other regions in the panel was directly tested and could not be rejected. Second, the results indicate that, while growth in the region in the late 1980s is well explained by the model, growth significantly exceeded the model's prediction for the 1990s. In other words, it is only in the 1990s that the Latin American residuals are sizable (their average in the late 1980s was actually negative, at –0.04). This suggests that the excess growth identified in the recent period is due to actual acceleration (of 0.57 points as measured by average residuals) rather than model misspecification inducing a systematic Latin American misfit.

Basic Dynamic Equation

The previous specification does not address the dynamics of the growth response, implicitly assuming that a five-year period is sufficient for the long-run implications of changes in the explanatory variables to become manifest. However, stabilization and structural reform typically set in motion complex business cycle dynamics. Furthermore, growth theory suggests that macroeconomic policy has, at least to a partial extent, an income level effect that translates into a transitory growth effect. If five years are not enough to eliminate short-run fluctuations, it may very well be that long-run effects are overestimated in the static panel regression.[11] On the other hand, if some of the growth effects are worked out only after a long delay, then the above estimates based on five-year averages would underestimate the effect of reform. In either case, the growth equations estimated in Table 1 would have been misspecified by omitting lagged values of the reform variables.

This possibility is testable. If valid, it has the important implication that future growth performance will differ from current performance, even if no further reforms are enacted. Depending on the direction of this effect, this may call for

[10]Note that, while the latter is consistent with Krugman's (1995) view that foreign investor exuberance may have caused growth in the region to be temporarily high in the 1990s, the former implies that this cannot be combined with the observation that growth has fallen short of expectations to draw the conclusion that the reforms have failed.

[11]This would be the case if, for example, as established in Inter-American Development Bank (1996), short-run economic booms follow stabilization and structural reform.

either less or more policy response to a growth performance that is deemed inadequate, compared with a situation in which long-run growth effects materialize within a five-year period. To address these issues, we specified our basic equation in dynamic form, adding the lagged values of the four macroeconomic reform variables (r'):

$$g_{it} = s_i + w_t + ar_{it} + a' r'_{it} + bc_{it} + u_{it}. \quad (2)$$

The long-run effect of reform, that is, the effect that would prevail if reform were sustained, is given by the sum of the contemporaneous and the delayed impacts. If the latter is negative, some of the growth gains would be lost in the future. If positive, additional growth would occur effortlessly.

The results of including lagged reform variables in the basic equation are reported in Table 1 as specification 2.[12] As shown in the table, the coefficients of the lagged reform variables are all opposite in sign to those of the corresponding contemporaneous variables. However, the lagged coefficients are quite small in absolute value, leaving substantial positive long-run effects for each of the four reform variables. None of the delayed effects is clearly statistically significant individually, but they are strongly significant jointly. This dynamic specification marginally improves upon the static one according to standard statistical measures, as well as with regard to the qualitative features of the results. As measured by the adjusted R-square, the fit of this dynamic specification is slightly better than that of its static counterpart. Moreover, in the dynamic specification, education is statistically significant (*p*-value of 14 percent). The evidence thus suggests the presence of a minor partial offset to the beneficial growth effect of stabilization and reform after five years.

The previous conclusion, however, that the growth response to reform in the 1990s has not been disappointing (in the narrow sense) continues to hold in the dynamic specification. The hypothesis that the coefficients associated with the four reform variables, both contemporaneous and lagged, are equal for Latin America and the rest of the world cannot be rejected at conventional confidence levels (*p*-value of 27 percent). Taking into account policy dynamics, the observed growth acceleration in Latin America still exceeded expectations by an average of 0.43 percentage points (the average residual in the late 1980s remains at –0.04) . With this new dynamic specification, however, growth in the 1990s is statistically within what the model would predict. The Latin America 1991–95 dummy loses statistical significance in the dynamic specification (*p*-value of 22 percent).

[12]In this case as well, the openness variable, both current and lagged, can be jointly rejected with a log-likelihood ratio test at the 15 percent level. Discriminating by region, the long-run effect of openness in Latin America was not significantly positive. We chose to eliminate the openness variable from this basic dynamic regression too.

