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Universal primary education in low-income countries: The contributing role of national governance☆

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ABSTRACT

The Millennium Development Goal of universal primary education by 2015 cannot be achieved. We demonstrate that per-capita GDP and adult literacy, especially the latter, are significant in explaining national primary completion rates. National governance (measured by comparative perceptions of political stability, government accountability and effectiveness in delivering services) is also important. We also analyze the extent to which countries improved their respective 2001–2005 primary school completion rates in the second half of the decade. Here, quality of governance seems to be key. Adult literacy in 2001–2005 is significant, but explains little; per capita GDP in 2001–2005 is not significant.

1. Introduction: universal primary school completion in low-income countries

In this paper we consider some of the country-level factors that are relevant to the success or failure of low-income countries in achieving universal primary education. Relative to only modest improvement in the 1990s, in the decade following the 2000 launch of the MDG program the increase in the rate of primary school completion was impressive. UNESCO (2012, p. 60) documented a reduction in the global total of "out-of-school" primary school-age children from 108 million in 1999 to 61 million in 2008. However, UNESCO also emphasized a lack of progress since 2008. Despite wide consensus on the importance of literacy, for 72 countries with average per capita GDP below PPP$4200 over the previous decade, the average gross primary completion rate in the second half of the decade (2006–2010) ranged from 33 percent to 116 percent with an average of 76 percent and a standard deviation of 21 percentage points.[2] Many low-income countries are still far from achieving universal primary education. Clearly, MDG2 will not be met by the target date of 2015.

Universal primary education ranks second (behind halving the world population living on income below $1.25/day) among the MDGs. Unless they complete primary schooling, most children do not retain the ability to read and write into adulthood (Bruns et al., 2003). In turn, adults unable to read and write are at a serious disadvantage in contributing to the education of their own children.

In aggregate, investments by families and formal institutions in human capital boost economic growth, as measured by per capita gross domestic product (Levine and Renelt, 1992; Barro, 1991; Coulombe et al., 2004; Sala-i-Martin et al., 2004). In addition, adult literacy promotes gender and income equity. Holding constant other factors, literacy, in particular female literacy, also has a beneficial impact on many population health outcomes (Patton et al., 2009; Schultz, 2002; UNESCO, 2011).

Out of these 72 low-income countries, we analyze primary school completion rates for the 66 countries with available data for completion, GDP, literacy and governance variables. (For most but not all we also have per student spending data.) We develop two sets of regressions. The first set examines the relationship between per capita GDP, literacy, per student spending and governance, and

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[2] The 72 countries used for this calculation are all countries with available per capita GDP and primary school completion data. The dollar income cut-off is the average per capita GDP over the 2001–2010 decade for all "low- and medium-income" countries as defined by the World Bank (2012a). The mean and standard deviation reported are not weighted by national population. Note, if a country increases primary school retention and reduces grade repetition, the gross completion rate can readily exceed 100 percent for many years. See the discussion below for further discussion of gross and net completion rate.

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primary school completion rates over the 2001–2010 decade (hereafter, "completion rate" regressions). A second set of regressions examines the extent to which countries did or did not experience improvement over the decade in their respective completion rates (hereafter, "improvement" regressions). Specifically, these regressions examine change between two adjacent five-year intervals during which two fundamental determinants of school completion, national per capita GDP and adult literacy levels, remain reasonably constant. These regressions permit a tentative exploration of the role of institutional and policy variables across the sample countries.

To summarize our empirical results, the "completion rate" analysis shows that adult literacy, per capita GDP and governance measures are all significantly related to primary school completion. Level of per student spending in the presence of very effective governance is weakly significant. Variation in national parental literacy has the largest incremental impact. Similarly defined variations in per capita GDP and general assessments of national governance have smaller impacts. These regressions do not include many potentially important specific education policy variables and other determinants of education success. National adult literacy and per capita income, however, are clearly central to understanding primary school completion. While informative, these completion rate regressions do not help us understand why certain countries improved primary school completion much more than others over the last decade.

