

VOX

Research-based policy analysis and commentary from leading economists

Poor student learning explains the Latin American growth puzzle

Eric Hanushek Ludger Woessmann

14 August 2009

Latin Americans are relatively educated, so why has their economic growth lagged over the past four decades? This column attributes the disappointing performance to the difference between educational quantity and quality. Schooling is relevant for economic growth only insofar as it actually improves cognitive skills, and Latin American economies have lagged in terms of educational quality.

Development strategies invariably include education and human capital improvement as important components. These tend to focus on quantitative goals, such as achieving certain levels of educational enrolment or attainment. Thus, the two Millennium Development Goals that refer to education – universal primary education and gender parity by 2015 – are solely phrased in terms of educational quantity (United Nations 2009). Similarly, while UNESCO's Education for All initiative mentions quality, its explicit goals mostly focus on school quantity (UNESCO 2008).

Disappointment with education-based development strategies

Amidst educational progress, development strategies built on schooling have disappointed because expansion of school attainment has not guaranteed improved economic conditions (Easterly 2001). A case in point is Latin America. In 1960, adult school attainment in Latin America was surpassed only by OECD countries and was significantly ahead of East Asia, Sub-Saharan Africa, and the Middle East and North Africa (MENA) region. Still, economic growth in Latin America over the four decades since 1960 lagged so much behind growth in East Asia and MENA that Latin American income per capita, which was considerably above that of the other three regions in 1960, has been overtaken by East Asia and MENA, leaving only Sub-Saharan Africa behind.

The poor growth performance of Latin America despite its relatively high initial schooling level remains a puzzle by conventional thinking. While economic research on Latin American growth has given much attention to institutional and financial

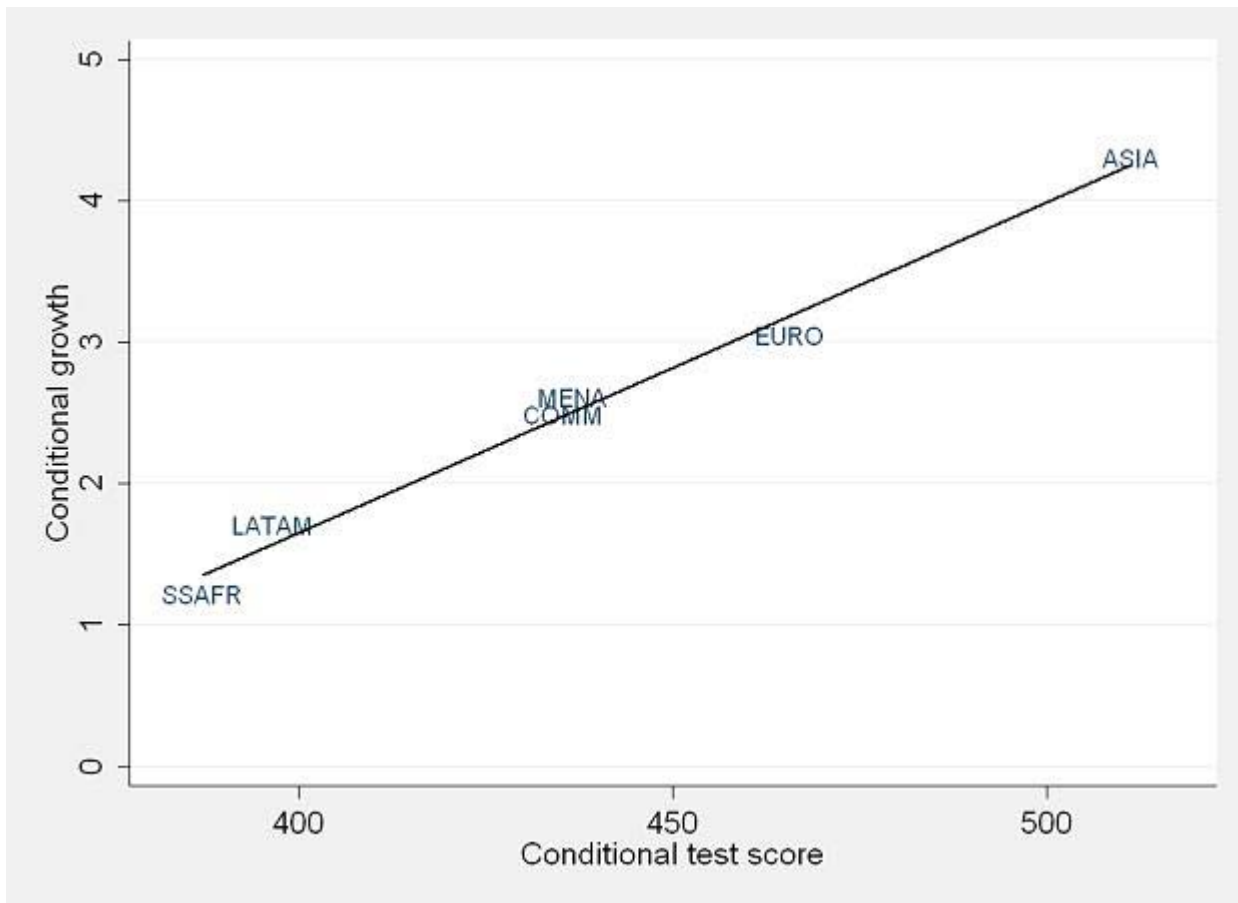
factors (e.g., Edwards, Esquivel, and Márquez 2007) or Fernández-Arias, Manuelli, and Blyde 2005), the basic puzzle remains unresolved.

