# Learning about Schools in Development

**Charles Kenny**

## Abstract

There has been considerable progress in school construction and enrollment worldwide. Paying kids to go to school can help overcome remaining demand-side barriers to enrollment. Nonetheless, the quality of education appears very poor across the developing world, limiting development impact. Thus we should measure and promote learning not schooling. Conditional cash transfers to students on the basis of attendance and scores, school choice, decentralization combined with published test results, and teacher pay based on attendance and performance may help. But learning outcomes are primarily affected by the broader environment in which students live, suggesting a learning agenda that stretches far beyond education ministries.

JEL Codes: I20, H40
Keywords: Education policy, education and development

Center for Global Development
www.cgdev.org

Working Paper 236
December 2010

**Learning about Schools in Development**

Charles Kenny
Senior Fellow
Center for Global Development

This is a considerably revised and extended version of "We Don't Need No Universal Education?" published on the Harvard International Review website October 12, 2010 (http://hir.harvard.edu/we-dont-need-no-universal-education). Many thanks to reviewers there and for very helpful comments from Lawrence McDonald and Lant Pritchett.

CGD is grateful for contributions from the The William and Flora Hewlett Foundation in support of this work.

Charles Kenny. 2010 "Learning about Schools in Development." CGD Working Paper 236. Washington, D.C.: Center for Global Development.
http://www.cgdev.org/content/publications/detail/1424678

**Center for Global Development**
**1800 Massachusetts Ave., NW**
**Washington, DC 20036**

202.416.4000
(f) 202.416.4050

**www.cgdev.org**

## Introduction

This essay briefly discusses a number of links in the chain between school construction and improvements in the quality of life –between construction and enrollment, between enrollment and learning, and between schooling and both economic growth and health outcomes. Given what is suggested by the evidence regarding strength of those links, it asks 'is universal education a good idea?' and 'can we improve learning outcomes?' While it suggests the answer to these two questions is 'yes,' that is dependent at the least on a significant, complicated, focus on the question of quality of education.

## Do More Schools Equal More Students?

A lot of schools have been built over the last fifty years --and a lot more people are in school. In 1950, global average primary enrollment levels were 47 percent.[1] By 2002, global net primary enrollment was around 87 percent, with a little under one half of the World's countries having achieved universal enrollment levels.[2] The number of years the average adult worldwide has spent in school has increased from around two years in 1900 to above seven years by the end of the Century, and rates of growth have been far faster in the developing countries that were previously the furthest behind.[3]

And countries need more schools not just to expand enrollments, but as importantly to keep up with expanding populations. East Asia's population has increased from 1.3 billion to 3.7 billion people between 1950 and 2008 –it is hard to imagine that could have happened alongside dramatically rising school enrollments without a lot of new classrooms being built.

Nonetheless, the relationship between the proportion of kids in school and the number of schools being constructed is more complex than one might expect, because there is a considerable demand-side element to enrollment. Some countries *have* managed particularly rapid increases in enrollment rates when pent-up demand was satisfied by a new regime which built lots of classrooms or reduced school fees. This was the case in the post-colonial period in a number of countries, for example, or more recently when Uganda introduced free schooling in 1997. And

[1] Benavot and Riddle, 1988

[2] World Bank, 2007. Note the World Bank figure and the Benavot and Riddle figures do not measure enrollment in the same way, see Kenny, 2008, for a discussion.

[3] Based on data from Morrisson and Murtin.

post-Taliban analysis in Afghanistan based on the random assignment of school construction resources across 31 villages suggests that villages where a school was built increased formal schooling enrollment by 47 percent.[4]

But often, the number of classrooms really isn't the major factor in determining the number of students enrolled. For example, Deon Filmer of the World Bank looked at enrollment rates of children in 21 developing countries to see if children who lived closer to schools were more likely to attend. At the time, average school enrollment in the rural areas of the study countries was 50 percent. He estimated that if every rural household was right next door to a school, this would increase enrollments by three percentage points, to 53 percent.[5]

If not more schools, then what? Consistent evidence that parents (and in particular mothers) who went to school are far more likely to send their kids to schools confirms the importance of the demand side factors to education.[6] These factors include a significant role for attitudes and culture –which can be slow to change. For example, a recent study of educational outcomes in Sao Paulo in Brazil concluded that places which attracted more immigrants from countries with an established public education system more than one hundred years ago still see better student test scores.[7] And evidence of these demand-side factors is also clear when you ask parents why their kids aren't in school. In Burkina Faso and Pakistan, for example, surveys of poor people revealed a widespread feeling that educating girls made them less attractive marriage prospects. They would be unsatisfied with their marriage options and less skilled at housework. Some interviewees in Burkina Faso went so far as to argue that education was the surest way for a girl to end up a prostitute.[8] Such attitudes help to account for a primary completion rate for girls that is 20 percent below the male completion rate in both countries.[9]

The importance of demand for education –rather than government funding, or different rates of school construction— also helps to explain why growth rates in education enrollment have been similar in countries rich and poor, slow growing and miracle pace alike. Michael Clemens of the Center for Global Development describes an s-curve of progress which applies to primary enrollments across countries and time. Slow initial progress in expanding enrollments from very low levels in the first thirty years of the transition towards universal education is followed by rapid progress towards ubiquity. This slows once again as countries reach towards 100 percent enrollment rates. This transition suggests that a country which reaches 50 percent net enrollment today will reach 70 percent enrolment after 22 years and 90 percent after 58 years.[10] Clemens

[4] Burde and Linden, 2009
[5] Filmer, 2004
[6] Tansel, 1997, Koissy-Kpein, 2010
[7] Filho and Colistete, 2010
[8] Narayan et. al. 2000
[9] World Bank, 2009
[10] Clemens, 2004

finds that around ninety percent of the variation in net primary enrollment in all countries for the postwar period can be accounted for by this common global pattern of transition –one that looks similar to the standard adoption pattern for new technologies over time. That leaves a maximum of ten percent of differences across time and countries to be explained by economic growth rates or differing education policies. Again, this suggests that the diffusion of *demand* for educational services has the key role in explaining outcomes –not supply factors like school construction, which varied considerably across countries.[11]

Clemens does note some countries that appear to be exceptions to the rule of steady but unspectacular progress in raising enrollments. But after examining each one in turn he argues that the involved countries were frequently small, didn't have accurate data on enrollments, saw economic booms or an end to prior decades of depressed enrollment and/or were "willing to accept a debacle" in terms of the impact on the amount of attention that each child received from quality teachers.

**Will Kids Turn Up if You Pay Them?**

Having said that, paying parents to enroll their kids appears a potentially powerful tool to get over the demand issue. Mexico's Programa de Educacion, Salud y Alimentacion (PROGRESA), for example, provides cash to mothers in return for child school attendance. An early evaluation found that girls' secondary enrollment increased by 15 percent, and boys' enrollment by seven percent thanks to the program. PROGRESA even increased enrollment rates amongst families who weren't getting a payment --being in a village where more children were going to school created an increased social pressure to enroll.[12]

Conditional cash transfers to promote school attendance have also met with success in Cambodia, Bangladesh, Colombia, Pakistan, Nicaragua, Kenya, Honduras and Brazil. In Cambodia, the payments were focused on girls in the lower secondary school system. Families were awarded a scholarship of $45 for each of three years their girl stayed in the lower secondary system maintaining a passing grade. Even this small sum –about two percent of the median household's income—had a dramatic effect. A World Bank study found that absent the program, less than twenty percent of girls from the poorest tenth of families in a region were enrolled in school, compared to above sixty percent for the richest tenth of households. For scholarship

[11] Clemens does report a secondary influence of income levels on the speed of the education transition, and notes that numerous studies suggest wealthier parents are more likely to send their children to school.