Based on the "improvement" regressions, literacy rates over the first half of the decade are significantly associated with subsequent completion rate improvements in the next half-decade; per capita GDP is not. Collectively, however, these two fundamental factors explain very little of the variation among countries in improvement. The level of per student spending in primary schools is not a significant factor unless interacted with a measure of governance. Even when consideration is restricted to the small number of countries deemed "very" effectively governed, spending variation is of limited importance. While these "improvement" regressions obviously leave much of the variance unexplained, they do unambiguously point to national variations in quality of overall governance, as measured by surveys of public perceptions, as an important factor in understanding the extent to which countries have met the MDG2 goal.

We proceed as follows. Section 2 categorizes some of the national level factors that are relevant to either the supply of, or demand for, education. On the supply side, we consider various measures of the quality of country-level governance. In Section 3, we discuss the rationale for use of governance measures and address the issue of causality. Section 4 defines and describes independent variables, while Section 5 defines and describes the dependent variables. Section 6 reports and discusses the regression results. Section 7 concludes, and offers some tentative policy suggestions.

2. The supply of and demand for primary education

At the levels of both individual families and a nation, there exist a demand for, and a supply of, formal education. The national completion rate in any year can be thought of as the current equilibrium between the two. In the analysis undertaken below, we introduce one factor pertaining to the demand side and three potentially relevant factors that bear on the supply side. While here we introduce the concept of a demand/supply relationship, the regressions that we estimate are of a reduced form.

There are a number of reasons to expect parental demand for formal learning in low-income countries to increase along with per capita GDP. Families with higher incomes are less likely to face food insecurity, are less likely to require the labor of young children in income-generating activities, and are better able to finance the out-of-pocket costs of schooling. Additionally, a country with a higher per capita GDP will generally have a higher average income premium for the labor of the literate relative to the illiterate. If a country's economy is stagnant at a very low per capita GDP, then there will be few jobs available that yield the higher incomes that the literate can command. The demand for education is obviously a function of many factors in addition to per capita GDP. Given limited degrees of freedom, we do not for example introduce any cultural variables.

On the supply side, one obvious potential factor is the level of government funding per primary school student. A second supply factor is the ability of families to contribute to their children's education. Students whose parents are not literate are at a severe disadvantage relative to children whose parents can read and write (Grantham-McGregor et al., 2007). Hence, all else being equal among countries, the higher the adult literacy rate, the higher the expected literacy level of the next generation. The third supply factor is more contentious: the overall quality of governance provided by a national government. There is a great deal of evidence indicating that the quality of governance is important in broadly contributing to better social and economic outcomes (Mauro, 1998; Rodrik et al., 2004; Kaufmann et al., 2007; Rajkumar and Swaroop, 2008; Acemoglu and Robinson, 2012). However, as we document below, both the definition and measurement of institutional quality is controversial (North, 1990; Aron, 2000; Cole, 2012).

3. National variation in outcomes and the direction of causality

We are focusing on variation in primary school completion across low-income countries. In high-income countries virtually *all* among young cohorts complete the primary school cycle and further investments are likely to produce low marginal returns (Baldacci et al., 2008). Thus, improving primary completion is no longer an important policy goal except among marginalized communities, such as indigenous peoples (Richards et al., 2010). To the extent it remains an important goal in these countries, it is best addressed at the micro, within-country level (Jones and Olken, 2008).

A cross-national approach contrasts with one standard approach to analyzing school outcomes, which is to compare individual student outcomes in a treatment, relative to a control, sample (Banerjee et al., 2007). Such experiments, however, cannot identify factors operating at a national level that inevitably affect all, or nearly all, treatment sites within a country. To assess country level variance requires comparisons of national level variables, including, we suggest, measures of governance. The primary source of comparative governance data across countries is attitudinal surveys, which are subject to various biases and weaknesses. Some critics claim that these weaknesses are fatal, and that governance scores are not useful for comparative purposes (Oman and Arndt, 2010). In response, Kaufmann et al. (2007) provide a comprehensive, and in our opinion convincing, defense of the use of these measures.

Additionally, Sachs (2005, p. 312) and others object to explanations in terms of governance due to problems of co-linearity. He acknowledges that, "virtually all poor countries have governance and corruption indicators that are below those of the high-income countries" but argues that it is nearly impossible to disentangle causality: "Governance and higher [per capita] incomes go hand in hand not only because good governance raises incomes, but also, and perhaps even more important, because higher income leads to improved governance." Before proceeding further, we address this objection.

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