

Degrees of DEVELOPMENT

New data suggest that the higher the educational attainment of civil servants the better a country's economic outcomes

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E DUCATION of the population is generally viewed as a key ingredient for economic growth. Economists have emphasized three main channels through which education theoretically induces economic growth. Education increases labor force productivity, which raises the level of output. It enables technological innovation, which promotes economic growth through improved inputs, enhanced processes, and better products. And it facilitates the transmission of knowledge and the adoption of new technologies, which also enhance economic growth.

While that may seem to be a self-evident proposition, empirical research on the relationship between education and development is far from conclusive. That may be because education is not being measured properly. Research into the empirical relationship between education and economic outcomes has traditionally used measures based on the average number of years of schooling of the general population (see Box 1). But such measures have been criticized because they capture only the number of years of schooling without considering the quality of that education. When learning (as measured by cognitive skills) is examined, there is a much stronger association between education and economic growth (Hanushek and Woessmann, 2008).

In nearly all countries, the state plays a major role in decisions that affect economic growth. A state's ability to govern intelligently and honestly—its capacity, as economists say—is crucial to development.

But analysis of the educational attainment of the general population—whether quantitative or qualitative—may not be useful in assessing education as a factor in the role of the state in economic develop-

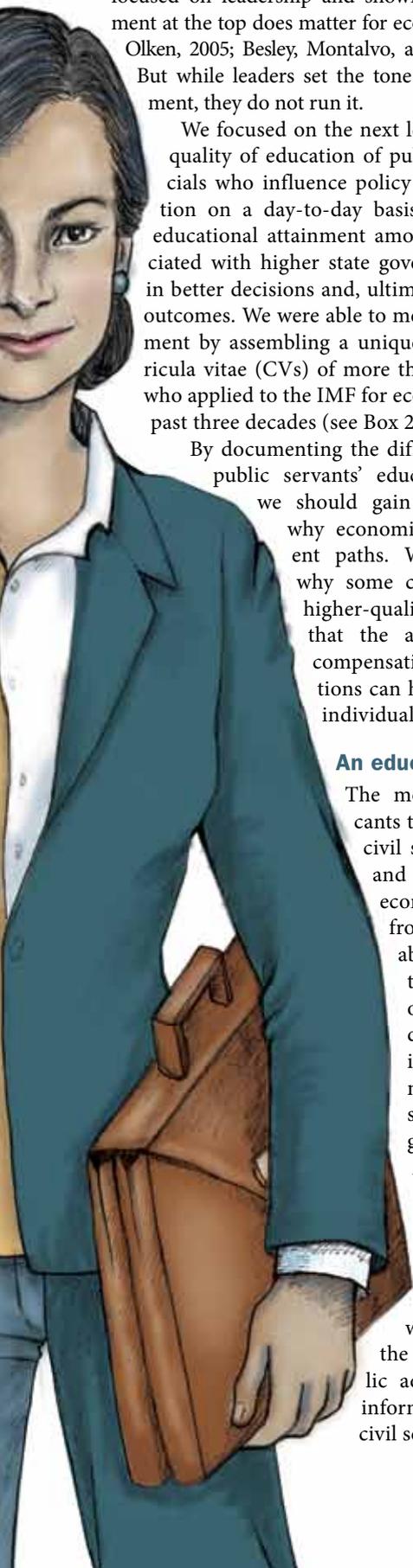
Box 1

Measuring education

Most of the research on education and economic development has focused on the overall educational attainment of a country's population. Barro and Lee (2010), for example, constructed measures of educational attainment of the adult population for 146 countries at five-year intervals from 1950 to 2010—broken down by sex and age group. They found large differences in educational attainment of the general population across countries and that the general population in rich countries had an average of 11 years of schooling, compared with about 7 years of schooling in poorer countries.

But other research has been far less conclusive on finding a link, which is why researchers are searching for better ways to measure education and its contribution to governance and development, such as using measures of cognitive skills.





ment. The educational attainment of civil servants may differ from that of the general population. Researchers have already focused on leadership and shown that educational attainment at the top does matter for economic growth (Jones and Olken, 2005; Besley, Montalvo, and Reynal-Querol, 2011).

But while leaders set the tone and direction of government, they do not run it.

We focused on the next level down, looking at the quality of education of public servants—those officials who influence policy design and implementation on a day-to-day basis. We found that higher educational attainment among civil servants is associated with higher state governing capacity, resulting in better decisions and, ultimately, better development outcomes. We were able to measure educational attainment by assembling a unique database from the curricula vitae (CVs) of more than 100,000 civil servants who applied to the IMF for economics training over the past three decades (see Box 2).

By documenting the differences in the quality of public servants' education among countries, we should gain additional insight into why economies develop along different paths. We also further explore why some countries end up with a higher-quality civil service and argue that the adoption of merit-based compensation in public administrations can help attract well-educated individuals.

