

Comments

Norman V. Loayza: Bill Easterly, Norbert Fiess, and Daniel Lederman have written a serious and comprehensive study on convergence in North America after NAFTA. The authors approach the subject from many different perspectives, perhaps to make up for the little time available for conducting a definitive evaluation of NAFTA's aftermath. The paper's main question is the extent to which NAFTA has contributed to making Mexico's per capita income closer to that of the United States and Canada. To provide an answer that would address the various aspects of the question, the authors examine macro- and microeconomic data; use time-series, cross-sectional, and panel econometric techniques; and consider both cross-country and (Mexican) cross-state evidence. This may seem excessive, but there is a rationale for each exercise. Microeconomic (firm-level) data can resolve aggregation biases and concentrate on productivity convergence in specific industries. Macroeconomic, time-series, and cross-country evidence can control for common events taking place internationally, provide a benchmark for comparison, and thus help us understand the effects of the unique Mexican experience with NAFTA. Finally, Mexican cross-state evidence allows an evaluation of the differing effects of NAFTA on Mexico's regions, a necessary undertaking given this country's large size and diversity.

A possible objection to the paper's emphasis on income convergence could be that a proper evaluation of NAFTA should consider other more relevant or direct aspects of the agreement, such as trade volumes and prices, foreign investment flows, capital costs, and innovation trends. This objection is unwarranted, however, on considering that this paper is part of a larger research project that evaluates NAFTA more generally and draws policy implications for Mexico and other Latin American countries. The resulting papers from this project are being collected in the volume *Lessons from NAFTA*, edited by Daniel Lederman, William Maloney, and Luis Servén.

The authors arrive at a nuanced conclusion on NAFTA's success. NAFTA has indeed contributed to bringing Mexico's income closer to that of the U.S., but institutional and governance factors are preventing Mexico from converging to its North American partners faster. I believe this conclusion correctly reflects the achievements and limitations of NAFTA on income convergence up to this point. At the end of my comments, I offer additional evidence supporting it. My criticism of the paper resides not in its conclusions, but in some of its methodology.

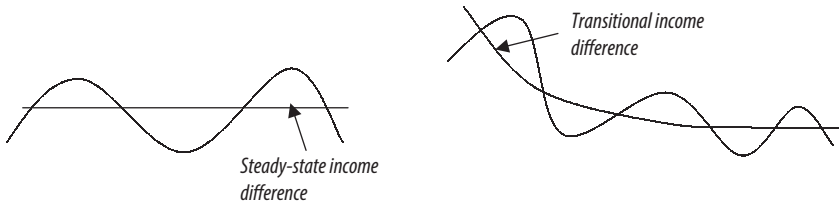
Convergence Is a Dynamic Process

The authors implicitly address the issue of convergence from two different methodological standpoints. In their firm-productivity and cross-state analyses, they regard convergence as a dynamic, transitional phenomenon. To examine it, therefore, they estimate dynamic (lagged-dependent variable) models. This is the most appropriate treatment of convergence for developing countries. Conversely, when the authors turn to their cross-country analysis, they regard convergence as a steady-state phenomenon. The econometric counterpart to this perspective is the estimation of static models, based on the comparison of output levels via cointegration analysis or cross-country regressions. This is of only limited usefulness, however, for countries that are rapidly evolving.

The first consideration is whether cointegration analysis can help determine the extent of income convergence. According to Bernard and Durlauf, long-run convergence between two countries exists if the long-run forecast of their output difference is stable.¹ The challenge for implementing this concept is how to assess the long-run stability of the income difference. Easterly, Fiess, and Lederman choose to use cointegration analysis: U.S. and Mexican income can be said to be converging if the countries' per capita output series cointegrate with a $(1, -1)$ vector. If this is the case, the stationary difference between the two income levels provides a measure of the extent of convergence, in which a zero difference denotes absolute convergence.