[12] Holla and Kremer, 2008

recipient families, enrollment rates for girls were above eighty percent for all income levels – indeed slightly higher amongst the poorest families than amongst the richest.[13]

To add to the incentive to attend school, some countries have tried paying for uniforms. In Kenya, while there is no requirement to wear a uniform in schools, nonetheless there is significant social pressure to do so.[14] A series of child sponsorship programs in rural Kenya since 1995 provided free textbooks and uniforms to students as well as constructing classrooms. Of the three interventions, only the uniforms proved effective in keeping children in school. A similar approach might help in countries including India, Bangladesh, Moldova, Armenia and Georgia, for example, where interviewed parents spoke of children being so embarrassed by their clothing that they refused to go to school.[15]

**Will They Learn Anything?**

While stimulating demand for schooling is a great idea in theory, schooling and learning are two notably different things. Indeed, for the great majority of the world's primary-age children (around 87 percent of them), the challenge is no longer getting into school, but actually learning something while there.

The World Bank study of outcomes from the program in Cambodia which provided scholarships to poor female students found that while more kids were turning up to school, they weren't necessarily learning anything as a result. Eighteen months after the scholarships were awarded, recipient children did no better on mathematics and vocabulary tests than they would have absent the program. Lower-ability students who wouldn't otherwise have wasted their time went to school in response to the payments –but didn't learn anything when they got there. Similarly, a program in Kenya that dewormed students so they didn't get sick led to increased student attendance rates, but had no effect on test scores.[16] It should be noted that a study of a conditional cash transfer program in Bogota, Colombia did find that the program had a small positive effect on test scores, especially amongst kids who were paid only if they matriculated high school.[17] It isn't that programs to increase enrollment *can't* have an impact on learning, but we shouldn't expect much if the school system is weak. And sadly, around the world, a lot of school systems are very weak.

---

[13] Filmer and Schady, 2008. Although a study by Baluch (2010) of the Primary Education Stipend in Bangladesh found an insignificant impact on enrollment –the author argues it may be because the value of the stipend declined over time to be worth only about six kg of grains a month.

[14] And emphasizing the close links between education and health outcomes, the free uniform program in Kenya also reduced the rate of teenage childbearing in program schools by ten percent, by making school relatively more attractive than leaving school to have a child –see Holla and Kremer, 2008

[15] Narayan et al, 2000

[16] Kremer and Miguel, 2004

[17] Barrera-Osorio et al 2008

The gap between schooling and learning can be illustrated more broadly by looking at the level of literacy achieved in countries that have dramatically increased school access rates. For example, the net primary enrollment rate in India is 90 percent. And the official literacy rate is 65 percent. But a study of five states in India where 68 percent of respondents classified themselves as literate found that only 38 percent could write their own name correctly and only 12 percent could read a second to third grade text book paragraph with ease.[18] A lot of these people had been to school –but had, apparently, learned little while they were there. Indeed, a recent survey found that of tested Indian students who had completed the lower primary cycle, 31 percent could not read a simple story and 29 percent could not do two-digit math problems.

India is hardly alone. Despite a gross primary enrollment rate above 100 percent in Bangladesh, over one half of eleven year olds are unable to write basic letters or numerals.[19] The average reading ability of Indonesian school students is equivalent to that of the lowest seven percent of French students, and the average math ability of Brazilian school students was equal to the abilities of the bottom two percent of Danish students.[20] In South Africa, only fifteen percent of those kids who finish grade nine acquire a basic literacy in math and science skills as measured on internationally comparable tests.[21] In the Western Cape, only 2 out of 1,000 sixth graders in predominantly black schools passed a mathematics test at grade level in 2005.[22] And forty percent of fifteen year old Mexican students fail an internationally comparable reading test passed by all but five percent of students in the average member country of the Organization for Economic Cooperation and Development.[23]

Why aren't kids learning? One significant factor is that there is frequently no-one to teach them. In South Africa, students at one school ended up rioting last year over the fact that their accounting teacher never turned up. Perhaps the only thing surprising about that is they expected things to be different.[24] Teacher absentee rates are chronic across the system. Again, South Africa is hardly unique. Eleven percent of teachers are absent on the average day in Peru, 16% are absent in Bangladesh, 27% in Uganda and 25% in India, for example.[25] In unannounced visits to schools in Adhra Pradesh in Inida, the chance that a civil service teacher was actually in a class and actively engaged in teaching during the school day was 28 percent. A quarter of

[18] Kothari, Pandey and Chudgar, 2004
[19] UNDP 2010
[20] Filmer et. al., 2006
[21] Hanushek and Woessmann, 2008
[22] http://www.nytimes.com/2009/09/20/world/africa/20safrica.html?_r=2&sq=south%20africa%20teacher&st=cse&scp=1&pagewanted=all
[23] Filmer et. al., 2006
[24] http://www.nytimes.com/2009/09/20/world/africa/20safrica.html?_r=2&sq=south%20africa%20teacher&st=cse&scp=1&pagewanted=all
[25] Rogers and Vegas, 2009

teachers were completely absent. Of those who bothered showing up to school, a little under half were actually teaching.[26]

Added to this, the quality of education that teacher could provide even when they try is often limited by their low level of knowledge. One study of South African third-grade teachers' literacy, for example, found that the majority of them scored less than 50 percent on a test designed for sixth graders. A study in seven southern African countries found that many primary school mathematics teachers possessed only basic numeracy and actually scored lower than their students on the same tests.[27]

In defense of teachers, low student achievement levels are hardly their fault alone. The average amount that low income countries have to spend on buildings and supplies per primary student per year is estimated at about $12.[28] And much of that already paltry sum may not actually reach schools. A study from the mid-1990s in Uganda found that schools received 13% of central government capitation grants for non-salary expenditures, and most schools got nothing – (although this number increased dramatically after a campaign to publish data on how much schools should have received).[29] That doesn't pay for many textbooks --or even much in the way of basic maintenance.

Beyond limited resources, a number of students who attend school are undernourished and unhealthy –conditions that are related to poor performance.[30] And kids that work after school, or live in a household with limited lighting for reading or writing, or who have to travel some distance to class, or whose parents are illiterate, face significant disadvantages in learning. For a range of reasons, then, putting kids into classrooms doesn't necessarily translate into putting knowledge into kids.

Figure One attempts to illustrate the various prerequisites for learning mentioned above. Schools are needed –as are teaching materials, utility services and so on. But to perform an educational function, schools also need students to be in class, motivated and able to learn. And they need teachers who are skilled and resourced enough to teach. And, finally, they need those teachers in the classroom with an incentive to instruct. It is clear that, all too often, the schools have been built and the other preconditions have been treated as secondary.

Similarly, analysis of the causes behind low scores on internationally comparable ninth-grade tests suggests how much more there is to getting a kid to learn that getting them through the door of a school. In South Africa, only one percent of fifteen to nineteen year olds have never been in

[26] Muralidharan and Sundararaman, 2008
[27] UNESCO, 2005
[28] Adkins, 1999
[29] Reinikka and Svensson, 2004
[30] Pridmoor, 2007

school. Six percent drop out before grade six and a further 47 percent before the end of grade nine. Of the 46 percent who complete grade nine, only seven percent reach the basic literacy score of the international test. In Ghana the numbers are 12 percent never enrolled, 50 percent drop out prior to the end of grade nine, 32 percent finish without gaining literacy, and just five percent finish meeting a minimum literacy level.[31]

**Is More Schooling the Secret to Economic Growth?**

A huge number of studies covering different countries and different time frames find that people who have been in primary or secondary school earn more on average than the un-schooled, and those that have been to university earn more than those who have only been to high school. And it is a short step from that to assuming that a more educated population will be richer as a whole. Still, the gap between schooling and learning might give pause to assuming a close relationship between schooling and economic performance.