Extending the Reform Coverage

Our basic equations, and the empirical panel literature in general, use a relatively short list of macroeconomic policy reform outcomes to capture the growth impact of a wide range of reform policies as a substitute for the direct measurement of policy instruments. While many policy stances can be expected to be proxied reasonably well by their predictable and easily measured outcomes, some potentially important reforms, such as tax reform or even trade reform, may not be adequately captured. The lack of broad and consistent information on actual policy instruments has precluded their use in the empirical panel literature. However, Lora (1997) has recently produced a Structural Policy Index for most Latin American countries over the last decade of our sample period that may contain important additional information to incorporate into the statistical methodology. To achieve a more comprehensive coverage of reform policies, therefore, we augmented our set of "reform" variables to include the Structural Policy Index.

Let I_{it} denote the index for country i in subperiod t over the entire panel. When the underlying index is available, this variable can be derived by computing the five-year averages of the underlying annual index for 1986–90 and 1991–95. Consider the modified dynamic regression equation:

$$g_{it} = s_i + w_t + ar_{it} + a'r'_{it} + bc_{it} + fI_{it} + u_{it} \tag{3}$$

This specification is an improvement over our previous one to the extent that the coefficient f is positive and statistically significant. The growth contribution of the macroeconomic policy package in this specification is $ar_{it} + a'r'_{it} + fI_{it}$. Unfortunately, this index is available only for Latin America and only for the period 1985–95. Thus, it only covers a small fraction of the panel. To use the index, therefore, statistical assumptions are needed to complete the missing information. The following two statistical assumptions about how to estimate I_{it} when it is not available give rise to simple estimating equations:

Full coordination (Assumption A)

To the extent that reforms are interlinked and coordinated, it may be that the four macroeconomic reform variables used above already capture growth effects that in reality arise from other reforms that have been omitted from our estimated regression, but that are included in the index.[13] To capture the overall growth effects of reform, the relevant question is how much information the index contains that is not already captured by the explanatory variables previously included in the regression. Suppose that reforms are typically coordinated. The determination of the policy index can then be specified as:

[13]If so, this is an argument against attributing specific contributions to individual policies based on the previous econometric results.

$$I_{it} = d_i + pr_{it} + v_{it}. \quad (4)$$

If the predictive equation $d_i + pr_{it}$ provides a good approximation of the value of the index (that is, if it accounts for almost all of the variation in the index), then the introduction of the index I_{it} into the growth equation would make no difference for its overall fit, because the index is spanned by variables already used. However, when the index contains independent information, it may contribute to improving the goodness of fit. In the event, the specification in equation (4) turns out to explain about 70 percent of the total variation of the index where it is observed, according to the adjusted R-squared statistic. The estimates of the four parameters associated with the reform variables are positive and statistically significant, with at least 90 percent confidence. One interpretation of these results is that the structural reforms reflected in the index have tended to be coordinated with the macroeconomic reform variables included in *r*, but the index nevertheless contains independent information.

Our first approach to exploiting this information is to assume that when the index is not available, it can be closely approximated by the above-mentioned predictive function of the four reform variables (and arbitrary country-specific structural differences to control for cross-country structural differences). We refer to this as Assumption A. To implement it, let e_{it} be the residual from equation (4), taking on the value v_{it} when the index is available and 0 otherwise; e_{it} can thus be interpreted as capturing components of reform that were uncorrelated with macroeconomic policy variables. Implicitly, we are assuming that there was no time variation in this dimension of reform where the index is not observed. Consider the following equation:

$$g_{it} = s_i + w_t + ar_{it} + a' r'_{it} + bc_{it} + fe_{it} + u_{it}. \quad (5)$$

Under the assumption just described, this equation is equivalent to (3). The growth contribution of the macroeconomic policy package is now what is directly obtained from all of the reform variables, that is, $ar_{it} + a'r'_{it} + fe_{it}$.

The corresponding estimations are shown in column 1 of Table 2.[14] The coefficient *f* has a positive sign and is statistically significant (*p*-value of 8 percent). This new specification does not have much effect on the estimated coefficients of the other variables or on the overall fit of the growth regression, but it has the effect of raising expected Latin American growth during 1991–95, thus explaining more of the acceleration with respect to the previous five-year period than the equation that excludes the index. The Latin American 1991–95 dummy is

[14]A dynamic version including both the error and its lag was attempted, but both coefficients were individually insignificant in the statistical sense.