The problem with this approach is that it requires that the income difference between the two countries be stable over the sample period, whereas the concept of convergence only requires that this difference be

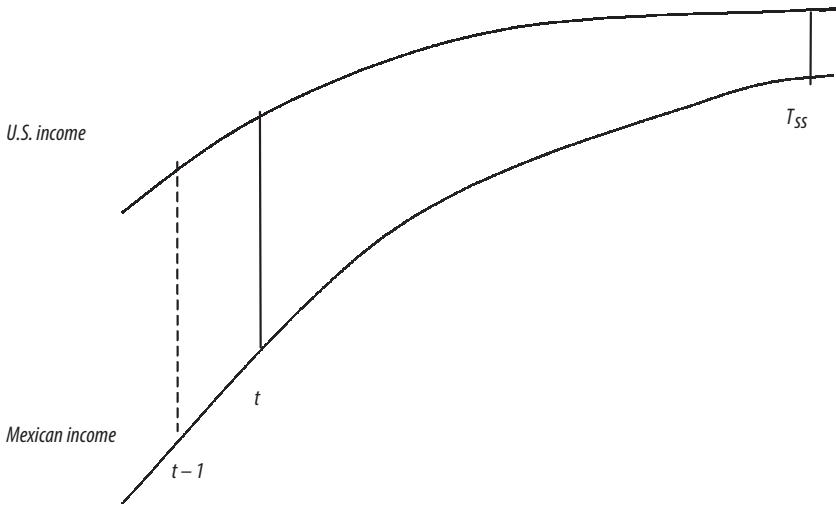
1. Bernard and Durlauf (1995).

FIGURE 10. Steady-State and Transitional Convergence

stable in the long run. The cointegration approach would be appropriate if the two countries had already arrived at their steady states, but it is incorrectly restrictive if they are at different points on the path toward their long-run positions, as Mexico and the United States are bound to be. The first panel of figure 10 represents the convergence process that is implied in cointegration analysis: the income differences between the two countries are always (stochastically) stable over the sample period. The second panel represents a more general convergence process, in which the income difference is allowed a transition period and stability occurs only toward the end. In the case of Mexico and the United States for the sample period under consideration (1960–2002), the income differences are probably not stable, but declining (as in the left portion of the second panel). Therefore, conceptually as well as statistically, cointegration analysis may not be appropriate for analyzing convergence in this case.

I now turn to income-level regressions. After years of cross-country growth regressions, it has become fashionable to rely on output-level comparisons to explain why the level of development is so different across countries. Acemoglu, Johnson, and Robinson and Easterly and Levine are two of the most influential papers of this literature.² An evaluation of this approach should start by asking what is likely to explain output differences among countries. The answer depends on how the world distribution of output across countries behaves over time. If this distribution has achieved its steady state, then output differences across countries would be explained by factors in the very long run, that is, highly persistent country characteristics such as political and social institutions and economic power relations. In this case, output differences can be identified with measures of the extent

2. Acemoglu, Johnson, and Robinson (2001); Easterly and Levine (2003).

FIGURE 11. U.S. and Mexican Income Differences in the Transition toward the Steady State

of convergence. However, if the world distribution of output across countries is changing over time—following, for instance, a dynamic transition pattern—then output differences among countries would be explained not only by such long-run factors, but also by economic policies, international and domestic shocks, and, most importantly, initial conditions. In this case, we would be interested in measuring the speed of convergence (a dynamic concept), rather than the extent of convergence (the static counterpart).

Consider the stylized paths of output over time for the United States and Mexico in figure 11. If one wants to understand the output difference between the two countries in the steady state (T_{ss}), it is best to focus on long-run factors only. However, if both countries are evolving dynamically, these long-run factors do not tell the whole story with regard to output differences at, say, time t . Initial conditions, represented by the output difference in the previous period, $t - 1$, are likely to be fundamentally important in explaining current differences between Mexico and the United States.