According to estimates made by researchers at the World Bank, the rate of return to education is ten percent in Argentina, 12 percent in China, or seven in Ghana, for example –although it should be noted that these numbers are open to considerable dispute and estimates based on other approaches suggest lower returns.[32]

There is other evidence that schooling can impact outcomes. For example, prior to the green revolution in India, farmers with a primary education made ten percent more in profits for a given level of assets than did illiterate farmers. Eleven years later, in areas that had seen the introduction of new seeds, that profit difference had climbed to 40 percent. In areas unsuited to the new seeds, the profit difference remained at ten percent.[33] Other studies have found that educated farmers appear to be early adopters of new technologies.[34]

At the same time, a randomized trial by Esther Duflo carried out in Kenya suggested no impact of education on farm profits from increased fertilizer use. This does raise the possibility that more educated farmers in other studies shared other features (perhaps natural smarts, or a household environment that favored learning and experimentation) that actually drove the differences in outcomes. This is a concern with most education rate of return studies as well.

The cross-country empirical evidence might give us further pause. If schooling was so good for the economy you'd expect the dramatic catch up in enrollments we've seen by even the poorest and most desperate of countries towards enrollment levels in the rich world over the last fifty years would have been a source of considerable income convergence between the two. No such

[31] Hanushek and Woessmann, 2008

[32] Psacharopoulos and Patrinos, 2002 see Rosenzweig, 2010a, on the dispute.

[33] Foster and Rosenzweig 1996

[34] Rosenzweig, 2010a

luck –if anything, the world has seen income divergence over the last half century.[35] And you would also have expected global average growth to have accelerated under the influence of all that extra schooling. But growth rates have slowed down over that time. Sub Saharan Africa has seen gross primary enrollment levels climb from below 35% to above 95% 1960-2005.[36] Sadly, the region's average growth rates have declined over that period. Between 1960 and 1980, Sub Saharan Africa's GDP per capita increased 36%. Between 1980 and 2007, it climbed a mere 4%.[37] Again, schooling has expanded massively in the OECD over the last 100 years, from about six percent secondary enrollment to around 96 percent), but growth rates in these countries has been relatively stable.[38] Using a range of cross-country approaches to uncover a link, Lant Pritchett asked "Where has all the education gone" in a paper that looked for –and failed to find-- any significant relationship between schooling and economic growth around the world.[39]

Pritchett argued that there were three possible explanations: education had expanded fast enough that the supply of educated students outstripped demand; that educated workers were in lucrative jobs that had little social value (hedge fund manager, TV news pundit, or low-return public sector work); or that kids weren't actually learning anything in school. As we've seen, educated people keep on earning more, so a simple version of the supply and demand model doesn't seem to work as an explanation. And while casual empiricism suggests a lot of pretty useless jobs pay well, you would have to think that *most* jobs held by educated workers were economically useless in many countries to believe that the explanation rests solely on a market failure related to salaries.[40] But we have already seen considerable evidence for the third explanation –that kids just aren't learning very much.[41]

The complex link between our measures of investment in 'human capital' –schooling-- and growth can be illustrated by comparison with what we've learned about the link between investments in physical capital and growth. In the 1950s, the consensus amongst economists was that low capital investment was the reason that poor counties were poor. If only the newly independent states of Africa spent more on factories and roads, they would become rich. Sixty years later, we have a considerably nuanced view of the power of investment to encourage economic growth. Not only does the return to investment depend crucially on the environment in which it is made, but a lot of activities recorded as 'investment' in the national accounts might be better labeled otherwise. Think the Ajoukuta steel plant in Nigeria. It cost upwards of $4 billion dollars 'investment' to complete but has never produced to near its designed capacity.

[35] Pritchett, 1997

[36] Easterly, 2009

[37] Calculated using real GDP from World Bank 2009.

[38] Pritchett, 2004

[39] Pritchett, 2001

[40] Having said that sounds unlikely, Pritchett (2004) reports that 50 percent of all workers with one grade or more of post-primary education in Cote d'Ivoire in 1986-8 were working in the public sector.

[41] See also Temple, 2001

Some reports suggest that US$ 2 billion of the 'investment costs' had been siphoned off from the project in corrupt payments.[42] At the national level, Bill Easterly notes that if "Zambia had converted all the aid it received since 1960 to investment and all of that investment to growth" following the traditional investment to growth model, "it would have had a per capita GDP of about $20,000 by the early 1990s. Instead, Zambia's per capita GDP in the early 1990s was lower than it had been in 1960, hovering under $500."[43]

What is true of investment in physical capital is as true of educational investment. All too often, we have constructed schools, hired teachers, and enrolled students only to have them sit in classrooms absent the textbooks, absent chalk, absent the teacher –and absent any incentive to try. Economists usually measure stocks of 'human capital' as years of education per person or worker in the economy. More recently they have begun adjusting human capital estimates to allow for quality as measured by scores on internationally comparable tests. Given the issues with 'educational investment' around the world, it is unsurprising that when they adjust for the quality of education, stocks of human capital in developing countries look a lot smaller. Human capital stocks in India unadjusted for quality were 45 percent of US human capital stocks in 1988. If you adjust for quality, the figure might be closer to 25 percent.[44]

But even in countries that do manage to teach kids *something* that ups their test scores, there is still some debate over why more educated people earn more money. Is it because of what they have learned, or the fact that they have demonstrated they *could* learn, or the fact that they got into school in the first place? It may be that much of what the students do learn really does have limited economic value. Knowing the kings of England and/or fights historical in order categorical may, in fact, have little role in fostering growth. And perhaps learning how to take tests might be a distraction from absorbing useful knowledge.

Some empirical analyses point in this direction. A recent study in Italy found that test scores had a significant impact on the earnings of employees but none on the earnings of the self employed.[45] Perhaps Pink Floyd was right, and the value of education is to teach you how to be a better brick in the wall –a useful skill for the company man, less valuable to the entrepreneur. Or perhaps education was acting purely as a signal to employees –the actual stuff that students learned in Italian schools was of no intrinsic financial value. Think Bill Gates, who got into Harvard, but didn't finish his studies. The signal was right --but the education wasn't necessary. Similar results have been found in a range of other developed and developing countries.[46] In Ghana, for example, a survey of firms found that better educated workers got paid more

[42] Pritchett, 1999
[43] Easterly, 1999
[44] Soto, 2006
[45] Castagnetti, Chelli, and Rosti, 2005
[46] Koch and Ntege 2008, Feng Liang, Xiao Hao and Morgan, 2009

whatever their performance level and more education didn't correlate with better performance once cognitive ability was taken into account.[47]

This is not to say a greater appreciation of Dante's poetry or the wonders of the universe isn't of immense personal and social value in its own right –nor that basic literacy and numeracy aren't incredible valuable skills in both economic and social terms. It is going too far to suggest there might be *no* impact of education systems and what kids learn in school beyond signaling –which, by the way, is a useful function in and of itself. Nonetheless, these findings do suggest some potential problems regarding a close link between school learning and macroeconomic performance.

Some good news is that a number of recent studies suggest that education *does* have an impact on economic growth if we adjust for quality. In other words, countries that actually manage to *educate* lots of kids appear to grow faster.[48] But a link between education and economic growth may be a result of the signaling power of education at the national level as much as we have seen that a link between education and income might be the result of signaling at the individual level. Countries that actually manage to educate kids can probably do much else aside –effectively police cities, maybe, or regulate banks, or build roads.[49]

This helps to explain why, while more educated workers earn more than less educated workers everywhere, the within-country earnings differences across education levels are dwarfed by the across-country differences in wages for people with the same level of education. South Korean high school graduates earn ten times what Indian high school graduates do. Providing a Nigerian with a college education increases his annual income by about $200 a year. Provide a Mexican with a college education and it increases his income by $5,400 a year.[50] Some of this difference is doubtless due to differences in educational quality between India and Korea and Nigeria and Mexico. But a lot of it is due to non-educational factors that drive wage differences across countries. So, the debate is far from closed even on the causal impact of *learning* and economic growth, let alone schooling.