Table 2. Explaining Annual Per Capita GDP Growth
(percent)

	Including Structural Policy Index			
	(3): Assumption A (Lags underneath)		(4): Assumption B (Lags underneath)	
Explanatory variables				
Stabilization and structural reform				
Lower public consumption	3.4	(0.8)	3.2	(0.8)
	–1.1	(0.8)	–1.0	(0.8)
Lower inflation	1.5	(0.6)	1.5	(0.6)
	–0.2	(0.6)	0.1	(0.7)
Financial deepening	1.5	(0.6)	1.4	(0.6)
	–0.2	(0.7)	–0.1	(0.7)
Exchange rate unification	2.3	(0.5)	2.2	(0.5)
	–0.4	(0.6)	–0.4	(0.6)
Structural policy index (residual)	15.8	(9.0)	—	—
Structural policy index (change)	—	—	5.9	(2.9)
Control variables				
Initial GDP	–3.0	(0.7)	–2.8	(0.7)
Education	0.56	(0.39)	0.59	(0.39)
Terms of trade	6.2	(2.5)	6.4	(2.5)
Worldwide cycle				
1966–70	0		0	
1971–75	0.49	(0.4)	0.45	(0.4)
1976–80	0.19	(0.4)	0.13	(0.4)
1981–85	–1.52	(0.5)	–1.60	(0.5)
1986–90	–0.53	(0.6)	–0.73	(0.6)
1991–95	–1.62	(0.7)	–1.90	(0.7)
Number of observations	376		376	
Adjusted R5	0.60		0.60	
DW statistic	1.99		1.98	
Latin America 1991–95				
Average residual	0.28		–0.06	
Dummy	0.59	(0.62)	–0.17	(0.86)

Note: Standard error estimates are given in parentheses.

statistically insignificant at conventional levels (*p*-value of 38 percent). Still, the growth acceleration in the region on average continues to exceed expectations, though now by only 0.19 percentage points.

No coordination (Assumption B)

The alternative statistical assumption (Assumption B) is that instead of perfect coordination with the four reform variables, no coordination is present—that is, the Structural Reform Index contains information that is independent of the included variables. In a sense, then, this assumption is the opposite of the previous one. In this case, the policy index would be specified as:

$$I_{it} = d_i + v_{it}. \tag{6}$$

This equation explains about 50 percent of the total variation of the index according to the adjusted R-squared statistic. If the corresponding predictive equation d_i is taken as a good approximation of the value of the index, then the introduction of the index I_{it}, as in equation (3), would make no difference for the overall fit, since the country dummies would already contain the relevant information. The actual observed index, however, may contribute to explaining growth when it is available. To use it, we again need to make assumptions about its value when it is not observed. We make the same assumption that we did previously: when the index is not observable, it remains constant over time. Thus, let e_{it} be the relevant residual. It is assumed to take on the value v_{it} when the index is available, and 0 otherwise. An important difference in this case, though, is that under the assumed predictive function, it makes sense to specify Latin America's vector of dummies d_i as the observed, out-of-sample, pre-reform 1985 value of the index. Therefore, $v_{it} = I_{it} - I_{i,85}$. This means that for countries in Latin America, the constant value is taken to be that observed in 1985, while for other countries, the constant index level is arbitrary.

The corresponding estimations are shown in column 2 of Table 2.[15] The coefficient f again has a positive sign and is statistically significant (p-value of 4 percent). This alternative totally eliminates the excess of observed Latin American growth. Even under this extreme case, however, the growth response to reform remains not disappointing (it is almost exactly as expected, at 0.02). The Latin American 1991–95 dummy turns out to be negative, but it is statistically insignificant (p-value of 81 percent).

We conclude that the Structural Policy Index contains useful information. Thus, the overall conclusion under the growth impetus approach is that, judging by international and historical standards, the growth response of recent reform in Latin America—that is, its marginal effect—was adequate. Since the validity of the inferences also depends on untestable statistical assumptions, however, the results must be interpreted with caution.

[15]A dynamic version including both the error and its lag reproduced the partial dynamic offset found for the other macroeconomic reform variables. For comparability, the statistically insignificant lagged variable was dropped.

II. Long-Run Growth Effects and Growth Acceleration

Determining whether reform measures had the growth effects that would have been predictable on the basis of international evidence is only the first step, however, in assessing the adequacy of the growth effects of reform. We now turn to an examination of the magnitude of the actual growth impact of the reforms in two different ways. First, we apply the new estimates of growth determinants derived in the last section to quantify the *long-run* contribution of stabilization and structural reform in the 1990s to per capita growth in Latin American countries, that is, its contribution to *sustainable* growth acceleration. Second, we measure the growth acceleration induced by reforms *relative to the previous period*.