An educated civil service

The more than 100,000 applicants to the IMF were mid-level civil servants in central banks and ministries of finance and economy. Using the data from their CVs we were able to explore the association between the quality of education and various dimensions of state capacity—the ability of governments to deliver public services, spend on public goods, and collect taxes. Although data on educational attainment are available for the general population, they are not available for public administrations. In fact, we know so little about the characteristics of public administrations that even information on the number of civil servants is not consistently

available across countries, let alone over time. This database attempts to fill the gap by building a novel data set on educational attainment in public administrations—albeit only those in the economic and financial sphere.

The data set is comprehensive in the sense that it covers a wide range of age groups and levels of seniority as well as both men and women. However, the degree to which individuals who work in central banks and ministries of finance and economy are representative of overall public administration is difficult to ascertain. Nonetheless, we believe we do make an important contribution by shedding light on an area for which so little systematic documentation is available. Using this data set, we discovered that educational achievement in public administrations across regions is quite different from that of the general population. The general population in Latin America and sub-Saharan Africa has, on average, a low level of educational attainment, but a high proportion of civil servants in those regions have college degrees.

We constructed a quality-adjusted measure of educational attainment by computing a weighted average of officials' years

Box 2

Database: applicants' CVs

The data set is a compilation of tabulated information from 131,877 CVs of civil servants from 178 countries who applied to the IMF for training between 1981 and 2011. The IMF Institute for Capacity Development's Participant and Applicant Tracking System, the repository for the CVs, includes country of residence, agency, age, gender, position, and detailed educational background (such as degree, graduating institution, and study abroad). The IMF capacity-building activities include all aspects of macroeconomic policy and national statistics and more specialized courses, such as finance. Those courses are offered either at a regional location or at IMF headquarters in Washington, D.C. Applicants may be nominated by their country or apply on their own.

Box 3

Ranking academic quality

Universitas, a global network of universities, ranks countries according to their universities' overall academic track record and includes such measures as publications by university professors and the market value of a higher-education degree (reflected in the unemployment rate for individuals with a higher-education degree). According to this overall ranking of 48 countries, the United States ranks first, the United Kingdom second, Canada third, and Indonesia 48th. Countries outside the Universitas ranking are arbitrarily assigned a score that is 25 percent of Indonesia's. Outside the advanced economies, those in east Asia and central and eastern Europe have the largest share of officials who studied in one of the top 48 countries. More generally, a significant portion of civil servants in developing economies studied abroad.

of education. We used as weights a countrywide academic ranking from Universitas, a global network of universities (see Box 3). According to this overall ranking of 48 countries, the United States ranks first, the United Kingdom second, Canada third, and so on—to Indonesia, which ranks 48th. When we consider where the civil servants obtained their degrees, we find that, outside advanced economies, east Asia and central and eastern Europe have the largest share of officials who studied in one of the top 48 countries ranked according to academic standards. Using our quality-adjusted measure of education, we found higher-quality civil services in countries with more economic growth (see Chart 1). This positive association also holds when we control for initial GDP per capita to capture the fact that it is easier for countries to grow fast when they are catching up.

Education and government effectiveness

Government effectiveness is essential to economic development. After all, the prospect of economic development is

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remote in countries where governments fail to limit corruption, enforce laws, and foster an environment conducive to private sector development. The data reveal a positive association between quality-adjusted education among civil servants and various dimensions of government effectiveness—that is, when civil servants are better educated, there is less corruption, higher tax collection, better public finance management, and more support for private markets.

Higher educational attainment in public administrations is associated with less corruption in those administrations. Chart 2 shows the cross-correlation between our measure of educational attainment and an indicator of corruption based on data from the *International Country Risk Guide* (2012). Higher educational attainment in public administrations continues to be associated with less corruption. This finding suggests that a more educated public administration workforce can eventually lead to higher development by helping limit the misuse of public funds and shelter private companies from capture.

Moreover, we found that when civil servants are better educated, countries are able to collect more tax revenue. Revenue mobilization is one of the biggest challenges for developing economies, and higher revenue mobilization should be considered a sign of state capacity and state building for developing countries (Besley and Persson, 2009). The correlation between our measure of educational attainment and tax revenue collected as a percentage of GDP is positive and strong for a large cross section of countries. This finding suggests that better-

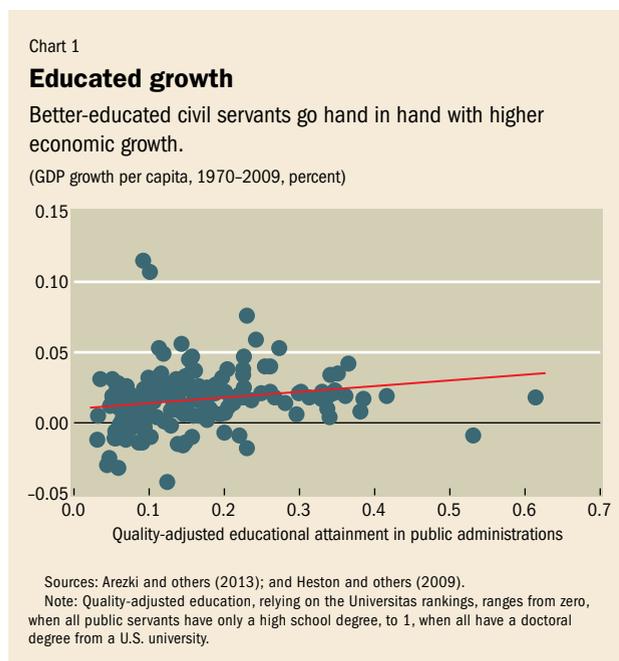
educated civil servants are more effective at administering taxes, ensuring compliance, and understanding and enabling private sector development.