Of course, over the long term, education (where it actually happens) might have a considerable development impact beyond teaching directly relevant 'cognitive skills.' Not least, education can teach a common language and instill a sense of national solidarity. Indeed, the point of universal schooling isn't necessarily to increase 'human capital', it is often about indoctrination –

[47] Serneels, 2008

[48] Soto, 2006, Hanushek and Woessmann, 2008

[49] Hanushek and Woessmann ,2010. For example, one of the studies with the most control variables (Hanushek and Woessmann, 2009) includes period average test scores, initial income and schooling, openness, fertility, property rights and tropical location. It excludes measures of health and ethnic diversity, both of which one might imagine would be (causally) correlated with test scores.

[50] Rosenzweig, 2010b

becoming a better brick in that wall. That may be why education and extension of the franchise are so closely tied together.[51]

At the time of the French Revolution, for example, there were over three hundred dialects spoken in the country. An explicit goal of the highly centralized education system that emerged after the Revolution was to help foster a national identity. By 1919, it was a commonplace that "Practically all modern nations are awake to the fact that education is the most potent means in the development of the essentials of nationality" according to a course instructor in New York who had designed an entire syllabus for a course on *Democracy and Nationalism in Education*.[52]

Indeed, nation-building appears to have become almost universally accepted amongst politicians as a vital element of state strength.[53] Ask any US legislator considering another run for office if they think the Stars and Stripes is special, or the pledge of allegiance is a good thing, or the national anthem is a fine tune, and it will be a brave one who suggests they are anachronistic symbols of a Nineteenth Century ideology –or even that the anthem is impossible for most of the country to sing in tune. And they may have a point. A strong sense of national identification does appear to be a common feature of most rich countries, while residents of poor countries often more strongly associate with subnational ethnic groups.

Michela Wrong provides a recent example. She suggests that the transfer of power in Kenya after Daniel Arap Moi retired left new leaders from a different ethnic group with the sense that it was 'our turn to eat.' Such an attitude is hardly conducive to state policies that encourage long-term growth. Again, ethnic fragmentation related to the absence of a nation-state is central to explanations of 'Africa's Growth Tragedy' according to Bill Easterly and Ross Levine –because it is plausibly causally linked to weak institutional quality and low political stability.[54] The big (well, small) exception to the subcontinent's dismal growth performance is Botswana –a country of a little under two million of whom around four fifths are from the same ethnic group (the Tswana).

The usual measure of fragmentation –the measure which concerned France's revolutionary government-- is linguistic diversity within a country. Worldwide, in 1990, the average GNP per capita for a global sample of countries where under 60 percent of the population spoke the most popular home language was $1,990; for countries where over 60 percent spoke the most popular home language the average was $6,193.[55]

[51] UNDP, 2010

[52] The course was for the Teachers' College at Columbia University, the instructor was Edward Resiner.

[53] Alagappa, 1995

[54] Easterly and Levine, 1997

[55] Kenny, 1999

It is plausible to imagine that an education system which fosters a common linguistic tradition and instills a sense of national unity might have a long-term role in promoting economic development, then. It may be such a long-term relationship that allowed Richard Easterlin to argue that the answer to the question "Why Isn't the Whole World Developed" was that education spread far later to most (now) poor areas of the world than it did to (now) rich areas.[56]

But even if there is a very long-term relationship between education and economic performance which flows through stronger national institutions this suggests, first, that we may have to wait some time to see a growth payback to expanded educational opportunities and, second that quality still matters. Presumably even (or perhaps especially) indoctrination takes teachers actually teaching –and so the centrality of learning rather than just schooling remains. And there may well be a tradeoff between the ideological goals of nation building through universal schooling and efforts to increase the general quality of education provided, discussed later.

**Is Schooling Good for Your Health?**

It is one of the strongest results in decades of research into the causes of lower infant and child mortality –mothers who go to school have healthier kids.[57] But the study of the Cambodian conditional cash transfer program we looked at earlier found that amongst the many things that children who attended school because of the program *weren't* learning was anything about health outcomes. Why would mothers who sat through classes with teachers who didn't teach, or who lacked textbooks, or who, in many countries, weren't even meant to learn about reproductive and child health, necessarily see better health outcomes for their children? This does suggest the need to look further at what causes what when it comes to both health and education outcomes.

At the least, the relationship between education and health operates in both directions. We have seen that kids who got deworming treatments in Kenya are more likely to stay in school, for example –even if in that case they don't apparently learn anything more as a result.[58] And Gary Becker of the University of Chicago suggests that if kids are more likely to survive childhood, it makes much more sense for parents to invest in their education.[59]

In addition, and once again, perhaps schooling is signaling something. We have seen that the transition to universal enrollment suggest the importance of the demand side to education –and so the link between cultural change and enrollment levels. This suggests schooling may be a proxy measure for such cultural change –especially with regard to girls' education. The choice

[56] Easterlin, 1981

[57] See Kenny and Casabonne, 2008, for a partial review.

[58] Kremer and Miguel, 2004

[59] Becker and Lewis, 1973. Similarly, while there is evidence of a causal relationship between the two (Osili and Long 2007) work in South Asia suggests that fertility is declining amongst the educated and uneducated alike, and the relationship between levels of education and levels of fertility is complex, at the least (Jeffey and Basu, 1996).

to send girls to school might indicate an alteration in the power relations within the household in which women –and their opinions—matter more. For example, survey data across 19 African countries suggests that mothers who were more empowered to make decisions were more likely to send their kids to school.[60] This change in household power relations may matter more to health outcomes than the education that girls get in the classroom, given that women are more likely to use household resources to improve child health than are men.[61]

Some independent evidence of the importance of the idea of gender equality rather than what kids learn in school to health outcomes is provided by studies of the impact of television on measures of gender equality and girls schooling. Robert Jensen and Emily Oster studied the introduction of cable and satellite services in villages in India, which allowed households to watch a range of soaps starring strong women characters with few (but educated) kids and who had control over money. Rollout of cable and satellite is associated with higher girls' school enrolment rates, increased female autonomy and lower fertility.[62] Within two years of introduction, between 45 and 70 percent of the difference between urban and rural areas on these measures disappears. If changing attitudes in the household are in fact the most important factor in determining changes in behavior, which then improve health outcomes, sending a five year old off to sit in a classroom is at best an indirect way to accomplish that.

Once more, this is not to say that *learning* does not have a role in health outcomes. Eliot and Dean Jamison, along with Eric Hanushek at the NBER argue that countries whose school children do better on education test scores see more rapid reductions in infant mortality.[63] This result is subject to the same type of concerns about the link between education quality and income growth –countries that actually manage to teach kids in school might also do a better job of vaccinating them, or providing them with clean water –factors not allowed for in the analysis. Still, it is a more plausible story that actually learning things leads to better childcare and health practices rather than the assumption that merely sitting in a classroom somehow magically makes you a better parent.

**Is Education for All A Good Idea?**

Education for all is a popular idea, for sure. The World Declaration on Education for All, adopted by 155 countries in a conference in Jomtien, Thailand, in 1990 stated that "Primary education must be universal" and "ensure… the basic learning needs of all children." Michael Clemens notes that it was not the first international conference to commit to universal education

[60] Koissy-Kpein, 2010

[61] Guha-Khasnobis and Hazarika, 2006

[62] Jensen and Oster, 2007, see also Koissy-Kpein, 2010, who found mothers who watched more television were more likely to send their kids to school.

[63] Jasmison, Jamison and Hanushek, 2006

–these date back to the 1960s. Nor was it the last –not least, the Millennium Development Goals reaffirmed 2015 as a target date for all kids to finish primary school.

Notably unlike the Millennium Development Goal target for education, however, which focused purely on universal primary completion, the World Declaration on Education for All –and many of its predecessors-- emphasized basic education services "of quality." It also noted that successful basic education needed students in a fit state to learn and so that they had "the nutrition, health care, and general physical and emotional support they need in order to participate actively in and benefit from their education." Perhaps universal childcare for all kids five and above is worth pursuing, but universal primary *education,* which actually involves students learning something when enrolled, is surely an even better goal.