Before proceeding, it may be worth noting that, in general, the growth contribution of the overall macroeconomic policy stance is what is directly obtained from the reform variables—that is, $ar_{it} + a'r'_{it} + fe_{it}$, plus the unknown contribution fd_i which, as explained previously, is absorbed by the country dummies. This last term is constant and therefore irrelevant for assessing the contribution of a macroeconomic policy reform package in a given country (as in Tables 3–5 below). However, it becomes relevant for the decomposition of cross-regional growth gaps into the portions contributed by policy and by other factors (as in Table 6 below). Thus, assumptions regarding this last term in non–Latin American countries are needed to decompose cross-regional growth gaps under this scenario. Fortunately, the evidence suggests that a particularly simple assumption—that the unobserved aggregate d_i tends to be equal across regions—may well be realistic. Specifically, the Latin American country dummies estimated from the growth regression turn out to be uncorrelated with the out-of-sample, pre-reform values of the Structural Policy Index for individual countries in 1985. This finding suggests that systematic differences in the unobservable policy index across countries are fully absorbed by differences in the four measured macroeconomic reform variables and, therefore, the expected value of d_i can reasonably be taken to be constant across countries.

The Long-Run Growth Effects of Reform

The long-run growth effects of the reforms can be derived by multiplying the sum of the current and lagged coefficients of each of the reform variables by the change in that variable from 1986–90 to 1991–95 and aggregating over all of the reform variables.[16] Table 3 shows these estimations as additional percentage points in annual growth on a country-by-country basis, as well as their sensitivity to the aggregation method and the statistical assumptions used for incorporating the Structural Policy Index. In almost all countries it is estimated that stabilization and

[16]The long-run growth effects and decompositions of growth gaps presented in this and the following section are based on a model that incorporates the Structural Policy Index under the coordination assumption (Assumption A), under which the four macroeconomic reform variables in the model already capture much of the index. This case appears to be intermediate between the exclusion of the index and its incorporation under the no-coordination assumption. The conclusions in both sections, however, are robust to the alternatives.

Table 3. Long-Run Contribution of Macroeconomic Reforms to Growth

	Long-Run Contribution of Stabilization and Structural Reform		
		Including Structural Policy Index	
	Excluding Structural Policy Index	Assumption A	Assumption B
Argentina	2.89	3.09	4.62
Bolivia	1.25	0.85	2.03
Brazil	0.73	1.42	1.21
Chile	0.60	0.34	0.73
Colombia	0.34	0.75	0.61
Costa Rica	–0.14	1.16	0.20
Ecuador	1.30	2.16	2.20
El Salvador	3.70	2.28	4.39
Guatemala	1.38	2.57	2.22
Honduras	0.87	2.12	0.74
Haiti	1.10	–1.62	0.67
Jamaica	0.53	1.85	0.98
Mexico	0.93	1.73	1.84
Peru	4.07	4.07	6.08
Paraguay	0.30	1.46	0.97
Trinidad and Tobago	1.16	2.80	1.97
Uruguay	0.89	0.78	1.67
Venezuela	1.62	1.52	2.00
Typical country (simple average)	1.30	1.63	1.92
Regional aggregate (GDP-weighted average)	1.31	1.84	2.17

structural reform made a substantial contribution to long-run growth as measured by all of the estimation methods. The preferred specification is the one in which the Structural Policy Index was introduced under Assumption A, in which case the typical country, as measured by the simple average, experienced a sustainable growth increase estimated at about 1.6 percentage points a year (with a standard deviation of 0.3). To the extent that reforms do not affect population growth, the best estimate of growth effects in the region as a whole is obtained through the GDP-weighted average of country growth effects, as opposed to a population-weighted average. By this method, the contribution of stabilization and structural reform to aggregate long-run growth is estimated at about 1.8 percentage points a year (with a standard deviation of 0.4). Other methods yield roughly similar results.