How do these points translate into econometric specifications? Given that the world distribution of output across countries has not reached a steady state, a static output (Y) regression is misspecified:

$$(1) \quad Y_i = \gamma Z_i + \varepsilon_i.$$

It should be replaced by a dynamic regression that takes into account initial conditions ($Y_{i,t-1}$) and shocks and policies (X), in addition to long-run institutional factors (Z):

$$(2) \quad Y_{i,t} = \alpha Y_{i,t-1} + \beta X_{i,t} + \gamma Z_i + \varepsilon_{i,t},$$

where the subscripts i and t represent country and time, respectively.

If, as is standard, output per capita is expressed in natural logs, then dynamic equation 2 can be rewritten as a growth regression, which can be estimated using pooled cross-country and time-series data:

$$(3) \quad Y_{i,t} \pm Y_{i,t-1} = (\alpha \pm 1)Y_{i,t-1} + \beta X_{i,t} + \gamma Z_i + \varepsilon_{i,t}.$$

Evidence from Growth Regressions

Having advocated a return to growth regressions, I now use this methodology to offer *circumstantial* evidence that NAFTA has indeed had a positive effect on Mexico's growth performance. The exercise supports Easterly, Fiess, and Lederman's conclusion that Mexico has approached the U.S. in terms of per capita income after NAFTA started.

The evidence I would like to present is taken from a recent paper on economic growth in Latin America and the Caribbean, written by César Calderón, Pablo Fajnzylber, and myself.³ There, we estimate a growth regression using panel data on a worldwide sample of countries and non-overlapping five-year periods spanning 1960–99. We consider a large variety of growth determinants, which we group into categories related to transitional convergence, cyclical reversion, structural reforms (including institutional factors), stabilization policies, and external conditions. We control for unobserved country-specific effects and the likely endogeneity of the explanatory variables. We use the estimated parameters to explain the growth changes experienced by individual Latin American countries in recent decades. This model can be applied to account for the change in growth rates from 1991–95 to 1996–99, that is, roughly before and after NAFTA. Table 8 shows the results for Mexico.

3. Loayza, Fajnzylber, and Calderón (2002).

TABLE 8. Mexico: Determinants of the Change in Growth Rates, 1991–95 to 1996–99
Percentage points

<i>Growth determinant</i>	<i>Projected contribution to change in growth rate</i>
Transitional convergence	0.03
Cyclical reversion	1.23
Structural reform	0.66
Stabilization policies	0.31
External conditions	0.06
Total projected change	2.29
Actual change	3.88
Growth premium (actual – projected)	1.59

The actual change in growth rates in Mexico before and after NAFTA was 3.88 percentage points, while the projected change was only 2.29 percentage points. Mexico thus experienced a growth premium of 1.59 percentage points that we cannot explain despite having accounted for a comprehensive set of growth determinants, including initial conditions, financial development, government burden, trade volume, inflation rates, real exchange rate misalignment, financial crises, terms of trade shocks, infrastructure facilities, and world conditions.

Still, this growth premium may not be particular to Mexico, but rather could be attributable to either a feature of the model or an event common to other countries, particularly in Latin America. To dismiss this possibility

TABLE 9. Latin American Countries: Difference between Actual and Projected Change in Growth Rates, 1991–95 to 1996–99

<i>Country</i>	<i>Premium</i>	<i>Country</i>	<i>Premium</i>
Argentina	-2.04	Honduras	-1.61
Bolivia	0.36	Mexico	1.59
Brazil	-3.12	Nicaragua	0.99
Chile	-2.08	Paraguay	0.01
Colombia	-2.54	Peru	-1.75
Costa Rica	1.27	Uruguay	-0.94
Ecuador	0.30	Venezuela	-3.86
El Salvador	-2.79		
Mean	-1.20		
Median	-1.30		

and verify that the size of this premium is unique to Mexico, we perform the same exercise of explaining the change in growth rates between 1991–95 and 1996–99 for fifteen Latin American countries (see table 9). Mexico has the largest growth premium of all the countries in the sample, followed closely only by Costa Rica. Sixty percent of the countries had negative growth residuals, with the typical country in the region having an unexplained shortfall in the growth rate of more than one percentage point. Granted, this evidence on the beneficial impact of NAFTA is indirect, or circumstantial. Given the little time available for judging such a large event, however, it may be the most telling macroeconomic evidence at our disposal.