At the same time, the fastest way to achieve quality education may not be to attempt universal access through free schooling and faster classroom construction first, followed by quality second. First, reaching universal access isn't just about supply –as we have seen—it is about demand. Second, even if it turns out that there is 'latent demand' for education which allows for a rapid hike in enrollment figures, there is growing evidence that moving too rapidly towards access may have a significant negative impact on quality. Malawi's decade-old, underfinanced and largely unplanned experiment in moving almost overnight to universal primary education is generally regarded as a failure, according to Michael Clemens. The number of children in a first-grade class averages 100. Four out of 10 first-graders repeat the year. Children's achievement scores are among the lowest in Africa.

Again, the free primary schooling initiative launched in Kenya in 2003 saw more than a million additional children showing up for public schooling when the government abolished fees. The explosion in enrollments put enormous pressure on an already overburdened education system. The pupil-teacher ratio increased from 35 to 43 to one between 2000 and 2004 and in many schools classroom sizes increased from an average of 40 to as high as 120 students. Grade progression in public schools fell, and transition rates to secondary school declined, particularly amongst poor households.[64]

Over the longer term, net public primary enrollment actually stabilized at the pre-2003 level. In an ironic twist, the free primary policy led to many richer parents removing their kids from public schools and placing them in the private system. So, more poor kids attended public schools that were poorly performing –although no worse than previously—while more rich kids were put into a better-performing private sector. In 1997, 72 percent of children aged six to thirteen were in public schools, three percent in private schools and 25 percent were un-enrolled. In 2006, 69 percent of children were in public schools, nine percent in private schools and 22

[64] Clemens, 2004, Muyanga et. al. 2010

percent were un-enrolled.[65] To some extent, this might count as a success –but surely a partial one.

And with regard to using conditional cash transfers to further stimulate demand, it is a question worthy of consideration: how high are the economic and social returns to financial inducements to stay in school if they encourage students to attend classes where they may learn so little in part because of paltry expenditure on supplies? Even if school systems were to pay only $45 per year per student in incentives for them to attend, that's still nearly four times what many countries are spending on buildings, books, chalk and paper per student –and many multiples of what many schools are actually receiving for non-salary costs. Perhaps ensuring some level of quality should come before incentivizing quantity in these cases.

**Can We Improve Learning Outcomes?**

Worldwide, arguments rage over the best way to ensure kids learn in school. That they continue to do so suggests there is probably no one-size-fits-all solution. But it appears clear that the things that most affect student test scores are, once again, demand side factors. Around the world, the catch-all measure used to proxy for parental commitment to education is the number of books in a child's household. Consistently across survey and across countries, this measure predicts student educational outcomes better than class sizes, or expenditures per student.

Choice –the availability of private schooling, for example—does make a significant difference.[66] An analysis of the random distribution of vouchers that covered half of the costs of private secondary schooling in Colombia found that voucher recipients completed one more year of schooling on average, they were ten percentage points more likely to have completed 8$^{th}$ grade and scored significantly higher on standardized tests. But all of the measured interventions tried across countries to improve public schooling still appear to have a marginal impact compared to conditions at home.

Looking at cross-country analysis of test scores from the Programme for International Student Assessment (PISA, a standardized evaluation of 15 year old scholastic abilities) at the student level, the combined effect of introducing external exit exams alongside school autonomy in budget formulation, teacher hiring, starting salaries and course content is an associated rise in test scores of 17 points. Throw in two hours extra instruction each week, introducing assessments as the basis for student promotion, and lesson monitoring by principals and external inspectors, and associated PISA scores will be 42 points higher. That's still less than the score difference between kids from households with between 11 and 25 books at home and those with between 201 to 500 books at home. And a range of other factors completely outside the control of education ministries have a large impact on outcomes –family socio-economic conditions,

[65] Bold, 2010, Tooley, 2005. See also Pal and Kingodn, 2010.

[66] See also Pal and Kingdon, 2010

parent job type and employment status, household type, immigration status and language spoken at home.

At the same time, any number of supply-side attempts to improve the quality of education have had limited impact.[67] Indiscriminately throwing money at the problem certainly seems an inadequate response –the link between expenditures on schooling and enrollments or scores on internationally comparable tests is very weak.[68] Test scores have been pretty flat since the 1970s in OECD countries –expenditures have increased substantially. The same is true for East Asia in the 80s and 90s. And a similar story applies to class sizes. While there is some evidence of some effect of material shortages (negative) instruction time and teacher pay and quality (positive) on test scores, impacts are comparatively small.[69]

There are a number good reasons for such results. Spending may not reach the schools, as we have seen. Or it might substitute for private expenditures given the strong demand-side element to education –indeed, a study in Zambia suggest that public spending on education substituted one-to-one for parental schooling expenditures.[70] Or perhaps spending reaches schools but has little impact –surveys in India suggest that more highly paid (and more senior) teachers are just as likely to be bunking off work as their junior colleagues.[71]

About the only policy measures that appear to come close to having the impact on public education of household characteristics on outcomes, at least according to analysis of the correlates with PISA scores, are demand-side interventions that allow parents to better monitor and influence the quality of education their kids receive. This involves testing programs combined with local accountability in school systems. Pay for performance for teachers and administrators has also shown promise in some areas. Both are potentially exciting approaches, but again illustrate the problem of assuming one approach will work everywhere.

Starting with decentralization of power, parents who know that their opinions will be taken into account are more likely to provide oversight of school performance. It is a repeated finding in the literature that decentralization of school management down to the individual school level improves outcomes because parents are more likely to become involved in the schooling process.[72] Having said that, a randomized study in India suggests that despite considerable de jure powers of oversight by village education committees in Uttar Pradesh and efforts to increase interest in and awareness of schooling quality and the role of village education committees,

[67] Hanushek and Woessmann, 2008
[68] Hanushek and Kimko, 2000, Clemens, 2004
[69] Hanushek and Woessmann, 2010
[70] Das et al., 2003
[71] Kremer et. al., 2005
[72] Di Gropello, 2004

outcomes remain poor and village education committees dysfunctional.[73] The authors of the education study conclude that large-scale oversight mechanisms work best when stakeholders can directly and easily observe problems –which they couldn't in this case, despite the fact many in the oversight committees were parents of kids in the schools they were overseeing. Similarly, cross-country evidence suggests that school systems that have an external exit exam combined with local autonomy perform better on tests. Performance is actually worse if there is autonomy *without* testing –suggesting only informed demand from parents can make a real difference.[74]

With regard to teacher incentives, a randomized study supported by the World Bank looked at the impact of providing additional resources to primary schools in the Indian state of Andhra Pradesh. Some schools were given block grants to spend on books, chalk and other materials. Other schools were given money to use as bonuses to primary school teachers whose students performed better on math and language tests. Spending more on materials had some impact, but rupee for rupee, the impact of bonuses was three times as large. Indeed, the bonus system even improved test scores on tests in other subjects where no teacher incentive was attached.[75] Again in Andhra Pradesh, the introduction of contract teachers (who are low-paid and often lack professional training) significantly improved test scores in a random trial. That may be in part because the contract teachers had an absentee rate about half of that for civil service teachers and were significantly more likely to be engaged in teaching when at school. [76]

Similarly, in an experiment led by Esther Duflo of MIT and carried out in 57 Indian schools, a teacher's daily attendance was verified through photographs with time and date stamps, and his salary was made dependent on his attendance. The teacher absence rate dropped from 42 percent to 21 percent as a result of the incentives. The program also improved test scores in the schools.[77] In Kenya, however, teacher performance incentives related to test scores increased student scores in the short run only because teachers figured out how to manipulate scores –the program did not increase teacher attendance, the quality of pedagogy or homework assignment.[78]

Perhaps a more direct approach might work. If it is difficult to tackle the issue of poor quality teaching, a combination of student incentives might work. Paying the kids themselves for improved performance is being evaluated by a number of US school districts. Related approaches would be to ensure that graduation is based on test scores not years in school, and ensuring that students have improved abilities to work around poor quality teaching (textbooks, library access, radio and TV-based instruction tools, volunteer teaching aids and so on).