Therefore, the conclusion that recent stabilization and structural reform made a significant contribution to sustainable growth appears to apply to almost all individual countries and to be robust to these alternative methodologies. In the long run, if reforms are sustained, some of the current gains achieved in the first half of

Table 4. Latin America: Decomposition of Changes in Per Capita Growth, 1991–95 Compared with 1986–90

	Typical Country		Regional Aggregate	
Stabilization and structural reform		1.88		2.21
Current reform	1.95		2.00	
Past reform	–0.07		0.21	
Control variables		0.11		0.19
Income	–0.05		0.04	
Education	0.07		0.18	
Terms of trade	0.09		–0.03	
Other factors		–0.94		–0.92
Unmeasured external factors	–1.09		–1.09	
Transitory differences	0.15		0.32	
Aggregation	0.00		–0.15	
Total growth rate increase		1.05		1.48

Table 5. Latin America: Decomposition of Per Capita Growth Reduction, 1991–95 Compared with 1976–80

	Growth Contributions in the Period			Growth Shortfall (1991–95 Relative to 1976–80)
	Reforms	External factors	Other factors	
Argentina	1.00	–1.60	3.76	–3.16
Bolivia	1.58	–2.81	2.85	–1.62
Brazil	–1.93	–1.58	1.93	1.58
Chile	1.67	–1.69	0.06	–0.04
Colombia	–0.04	–2.21	1.42	0.83
Costa Rica	0.91	–1.92	0.96	0.05
Ecuador	2.45	–2.44	–2.26	2.25
El Salvador	2.86	–2.23	4.63	–5.26
Guatemala	1.46	–2.00	–2.02	2.57
Honduras	0.90	–2.01	–1.83	2.94
Haiti	–1.41	–2.04	–7.45	10.90
Jamaica	3.51	–1.62	3.79	–5.68
Mexico	0.83	–1.86	–3.61	4.64
Paraguay	0.24	–1.67	–5.61	7.05
Peru	1.32	–2.06	4.49	–3.75
Uruguay	0.91	–1.60	0.16	0.53
Venezuela	0.54	–2.79	4.01	–1.76
Typical country	0.99	–2.01	0.31	0.71

Table 6. Decomposition of Per Capita Growth Gaps, Latin America Compared with Other Regions, 1991–95

	East Asia Miracle Countries		OECD Countries	
Stabilization and structural reform		2.52		1.92
Current reform	3.14		2.24	
Past reform	–0.62		–0.32	
Control variables		0.19		–5.62
Income	–0.32		–6.65	
Education	0.52		0.95	
Terms of trade	0.01		0.08	
Other factors		2.03		3.15
Structural	0.56		3.71	
Transitory	1.60		–0.42	
Aggregation	–0.13		–0.14	
Growth rate shortfall		4.74		–0.55

the 1990s will be lost owing to negative policy dynamics. If the reform level during 1996–2000 equaled that of 1991–95, there would have been an estimated aggregate dynamic per capita growth loss of 0.2 percentage points.

Growth Acceleration

Another way to assess the growth effects of macroeconomic reform is to determine the growth increase they delivered relative to the pre-reform period. The difference between average country growth performance during the reform period 1991–95, denoted by g_1, and average growth performance in the same country in the previous period, denoted by g_0, can be expressed as follows:

$$g_1 - g_0 = \left[r_1^* - r_0^*\right] + \left[c_1^* - c_0^*\right] + \left[w_1^* - w_0^*\right] + \left[\left(g_1 - g_1\right) - \left(g_0 - g_0{}^*\right)\right], \qquad (7)$$

where $g_1^* = [r_1^* + c_1^* + w_1^*]$ and $g_0^* = [r_0^* + c_0^* + w_0^*]$ are the fitted values of the "preferred" growth equations from the introduction, using average values of explanatory variables in the last five-year period and the previous period, respectively. The first two terms on the right-hand side of this equation capture the "explained" portion of any growth change in a Latin American country. In other words, they measure the extent to which growth changes in Latin American countries can be explained by the variables that have been influenced by macroeconomic reform (denoted by r) and systematic differences in the set of "control" variables (denoted by c). The next term captures differences in the effects of

external factors (denoted by *w*, which can be interpreted as an exogenous temporary shock). This term captures the extent to which unaccounted international exogenous factors related to growth (such as the debt crisis or productivity of new inventions) account for differences in growth performance in Latin America. The last term corresponds to the difference between Latin American growth residuals in both periods—that is, the random (and transitory) portion of the difference in growth performance between the two periods. This final term captures the extent to which the recent growth response has been disappointing, in the sense of falling short of what could reasonably have been expected on the basis of international experience.

The above decomposition of the change in growth holds for each individual country and, consequently, for the typical country as measured by the simple average. The typical country experienced an average growth acceleration in the period of slightly above 1 percentage point a year, but the contribution of recent macroeconomic reform far exceeds this mark (see Table 4). In fact, the impact effect of reform (current reform) is estimated at about 2 percentage points; this is partially obscured by external exogenous factors, mainly a strong negative effect of external factors accounting for more than 1 percentage point of growth reduction, while other explanatory variables played a relatively minor role and largely offset each other.