Patricio Meller: Easterly, Fiess, and Lederman present the following scheme. (i) There are per capita income differentials between the United States and Mexico. (ii) NAFTA, through its positive impact on Mexican growth, should generate a convergence of per capita income. (iii) The authors test the existence of convergence by comparing the evolution of Mexico's per capita income differentials vis-à-vis the United States with those of selected Latin American countries; little difference is found. (iv) To accelerate Mexican convergence, they suggest improving Mexican institutions. (v) Finally, the paper also addresses a quite different issue, namely, the differential effect of NAFTA on regions within Mexico.

The paper recognizes in the title its main problem: the “big events, little time” effect. Can a long-run phenomenon like income convergence really be measured with regard to an event like NAFTA, which has so far had only a marginal impact? In a nutshell, a free trade negotiation implies the following. Goods are divided into three categories according to the speed at which its tariffs will be reduced to zero: the fast group, whose tariffs are reduced to zero at the time of the signature of the free trade agreement; the medium-speed category, in which tariffs are reduced to zero over three to four years; and the slow set, which takes more than four years. The fast category is really a marketing ploy, because it includes those goods that already have a zero tariff. Consequently, not much can happen in the first three years. The dataset used in the paper covers only three years after NAFTA was signed. Breaking the annual data into quarters increases the number of observations, but it cannot increase the time span. The task of the paper is equivalent to trying to measure the economic impact of the discovery of America in Spain prior to the year 1500. The time period is simply too short to measure a long-run phenomenon like convergence.

A more constructive suggestion involves the paper's reference to Puerto Rico. The authors could test their methodology with the Puerto Rican case, that is, they could use the first five years (1960–1965) to check the income convergence forecast forty years later. In the first five years of the Puerto Rico experience, the per capita income differential (with respect to the U.S. income level) went from 0.30 to 0.36. It took the economy forty years to reach half the U.S. per capita income level, according to the data, even though Puerto Rico had the same institutional framework as the United States.

NAFTA constitutes the paper's main explanatory factor, yet the authors do not use a trade theoretical framework. The theoretical framework usually used to link trade and the labor market is the Stolper-Samuelson theorem. A key mechanism for explaining the trade effect on wages is the behavior of prices. There are several papers examining the U.S.-Mexican wage differential evolution during the 1990s; there is no comparison of the empirical results of this literature with the results obtained in this paper.

The empirical methodology used in the paper is the so-called dynamic convergence, that is, econometric regressions combining data for many countries. Income per capita is the left-hand-side variable, and on the right-hand side appear all sorts of ad hoc and arbitrary variables; there is no limit to the number of variables included, and the empirical measurement of most of them is highly questionable. This has become a standard procedure in the literature, but I have serious doubts that this type of research generates anything useful. Institutions, for example, have become a key explanatory variable today, yet I have problems understanding how they appear on the right-hand side of the regressions, and it is not clear how they are measured.

An important trade-related issue involves Mexico's competition in the U.S. market. In my own research, I have found that Chinese exports compete with Mexican exports in the U.S. market. How does this fact influence the Mexican-U.S. convergence?

NAFTA certainly helped Mexico with the so-called tequila crisis. What would have happened to Mexico in 1994 if there had not been a FTA agreement? Perhaps Mexico would have followed a path similar to that following the external crisis of 1982. The macroeconomic stability of the 1990s may represent NAFTA's main contribution to the Mexican economy.

Finally, there is an inconsistency in the paper. On the one hand, institutions are considered the main explanatory factor of why Mexico has not achieved faster convergence with the United States. On the other hand, the analysis of regional Mexican convergence reveals that some regions have had a higher convergence than others. However, all regions have the same type of (Mexican) institutions. How, then, could some regions have higher convergence rates?

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