[73] Banerjee et al 2008.
[74] Hanushek and Woessmann, 2010
[75] Muralidharan and Sundararaman, 2009
[76] Muralidharan and Sundararaman, 2008
[77] Duflo et al, 2008
[78] Glewwe et al. 2003

A more subtle variant might use peer pressure to achieve the same result. Michael Kremer argues that one way to improve the quality of boy's education is to give scholarships to girls who do well in school. This improves the test scores of boys as well because they compete to equal the improved test scores of their female classmates.[79] Having said that, surely this once again is no panacea –especially in cases where whatever the motivation of the students, teachers have no incentive to teach.

In addition, approaches to improving school quality are often politically complex, and may face opposition from powerful lobbies. Regarding slow progress in improving South Africa's education system, Mamphela Ramphele, former vice chancellor of the University of Cape Town, complained in a recent speech that the country had "the highest level of teacher unionization in the world, but their focus is on rights, not responsibilities."[80] Evidence from Uttar Pradesh suggests similar concerns --students with teachers who are members of a union perform worse on tests, other things equal. Even if introduced, reforms that are designed to improve incentives may be manipulated so that they can be gamed –apparently the case in Kenya.

Again, the ideological goals of state-sponsored education programs –instilling a sense of national identity and common values—can cut considerably against efforts to improve education through increased parental choice and control. Pritchett notes that the larger the gap between 'state ideology' and individual household beliefs, the less that parental choice will be attractive to policymakers –which explains the moves to centralize education in the aftermath of revolutions in countries from the Soviet Union to Turkey and Tanzania, and lower private school enrollment rates in the secularist regimes of the Middle East than in its monarchies. He suggests this phenomenon is why voucher programs and school choice have seen such limited inroads around the world despite a UN Declaration of Human Rights that states "parents have a prior right to choose the kind of education that shall be given to their children."[81] Behind the more rapid spread of schools than of learning worldwide lies a complex story of political economy.

Figure Two takes the earlier prerequisites for education picture and adds a list of potential policy responses that might help to improve outcomes discussed above. But it is worth repeating that available evidence suggests that broader socio-economic factors (potential financing, the demand for quality schooling, the supply of tertiary-educated graduates and so on) probably play the dominant determining role in all of the steps from school construction to learning outcomes.

---

[79] Kremer et. al. 2004

[80] http://www.nytimes.com/2009/09/20/world/africa/20safrica.html?_r=2&sq=south%20africa%20teacher&st=cse&scp=1&pagewanted=all

[81] Pritchett, 2009. He notes the particularly tragic example of the Ukraine where between 1928 and 1933 school enrollments shot up even as three to five million people died in famine and others were purged: "the expansion of schooling, purges and the famine all had the same objective –a suppression of Ukranian nationalism and opposition." One wonders if a politically plausible half way house might be a centralized process of curriculum development and testing combined with a decentralized, choice-based schooling system.

This links to a broader point about where education happens. A focus on learning rather than enrollment suggests increased attention to the considerable proportion of learning which takes outside the classroom. There are a number of tested interventions to impart useful knowledge that do not require a school. Considering only communications technology interventions to teach literacy, these include radio instruction, using mobile phone texting capabilities to teach subscribers how to read and write and same language subtitling on TV. A dramatic example of this last approach involve the Indian television program Rangoli, which broadcasts Bollywood sings for half an hour a week. Hindi subtitles were added to the (Hindi) songs as they were broadcast. A survey of students found that of the children from households with a television who did not watch Rangoli, only 25 percent could read a simple paragraph in Hindi after five years of schooling. This figure jumped to 56 percent amongst children who watched the program.[82]

**Conclusion**

It is hardly news that there is more to 'human capital' than putting kids in a school. J.S. Mill had learned Greek by the age of three, had read all of Herodotus by age eight, had completed most of the famous Latin texts by age ten and had a nervous breakdown by age twenty all absent the benefits of attending classes. We have seen that Bill Gates dropped out of Harvard but this was apparently no barrier to a reasonably successful career.

While putting more kids in school *is* a sign of development progress, this is in many cases as much because of what it says about how society has changed than what it says about what children will learn while there. Unlike vaccinating every child for measles, putting every kid in school doesn't in and of itself guarantee improved quality of life –indeed, the impact of schooling without education appears to be very low. Enrollments are an input to the desired outcome of learning. In the spirit of a broader focus in the development community on impact, we should be looking at measures of learning when we evaluate the success of educational policy and expenditures.

Similarly, rapidly expanding enrollment rates may have distinctly low returns with regard to broad development impact in countries where the quality of education is already low and there are other more significant barriers to growth. Combined with the limited evidence for a higher public return to education than private returns, this suggests careful deliberation is required before education budgets are expanded to take up an even higher percentage of country budgets (education already accounted for an average of about 17 percent of government expenditures in Sub-Saharan Africa in 2005).[83] Even if free primary education may be justifiable, spending on conditional cash transfers based on school attendance, as it might be, may well be a step too far in many countries. The proposed approach of the cash on delivery model being championed by

[82] http://www.globalgiving.org/pfil/593/projdoc.pdf

[83] Calculated from the African Development Indicators online.

Nancy Birdsall and Bill Savedoff, in which donors will pay recipient countries for students being tested and scores published, appears a more effective approach.[84]

Every kid should be in school, and every kid should learn something when they get there. But getting to that state is not an easy task. Building schools is probably the simplest part of it, with hiring teachers a close second. A lot of poor and poorly governed countries have managed to do this. Getting children to learn appears to be far harder and involves changes which go far beyond education policy –given a significant impact of household and student characteristics on learning outcomes. And there is little evidence that the best way to increase overall learning outcomes is build more schools, hire more teachers and pay for attendance first and then worry about school quality later.

In this regard, and in the context of the Millennium Development Goals, it is worth emphasizing both the importance of the demand side and the limited evidence of a development return absent education. This suggests that the current goal of 100 percent primary completion is setting up a number of countries for likely failure --countries like Niger that have seen very rapid increases in enrollment over the past ten years, but from such a low base it they could not plausibly reach 100 percent by 2015. It also suggests that for some countries, including Tanzania, which have seen very rapid expansion and may meet the MDG target, the cost may be declines from an already low level in terms of quality –potentially with a negative return in terms of development outcomes.

Filmer, Hasan and Pritchett have proposed a Millennium Learning Goal based on PISA scores to replace the school completion and enrollment targets that currently feature in the MDGs.[85] They hope that such a Goal will focus attention where it appears to be most lacking –on quality as opposed to quantity. Once again, however, the importance of the demand side to outcomes suggests some caution in setting ambitious target levels for such a quality goal.

Children *can* learn lots of useful stuff in school, with considerable economic and social returns attached. But this requires an increased focus on the measurement and improvement of quality. The expanding global coverage of internationally comparable tests like the PISA is a welcome first step in this regard. And even if choice, decentralization and teacher, parent and student incentives are unlikely to be universal cure-alls in and of themselves, they do show some promise when it comes to improving outcomes, and should continue to be supported –as should approaches outside the classroom. There are ways to improve the returns to both public and private investment in education, then –and we should grasp them. This not only on the grounds that it might improve a country's economic performance, but based on the certainty that it will improve the quality of life of students. Once we have made sure that school is a worthwhile

[84] Birdsall, Savedoff and Mahgoub, 2010.

[85] Filmer Hasan and Pritchett, 2005.

investment for all children, then we should push for universal enrollment. But, perhaps, only then.