This conclusion also holds for the region as a whole. Although the above decomposition does not hold in the aggregate, to the extent that population growth rates are not affected by the explanatory variables considered in this growth model, GDP-weighted averages exactly identify the aggregate growth contributions of these variables in all the growth gap decompositions analyzed in this study, and the remaining statistical discrepancy is attributable to demographic factors. The aggregate growth acceleration owing to stabilization and structural reform during 1991–95 is therefore estimated at 2 percentage points a year. Had this reform been deeper, its impact growth effect would have been correspondingly larger when multiplied by the estimated marginal growth effects. For example, if reforms had attained the levels observed in the OECD or the East Asian miracle region, the resulting aggregate growth acceleration impact would have been 4.24 and 5.14 percentage points a year, respectively. The conclusion is that while significant, the impact growth effect of reform fell short of half of its potential, judged by these standards.

III. Accounting for Reform Effects: Growth Shortfalls

The question to be posed in this section is the following: Considering some absolute standard of growth performance—we take it to be average Latin American per capita growth rates during the 1970s, as well as both the average East Asian and OECD growth levels during the Latin American reform period—how can the shortfall between such a standard and the actual growth experience be explained in terms of the growth determinants we have identified? We take up each of the alternative standards of comparison in turn and show the results in Tables 5 and 6.

Contribution of Reform to Growth Acceleration

Most Latin American countries grew faster in the 1970s than in the recent reform period 1991–95; in fact, the typical country, obtained as a simple average of all countries, experienced a growth rate about 0.70 percentage points a year lower. However, this growth decline is not evidence of reform failure. When this growth shortfall between the high growth period 1976–80 prior to the debt crisis and the reform period 1991–95 is explained along the lines of the formula in the previous section, as is done in Table 5, it becomes apparent that the macroeconomic reforms contributed to a sizable increase in growth in almost all Latin American countries.[17] In fact, in the typical country, relative to the situation prevailing during 1976–80, better macroeconomic policy, as measured by the first term of the decomposition formula, contributed to a growth improvement of about 1 percentage point a year.[18] Such progress was more than offset by a severe deterioration of the external growth environment in all countries, as measured by the effects of external factors (contributing an estimated 1.81 percentage points a year of growth reduction) and the international terms of trade of each country, which resulted in a decline of about 2 percentage points a year for the typical country. These two factors, macroeconomic reform and external environment, explain growth performance well across the region. In fact, while other factors may have been important for explaining performance in each individual country, they made a modest contribution of about 0.3 percentage points in the typical country.[19]

Reform and Interregional Growth Gaps

A key advantage of panels including extraregional countries is that they permit us to employ an alternative standard of comparison, relying on cross-regional comparative analyses, to supplement the country-by-country time-series dimension. In this case, the unit of analysis cannot be the country. Instead, we compare regional aggregates. The decomposition of the growth shortfall between aggregate growth performance in Latin America and other regions during the reform period 1991–95 can also illustrate the role of recent reform and the remaining reform agenda needed to close the growth gap.

Suppose for concreteness that the East Asia miracle region is taken as a benchmark. The difference between aggregate East Asian growth performance during this period, denoted by g_{EA}, and aggregate Latin American growth performance, g_{LA}, can be expressed as follows:

[17]Brazil is an important exception, owing mainly to its relatively late disinflation in the 1990s and, to a lesser extent, increasing government consumption over the period.

[18]The analysis of the regional aggregate would be misleading because it is distorted by the atypical growth pattern of Brazil, which enters the average with heavy weight. The analysis of the regional aggregate excluding Brazil is similar to the one obtained for the typical country.

[19]Improvements in education account for most of this contribution. Unidentified factors, as measured by the residual of the regression in the fourth term of the decomposition formula, accounted for only 0.10 points. This positive residual differential further confirms that recent reform has not been disappointing in a narrow sense.