Does this mean that the role of improved schooling in economic development has been overemphasised? In a recent study (Hanushek and Woessmann 2009b), we suggest that this is not so. Quite to the contrary, the level of cognitive skills is a crucial component of the long-run growth picture. What has been missing is a focus on the quality, rather than quantity, of education – ensuring that students actually learn. While Latin America has had reasonable school attainment, what students in fact know is comparatively very poor. Latin American countries have participated infrequently in worldwide student achievement tests, but their students always rank near the bottom of worldwide comparisons.

Solving the Latin American growth puzzle

Figure 1 provides an aggregate picture of what this bleak performance of Latin America on the worldwide student achievement tests means for economic growth. It is based on a regional measure of performance derived from all the international math and science tests performed between 1964 and 2003 (see Hanushek and Woessmann 2009a). The combined student achievement scores in both Latin America and Sub-Saharan Africa are near the bottom of the international rankings, while student performance in MENA and especially East Asia is much higher.

Figure 1. Cognitive skills and economic growth across world regions



Source: Hanushek and Woessmann (2009b). Added-variable plot of a regression of the average annual rate of growth (in percent) of real GDP per capita in 1960-2000 on the 1960 level of real GDP per capita and average scores on international student achievement tests (mean of the unconditional variables added to each axis). Region codes: Asia (ASIA), Commonwealth OECD members (COMM), Europe (EURO), Latin America (LATAM), Middle East and North Africa (MENA), Sub-Saharan Africa (SSAFR).

As the figure makes patently clear, considering this low level of cognitive skills is sufficient to reconcile the poor growth performance of Latin America with outcomes in the rest of the world over the past four decades. Our interpretation is simple. Even though many things enter into economic growth and development, the cognitive skills of the population are extremely important for long-run growth.

Importantly, attending school affects economic outcomes only insofar as it actually adds to students' learning. School attainment does not even have a significant relationship with economic growth after one accounts for cognitive skills.

Moreover, this result holds completely when the analysis is conducted at the level of the 50 countries for which internationally comparable test and growth data are available, and it proves highly insensitive to the sample of countries, to the specific tests employed, and to estimation within separate regions (Hanushek and

Woessmann 2009a).

The crucial missing link in explaining why Latin America went from reasonably rich in the early post-war period to relatively poor today is its low cognitive skills.

Understanding growth differences within the Latin American region

The truly dismal performance of Latin American countries on the worldwide student achievement tests suggests that these tests are simply too difficult for the typical Latin American student. Because test efficiency requires the international assessments to focus testing time on discriminating performance in the vicinity of the international mean, there may not be sufficient test questions that reliably distinguish performance well at the level of most Latin American countries, which are far from the OECD average.

To compare countries within the region, we make use of regional measures of cognitive skills that were designed specifically for Latin American countries. Regional achievement tests from the Laboratorio Latinoamericano de Evaluación de la Calidad de la Educación (LLECE) were conducted in 1997 and in 2006. Together, the two tests cover all sixteen Latin American countries usable in analyses of national growth, which is an important expansion compared to the seven Latin American countries that ever participated in a worldwide test. Neither of the two tests is perfect for such analyses, because they only measure performance in early grades and both are very recent. Nonetheless, these regional tests offer the possibility of explaining the large differences in growth among the countries of Latin America.

Our results using the regional test data support the important role of cognitive skills in understanding Latin American growth. These test scores are statistically and quantitatively significant in predicting economic growth differences in intra-regional growth regressions. They increase the explanatory power of standard growth models considerably and render the effect of years of schooling insignificant. In sum, schooling appears relevant for economic growth only insofar as it actually raises the knowledge that students gain as depicted in tests of cognitive skills.

Does the association between skills and growth depict a causal effect of skills?