**Figure One: From Schools to Education**

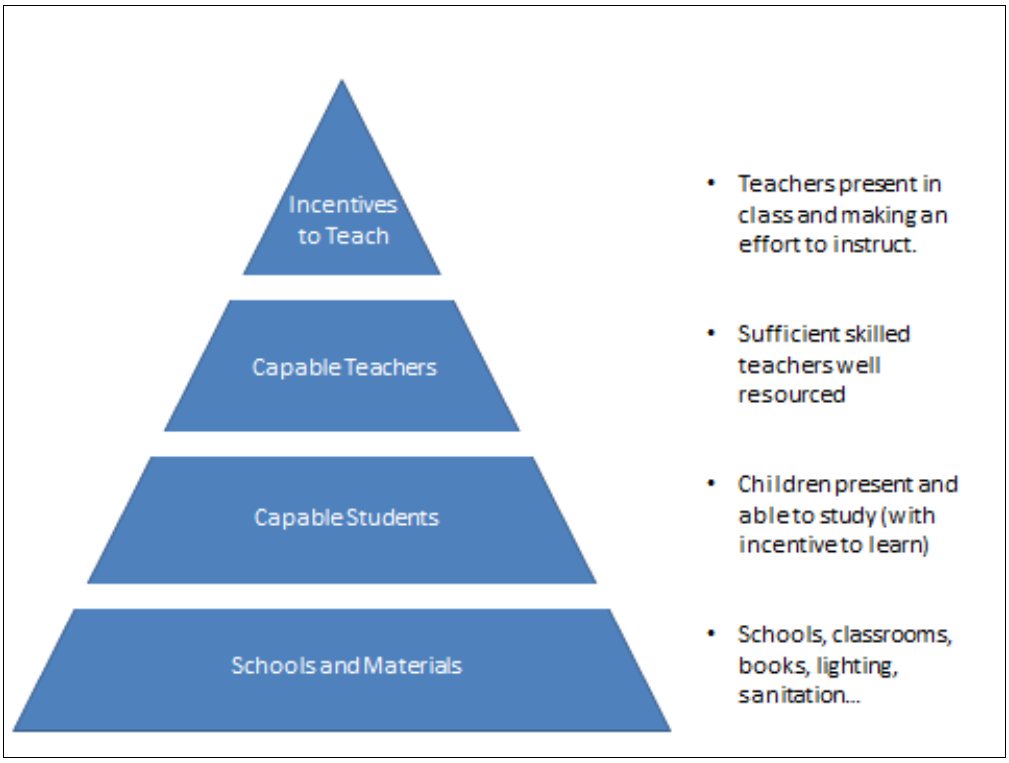
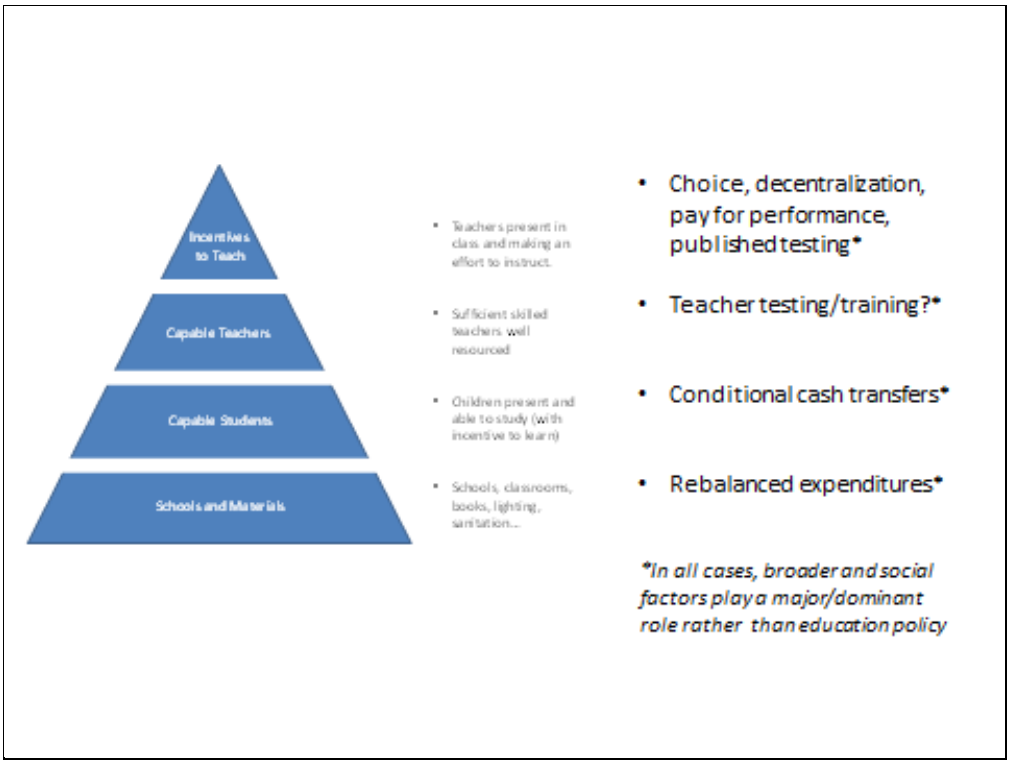



**Figure Two: Policy Levers?**



**Bibliography**


Adkins, D. (1999) Cost and Finance. in: Dock, A., Helwig, J. (Eds.), *Interactive Radio Instruction: Impact Sustainability and Future Directions*. The World Bank, Washington, DC.

Alagappa, M., (1995) *Political Legitimacy in Southeast Asia,* Stanford: Stanford University Press.

Angrist, J., E. Bettinger, E. Bloom, E. King and M. Kremer (2001) Vouchers for Private Schooling in Colombia: Evidence from a Randomized Natural Experiment, NBER Working Paper 8343.

Baluch, B. (2010) The Medium Term Impact of the Primary Education Stipend in Rural Bangladesh, IFPRI Discussion Paper 00976.

Banerjee, A. et. al. (2006) Can Information Campaigns Spark Local Participation and Improve Outcomes? A Study of Primary Education in Uttar Pradesh, India, World Bank Policy Research Working Paper 3967.

Barrera-Osorio, F. M. Bertrand and L. Linden, Leigh and F. Perez-Calle (2008). Conditional cash transfers in education : design features, peer and sibling effects evidence from a randomized experiment in Colombia, World Bank Policy Research Working Paper 4580,

Becker, G. and H. Lewis (1973) On the Interaction Between the Quantity and Quality of Children *Journal of Political Economy* 81 S279-S288.

Benavot, A. and P. Riddle (1988) The Expansion of Primary Education, 1870-1940: Trends and Issues, *Sociology of Education* 61, 3, 191-210

Birdsall, N., W. Savedoff and A. Mahgoub (2010) *Cash on Delivery: Linking Aid to Results*, Washington DC: Center for Global Development

Bold, T., M. Kimenyi, G. Mwabu and J. Sandefur (2010) Does Abolishing Fees Reduce School Quality? Evidence from Kenya, mimeo, IIES, Stockholm University.

Burde, D., & Linden, L. L. (2009). The Effect of Proximity on School Enrollment: Evidence from a Randomized Controlled Trial in Afghanistan. New York University, Steinhardt and Columbia University, IZA, BREAD

Castagnetti, C., F. Chelli, and L. Rosti, (2005) Educational Performance as Signalling Device: Evidence from Italy. *Economics Bulletin,* Vol. 9, No. 4

Clemens, M. (2004) The Long Walk to School: International Education Goals in Historical Perspective, Center for Global Development Working Paper 37.

Das, Jishnu, Stefan Dercon, James Habyarimana, and Pramila Krishnan (2003), .When Can School Inputs Improve Test Scores?.forthcoming Policy ResearchWorking Paper, Development Economics, World Bank.

Di Gropello, E. (2004) Education Decentralization and Accountability Relationships in Latin America, World Bank Policy Research Working Paper No. 3453.

Duflo, E, R. Hanna, and S. Ryan (2008), Monitoring Works: Getting Teachers to Come to School CEPR Discussion Paper No. DP6682

Easterlin, R. (1981) Why Isn't the Whole World Developed? *Journal of Economic History* 41, 1.