$$g_{EA} - g_{LA} = \left[r^*_{EA} - r^*_{LA}\right] + \left[c^*_{EA} - c^*_{LA}\right] + \left[s^*_{EA} - s^*_{LA}\right] + \left[\left(g_{EA} - g^*_{EA}\right) - \left(g_{LA} - g^*_{LA}\right)\right] + d, \quad (8)$$

where $g_{EA}^* = [r_{EA}^* + c_{EA}^* + s_{EA}^*]$ and $g_{LA}^* = [r_{LA}^* + c_{LA}^* + s_{LA}^*]$ are the fitted values of the preferred growth equations from the introduction using GDP-weighted average values of explanatory variables for East Asian and Latin American countries, respectively, and d is the demographic statistical discrepancy discussed in the previous section. Again, the first two terms in the right-hand side of this equation capture the explained portion of any Latin American aggregate per capita growth shortfall. In other words, they measure the extent to which Latin America's growth performance can be explained by the variables that have been influenced by macroeconomic reform (denoted by r) and systematic differences in the set of control variables (denoted by c). The next term captures differences in regional averages of country dummies (the structural differences). We interpret this term as capturing the extent to which structural features of economies in the two regions—that is, features that have been constant for some time and that are related to growth performance—account for differences in aggregate growth performance during Latin America's reform period. The next to the last term corresponds to the difference between East Asian and Latin American aggregate growth residuals—that is, the random (and transitory) portion of the difference in growth performance between the two regions during 1991–95. This term would also capture the extent to which Latin America's recent growth experience has been disappointing, in the sense of falling short of what could reasonably have been expected on the basis of international experience.

For the Latin American region as a whole, most of the enormous growth gap with East Asia of almost 5 percentage points is explained by incomplete reform. According to these estimates, if Latin America attained East Asian values for the reform variables and they remained constant, the per capita growth gap would shrink in the long run by $2^1/_2$ percentage points. The educational deficit in Latin America is responsible for about $^1/_2$ of 1 percentage point of the growth gap, most of which is offset by the region's relative poverty, which, everything else being equal, facilitates growth (conditional convergence). Structural differences also contribute to the growth gap, with their importance comparable in magnitude to that of the educational deficit. About one third of the growth gap remains unexplained by the factors we have identified.

In contrast to East Asia, per capita growth in the OECD countries during the 1990s was slower than in Latin America. Given the enormous difference in income per capita, reflected in the growth contribution of GDP per capita in Table 6, this is not surprising. What is perhaps surprising is that differences in reform make a smaller contribution in favor of the OECD than in the East Asian case. At the same time, there are very significant structural differences in favor of the OECD countries (accounting for almost 4 percentage points of the growth gap); these are more important than the contribution of stabilization and structural reform, estimated at

less than 2 percentage points, which probably reflects the large differences in the stages of development of the two regions. Coupled with this observation, the significant East Asian growth residual suggests that part of the contribution assigned to transitory factors in East Asia may be permanent in nature and that East Asia may be following the steps of the OECD countries in this regard.

The overall analysis of both decompositions suggests that, for the Latin American region as a whole, there are significant growth gains to be achieved if reforms, including in the area of educational policy, are deepened. Attaining East Asian levels for the reform variables as well as for educational achievement would substantially close the Latin America growth gap with the East Asian region and possibly set the stage for other structural transformations as development is advanced and the gains from the first generation of reforms are completed.

IV. Conclusions

To summarize our findings, it is useful to consider alternative hypotheses that could be offered to explain Latin America's recent growth performance. The simplest would be, of course, that the fundamental thrust of the reforms has been misguided if the objective was to improve growth performance. We reject this hypothesis. Not only does the weight of the evidence in the professional literature, as well as our own results, support the view that the market-friendly reforms implemented in the region to date should have been growth enhancing, but we found no empirical evidence for the view that Latin America is "different" in this regard—that is, we have found no evidence that the growth response to the reform variables has been systematically different in Latin America than elsewhere. Moreover, the growth impetus associated with the reforms has been substantial: the estimated long-run growth effect of the 1990s reform is large for most countries in the region and amounts to almost 2 percentage points of additional annual sustainable growth in the aggregate, enough to double the real income expected in 40 years (see Table 3).

A second possibility that we were able to discard is that there is a Latin American growth "puzzle," in the sense that unidentified region-specific factors depressed growth in Latin America during the 1990s, offsetting the large positive growth impetus of the reforms just described. In fact, a time- and region-specific dummy for the reform period in Latin America was statistically insignificant when added to the panel growth equations.

In short, even after extending the sample, broadening the set of reform indicators, and taking into account possible dynamic effects, our findings are consistent with those of ELM, in the sense that we found no evidence of disappointing growth performance when disappointment is measured either in terms of the *marginal* effects of the reforms or in terms of the overall growth impetus that they imparted to Latin American countries during the reform period.