Another dimension of government effectiveness is reflected in a state's ability to support the development, regulation, and supervision of private markets—such as the domestic financial sector, which in turn plays an important role in fostering growth. We found a positive and a statistically and economically significant relationship between our quality-adjusted measure of education in public administrations and a composite index that captures domestic financial sector standards, including regulation, supervision, and competition (Ostry, Prati, and Spilimbergo, 2009). This suggests that a more educated public administration workforce helps raise the standards of the domestic financial sector, in turn enhancing private sector development and economic growth.

Education versus institutions

One crucial issue is whether educational attainment of civil servants is the source of good governance or whether education is the result of robust institutions, such as checks and balances supported by an independent judiciary. If it is institutions that spur educational attainment, then public policies should focus on strengthening specific institutions to ensure that talented civil servants choose to join public administrations and that a country's educational system enhances cognitive skills.

Recent research emphasizes the role of institutions in shaping economic outcomes. For instance, Acemoglu, Johnson, and Robinson (2001) demonstrate a causal relationship between the quality of institutional arrangements—such as those that aim to limit investors' expropriation risk—and income per



capita for a large cross section of countries. Arezki and Dupuy (2013) build on this approach with a theoretical model that shows an association between better-educated civil servants in the public sector and higher welfare for society as a whole. These findings suggest that decisions by talented civil servants enhance the quality of the delivery of public goods and in turn lead to economic growth.

The model yields two important theoretical predictions, which are supported by the data.

- More public-spirited agents work in the public sector than in the private sector when institutions are strong, all else equal. The reason is that stronger institutions limit the availability of public wealth that can be stolen by corrupt civil servants, which drives corrupt employees out of the public sector. Educated agents are typically public spirited and are better at delivering public goods because they have superior skills but also because they are better at judging when it is appropriate to leave the private sector alone. This prediction is consistent with the positive association between less corruption and higher educational attainment shown in Chart 2. When talent is tilted toward more educated agents in the public sector, the result is more public goods and higher economic growth.

Compensation that rewards public-spirited agents raises the well-being of society as a whole, especially when institutions are weak. Such compensation programs make the public sector more attractive to public-spirited individuals and, as a result, improve the delivery of public goods and economic growth. This is consistent with some of our empirical findings that merit-based compensation is associated with better-educated public administrators.

- From a policy standpoint, our findings suggest that improving government effectiveness may be achieved, for instance, through strengthening the judiciary system. An effective judiciary that enforces the law with fairness is likely

to dissuade civil servants from trying to manipulate rules and regulations to enrich themselves at public expense and discourage individuals disposed to corruption from entering public service.

Moving to merit-based compensation can also help attract well-educated individuals. The policy debate on issues of compensation has so far focused narrowly on chief operating officers' compensation in the private sector. Countries around the world, and especially developing economies, should focus on attracting educated people to their public administration to enhance the delivery of key public goods and boost economic development. Singapore, among other countries, has adopted merit-based pay, which has allowed the public sector to attract and retain quality staff and certainly played a key role in enhancing government effectiveness and eventually the country's good economic performance. ■

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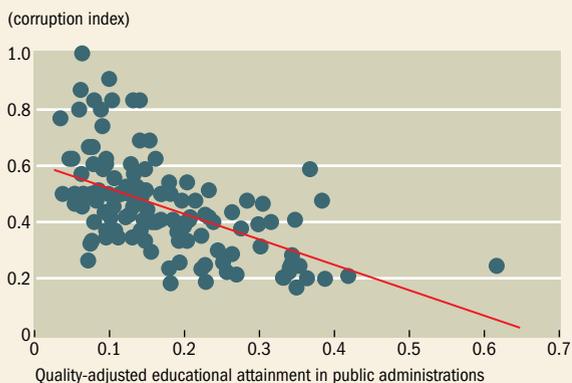
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Chart 2

Containing corruption

Higher educational attainment in public administrations is associated with less corruption.



Sources: Arezki and others (2013); and *International Country Risk Guide* (2012).

Note: Quality-adjusted education, relying on the Universitas rankings, ranges from zero, when all public servants have only a high school degree, to 1, when all have a doctoral degree from a U.S. university. The corruption score, based on a calculation by the *International Country Risk Guide*, ranges from 1, when a country is most corrupt, to 0.17 when it is least corrupt.