Easterly, W. (2009) *How the Millennium Development Goals are Unfair to Africa*, World Development 37, 1.

——— (1999) The ghost of financing gap: Testing the growth model used in the international financial institutions, Journal of Development Economics 60, 2.

Easterly, W. and R. Levine (1997) Africa's Growth Tragedy: Policies and Ethnic Divisions, *Quarterly Journal of Economics* 112.

Feng Liang, L., D. Xiaohao and W. Morgan (2009) Higher Education and the starting wages of graduates in China *International Journal of Educational Development*, Volume 29, Issue 4,

Filho, I. and R. Colistete (2010) Education Performance: Was It All Determined 100 Years Ago? Evidence From Sao Paulo, Brazil, presented at the Economic History Association Annual Meeting September 24-26.

Filmer, D. (2004) If You Build It, Will They Come? School Availability and School Enrollment in 21 Poor Countries, World Bank Policy Research Working Paper 3340.

Filmer, D. and N. Schady, (2009), School Enrollment, Selection and Test Scores World Bank Policy Research Working Paper Series 4998

Filmer, D., A. Hasan and L. Pritchett (2006) A Millennium Learning Goal: Measuring Real Progress in Education, Center for Global Development Working Paper 97.

Glewwe, Paul, Nauman Ilias, Michael Kremer (2003), .Teacher Incentives.Working Paper 9671,

Guha-Khasnobis, B. and G. Hazarika (2006) Women's Status and Children's Food Security in Pakistan WIDER Discussion Paper No. 2006/03

Hanushek, E. and D. Kimko (2000) Schooling, Labor Force Quality and the Growth of Nations, *American Economic Review* 90, 5, 1184-1208.

Hanushek, E. and L. Woessmann (2010) The Economics of International Differences in Educational Achievement IZA Discussion Paper 4925

——— (2009) Do Better Schools Lead to More Growth? Cognitive Skills, Economic Outcomes, and Causation, NBER Working Paper 14633.

——— (2008) The Role of Cognitive Skills in Economic Development *Journal of Economic Literature* 46, 3.

Holla, A. and M. Kremer (2008) Pricing and Access: Lessons from Randomized Evaluations in Education and Health, in W. Easterly (ed) *What Works in Development? Thinking Big and Thinking Small*, forthcoming.

Jamison, E., D. Jamison and E. Hanushek (2006) The Effects of Education Quality on Income Growth and Mortality Decline NBER Working Paper 12652

Jeffey, R. and A. Basu (1996) Girl's Schooling, Women's Autonomy, and Fertility Change in South Asia, Sage, New Delhi, India.

Jensen, R. and E. Oster (2007) The Power of TV: Cable Television and Women's Status in India, NBER Working Paper 13305.

Kenny, C. (2008) The Global Expansion of Primary Education, available at www.charleskenny.blogs.com

——— (2006) *Overselling the Web? Development and the Internet*, Boulder: Lynne Rienner
——— (1999) Why Aren't Countries Rich? Weak States and Bad Neighborhoods, *The Journal of Development Studies*, 35, 5.
Kenny, C. and U. Casabonne (2008) The Best Things in Life are (Nearly) Free: Technology, Ideas and the Global Quality of Life, mimeo, Center for Global Development.
Kingdon, G. and M. Muzammil (2010) The school governance environment in Uttar Pradesh, India: Implications for teacher accountability and effort, Research Consortium on Educational Outcomes and Poverty Working Paper 31/10
Koch S. and S Ntege (2008) Returns to Schooling: Skill Accumulation or Information Revelation? University of Pretoria Working Paper: 2008-12
Koissy-Kpein (2010) The Greater Mothers' Empowerment, the Higher Girls' Schooling: ERvidence from DHS Monogamous Households, CEPS Working Papers 2010-19
Kothari, B., A. Pandey, and A. Chudgar (2004) Reading Out of the "Idiot Box": Same-Language Subtitling on Television in India. *Information Technology and International Development* 2, 1.
Kremer, M and E. Miguel (2004) Worms: Identifying Impacts on Education and Health in the Presence of Treatment Externalities, *Econometrica* 72, 1.
Kremer, M., N. Chaudhury, F. Rogers, K. Muralidharan and J. Hammer (2005) Teacher Absence in India: A Snapshot, *Journal of the European Economic Association* 3:2-3
Morrisson, C. and F. Murtin (2009) The Century of Education CEP Discussion Paper 934
Muralidharan, K. and V. Sundararaman (2009) Teacher Performance Pay: Experimental Evidence from India, NBER Working Paper 15323
——— (2008),"Contract Teachers: Experimental Evidence from India," mimeo University of California at San Diego
Muyanga, M. et. al. (2010) Free Primary Education in Kenya: An Impact Evaluation Using Propensity Score Methods, PMMA Working Paper 2010-08.
Narayan, D. with R. Patel, K. Schafft, A. Rademacher and S. Koch-Schulte (2000) *Voices of the Poor: Can Anyone Hear Us?* New York, Oxford University Press.
Osili, U. and B. Long (2007) Does Female Schooling Reduce Fertility? Evidence from Nigeria, NBER Working Paper 13070
Oxfam (2000) *Education Now: Breaking the Cycle of Poverty*, Oxford: Oxfam
Pridmore, P. (2007) *The Impact of Health on Education Access and Attainment: A Cross-National Review of the Research Evidence* CREATE Pathways to Access Research Monograph No 2.
Pritchett, L. (2009) The Policy Irrelevance of the Economics of Education: Is Normative as Positive Just Useless, or Worse? In Cohen, J. and B. Easterly *What Works in Development: Thinking Big and Thinking Small*, Washington DC, Brookings.
——— (2004) Does Learning to Add Up Add Up? The Returns to Schooling in Aggregate Data, BREAD Working Paper No. 53.

——— (1999) The Tyranny of Concepts: CUDIE (Cumulated, Depreciated Investment Effort) Is Not Capital World Bank Policy Research Working Paper No. 2341
——— (1997) Divergence, Big Time, *The Journal of Economic Perspectives*, 11, 3, 3-17
——— (1996) Where Has All the Education Gone? World Bank Policy Research Working Paper 1581.
Psacharopoulos, G. and H. Patrinos (2002) Returns to Investment in Education, A Further Update World Bank Policy Research Working Paper No. 2881
Reinikka, R. and J. Svensson (2004), Local Capture: Evidence from a Central Government Transfer Program in Uganda, *The Quarterly Journal of Economics*, vol. 119 (2): 679-705.
Rogers, F. and E. Vegas (2009) No More Cutting Class? Reducing Teacher Absence and Providing Incentives for Performance, World Bank Policy Research Working Paper 4847.
Rosenzweig, M. (2010a) Microeconomic Approaches to Development: Schooling, Learning and Growth, *Journal of Economic Perspectives* 24, 3, 81-96.
——— ( 2010b) Global Wage Inequality and the International Flow of Migrants, Working Papers 77, Yale University, Department of Economics
Serneels, P. (2008) Human capital revisited: The role of experience and education when controlling for performance and cognitive skills *Labour Economics* Volume 15, Issue 6,
Soto, M (2006) The Causal Effect of Education on Aggregate Income, mimeo, Instituto de Analisis Economico, Barcelona.
Tansel, A. (1997) Schooling Attainment, Parental Education and Gender in Cote d'Ivoire and Ghana *Economic Development and Cultural Change* 45, 825-856.
Temple, J (2001) Generalizations That Aren't? Evidence on Education and Growth *European Economic Review* 45, 4-6.
Tooley, J. (2005) Is Private Education Good for the Poor? Working Paper, University of Newcastle Upon Tyne.
UNDP (2010) *The Real Wealth of Nations: Pathways to Human Development (HDR 2010)* New York: United Nations.
UNESCO (2005) Education for All Global Monitoring Report, Paris: UNESCO
World Bank (2009) *World Development Indicators* Washington DC: World Bank
——— (2007) World Development Indicators Washington DC: World Bank.