Why, then, did Latin America not experience a more pronounced acceleration of growth during 1991–95 leading to more satisfactory levels of growth? The answer appears to lie in a combination of factors:

- The reforms were implemented in a relatively unfavorable external environment. The effect of implementing the reforms during 1991–95, instead of in the previous five-year period, was to associate them with an international context that by itself reduced the average growth rates of the reforming countries by about 1 percentage point.
- For growth to have accelerated more than it did would have required more intensive reforms along the lines already implemented. We found evidence that there is indeed room to move further in this direction, in the sense that Latin America has not yet reached the levels of performance achieved in faster-growing regions.
- Our results would also support a case for more extensive structural and institutional reforms—that is, for broadening the scope of reform—because pushing macroeconomic reforms to the levels of performance achieved in the faster-growing regions would be insufficient for Latin America to close the growth gap. Our results suggest that only about half of the annual growth gap of about 5 percent between Latin America and East Asia during the reform period can be closed by doing more of the same—that is, intensifying the reform effort along the lines already undertaken. This conclusion emerges with even greater force in comparison to the OECD, where structural differences account for an even larger share of the current difference in growth performance relative to Latin America. This remaining gap suggests that the scope of reform in Latin America will need to be broadened. Improvements in macroeconomic management are simply not sufficient for Latin America to achieve long-run growth rates comparable to those achieved in East Asia.

The final result of our study is, therefore, that while much has been painfully achieved in Latin America, and while the reforms that have been implemented have indeed delivered the boost in growth that they could have been expected to provide on the basis of international evidence, reaching much higher long-term growth rates in the region—beyond historical growth rates and approaching the rates of high growth regions—will require both an intensification of reform along the dimensions already implemented and a broadening of reform to incorporate changes in structural characteristics of Latin American economies that are still inhibiting growth in the region. Our results in this paper do not permit us to go further in identifying such characteristics, but we have been able to document their importance indirectly. A key item on the research docket for the region, therefore, should be to identify desirable directions in which to extend the reform agenda, as well as ways to make further progress in consolidating and intensifying the reform efforts that are currently under way.

APPENDIX

The panel consists of the following 69 countries during 1961–95:

Latin America (18): Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Haiti, Honduras, Jamaica, Mexico, Paraguay, Peru, Trinidad and Tobago, Uruguay, and Venezuela.

OECD (17): Australia, Austria, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, Netherlands, Norway, Spain, Sweden, Switzerland, United Kingdom, and United States.

Africa (18): Algeria, Cameroon, Central African Republic, The Gambia, Ghana, Kenya, Malawi, Mauritius, Rwanda, Senegal, South Africa, Sudan, Swaziland, Togo, Tunisia, Zaïre, Zambia, and Zimbabwe.

East Asian miracle countries (5): Indonesia, Korea, Malaysia, Singapore, and Thailand.

Others (11): Bangladesh, Cyprus, Greece, India, Israel, Jordan, Pakistan, Philippines, Portugal, Sri Lanka, and Turkey.

The period was divided into seven five-year subperiods: 1961–65, 1966–70, 1971–75, 1976–80, 1981–85, 1986–90, and 1991–95. Five-year simple averages of the available underlying yearly information were used. The resulting information panel was unbalanced because of data limitations for some countries. Of a total of 482 possible observations, 37 were not available.

Except when noted, the data sources used are Inter-American Development Bank, World Bank, and IMF official information. The basic data were the real growth rate of per capita GDP; real consumption as a proportion of real GDP; openness measured as real imports plus exports as a proportion of real GDP; inflation rate based on monthly CPI; financial deepening measured as the ratio of real M2 (deflated by year-end CPI) as a proportion of real GDP; real per capita GDP at the beginning of each period; average years of secondary schooling in the total population of 15+ years at the beginning of each period (Barro-Lee data set); terms of trade growth rate; black market premium (for 1961–84 from Wood, 1988, and for 1985–95 from *World Currency Yearbook*, 1996).

The following variables were entered with a logarithmic transformation: openness ratio, government consumption ratio, inflation (as 100+ inflation rate in percent), financial depth ratio, initial GDP per capita, and black market premium (as 1+ premium).

Data on the Structural Reform Index (Latin America, 1985–95) are from Lora (1997). The volatility of inflation was measured as the standard deviation of annual inflation rates. The volatility of terms of trade was measured as the standard deviation of annual terms of trade growth rates. The inequality of income distribution is the income of the richest quintile divided by the income of the poorest two quintiles.

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