The Latin American evidence fits into a much wider research literature that has developed over the past decade. Starting with Hanushek and Kimko (2000), a series of studies pursuing different variants of skill measurement and specifications

support a substantial role for cognitive skills in economic growth (see Hanushek and Woessmann 2008 for a review). This research builds on the increasing wave of empirical growth analyses, following the seminal contributions by Barro (1991) and [Mankiw](#), Romer, and [Weil](#) (1992), which focused on quantitative measures of schooling. However, in the more recent studies, the effect of cognitive skills invariably dwarfs the association between years of schooling and growth.

But can the cross-country association between cognitive skills and growth be interpreted as a causal effect? [Bils and Klenow \(2000\)](#) show that school attainment is endogenous in growth models. In [Hanushek and Woessmann \(2009a\)](#), we directly address the issue of causality with a variety of alternative tests.

One analysis of causality considers the earnings of immigrants to the US and finds that the international test scores for their home country significantly explain US earnings but only for those educated in their home country and not for those educated in the US. A second analysis takes out level considerations and shows that *changes* in test scores over time are systematically related to *changes* in growth rates over time. A third causality analysis uses institutional features of school systems as instruments for test performance, thereby employing only the variation in test outcomes emanating from such country differences as use of central exams, decentralised decision-making, and the share of privately operated schools. These results support a causal interpretation and also suggest that schooling can be a policy instrument contributing to economic outcomes (to the extent that it contributes to cognitive skills).

Conclusion

The dismal level of cognitive skills reached by Latin American countries can account for their poor growth performance since 1960. Student achievement test performance explains inter- and intra-regional growth differences. If countries in Latin America (and, by implication, Sub-Saharan Africa) want to improve their growth performance in the future, they need a "Millennium Learning Goal" ([Filmer, Hasan, and Pritchett 2006](#)), rather than mere quantitative targets of educational attainment. It is not simply going to school but only actual learning that counts for economic growth.

References

- [Barro, Robert J.](#) 1991. "[Economic growth in a cross section of countries.](#)" *Quarterly Journal of Economics* 106,no.2 (May): 407-443.
- [Bils, Mark, and Peter J. Klenow.](#) 2000. "[Does schooling cause growth?](#)" *American Economic Review* 90, no.5 (December): 1160-1183.

Easterly, William. 2001. *The elusive quest for growth: An economists' adventures and misadventures in the tropics*. Cambridge, MA: The MIT Press.

Edwards, Sebastian, Gerardo Esquivel, and Graciela Márquez, eds. 2007. *The decline of Latin American economies: Growth, institutions, and crises*. Chicago, IL: University of Chicago Press.

Fernández-Arias, Eduardo, Rodolfo Manuelli, and Juan S. Blyde, eds. 2005. *Sources of growth in Latin America: What is missing?* Washington, DC: Inter-American Development Bank.

Filmer, Deon, Amer Hasan, and Lant Pritchett. 2006. "A Millennium Learning Goal: Measuring Real Progress in Education." Working Paper Number 97, Center for Global Development (August).

Hanushek, Eric A., and Dennis D. Kimko. 2000. "Schooling, labor force quality, and the growth of nations." *American Economic Review* 90,no.5 (December):1184-1208.

Hanushek, Eric A., and Ludger Woessmann. 2008. "The role of cognitive skills in economic development." *Journal of Economic Literature* 46,no.3 (September):607-668.

Hanushek, Eric A., and Ludger Woessmann. 2009a. "Do better schools lead to more growth?" NBER, Cambridge, MA, WP 14633, National Bureau of Economic Research (January).

Hanushek, Eric A., and Ludger Woessmann. 2009b. "Schooling, cognitive skills, and the Latin American growth puzzle." NBER, Cambridge, MA, WP 15066, National Bureau of Economic Research (June).

Mankiw, N. Gregory, David Romer, and David Weil. 1992. "A contribution to the empirics of economic growth." *Quarterly Journal of Economics* 107,no.2 (May):407-437.

UNESCO. 2008. *Overcoming inequality: Why governance matters. Education for All Global Monitoring Report 2009*. Paris: UNESCO.

United Nations. 2009. *The Millennium Development Goals Report 2009*. New York: United Nations.

This article may be reproduced with appropriate attribution. See Copyright (below).

Topics: [Development](#)

Tags:

Comments

Schooling and Economic Development

On August 14th, 2009 [Don.Lloyd](#) says:

The premise that economic development and growth in Latin America (or anywhere else) is primarily limited by education, quantity or quality, seems unlikely at best. I know next to nothing about Latin America, but it seems clear that the first place to look is for structural (or cultural) barriers to the formation of new private businesses.

Regards, Don