Stephen P. Heyneman and Jonathan Stern 2015 "Development and Education" pp. 20-47 in Pauline Dixon, Steve Humble and Chris Counihan (Eds.) *Handbook of International Development and Education* Cheltenham (UK): Edward Elgar Publishing Company.

3. Development and education

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INTRODUCTION

Interest in the economic effects of education ran parallel to the wave of countries attaining independence following WWII, a period of about 70 years. In this chapter we attempt to summarize the general trends of education and development and divide our discussion into two parts. In the first section, we discuss macro issues. These include the models or approaches to measure the impact of education on development. We begin with a summary of the discussion over how we know whether investments in education result in changes in economic productivity and national development. We then move to issues surrounding what kind of education is most worthy of investment and the tendency for models to become monopolies. In this subsection we also discuss the policy distortions that have occurred over the false choice of having to invest in either primary or higher education. In the final subsection on macro issues we summarize the burgeoning literature on International Large Scale Assessments (ILSAs) of academic achievement. We also comment on the degree to which international assessments have become a means to characterize a country's quality of education and whether this is either accurate or healthy.

The second section concentrates on the micro-level issues of schools and individual students. We begin with a discussion of classroom language and the degree to which it is wise or feasible to provide schooling in the mother tongue. Next we move to the issue of privatization. There the question concerns the degree to which the modern state is capable of regulating, financing and providing education for all. Following that we raise the issue of gender. Since the beginning, education and development literature has emphasized the importance of equalizing opportunity for women and girls, and for many low-income countries this remains the most prominent focus. However, we point out that gender under-representation begins to shift as countries attain middle-income status. Among high-income countries, boys tend to be under-represented and females tend to be over-represented. We speculate on the ramifications of this trend for both developing and advanced countries. We end with a summary of what these trends mean for education and development in the future.

MACRO ISSUES

Education and Economic Development

Education has long been posited as an important factor for economic growth and development. This relationship is based on the theoretical assumptions that education can increase human capital and labor productivity, provide the building blocks for the innovative capacity of an economy and facilitate the knowledge needed to understand new information and to use new technologies (Hanushek and Woessmann, 2010). Despite the fact that economists have been estimating the returns to investment in education for more than 50 years, clear empirical evidence of the effect of education on economic development has been limited. Many researchers have recently begun to claim that the lack of evidence is due to measurement problems in standard estimations (Aghion et al., 2009; Barro and Lee, 2013; Cantoni and Yuchtman, 2013; Hanushek and Woessmann, 2008). For example, the most commonly used metric over the past half century has involved calculating private rates of return based on years of schooling. In a 2004 comprehensive review of the rates of return literature, Psacharopoulos and Patrinos offer that the average rate of return for an additional year of schooling was approximately 10 percent (Psacharopoulos and Patrinos, 2004). In addition to concerns about the omission of social returns as well as the legitimacy of aggregating returns to education, the biggest issue with this approach is whether or not years of schooling accurately measures educational investment and/or attainment. This line of research also leaves unanswered questions about the relationship between education and economic development at the macro level. Fortunately, new approaches have been developed in the past decade to address these concerns.

One innovative approach comes from recent work by Aghion et al. (2009). Noting their hesitation in using compiled rates of return statistics, the authors argue that counting an extra year of primary school as equivalent to an additional year in a doctoral program precludes us from learning anything about the mechanisms that drive the impact of educational investments on economic growth. Accordingly, they use instrumental variables for educational spending in the United States in order to estimate the impact of investments on growth with regard to technological innovation. They conclude that investment in four-year institutions creates growth in all US states but that investments in research-type education provides positive growth effects only for states that are close to the technological frontier. This latter finding provides further evidence to justify the concern over the out migration of talent from less technologically advanced areas.

In the international literature, Caselli and Ciccone (2013) use a non-parametric approach to compute an upper bound estimate of the growth in output that can be obtained if underdeveloped economies increased their levels of schooling to that of the United States. This is purported to have an advantage over prior work due to the measure's validity for any number of schooling levels with arbitrary patterns of substitution/complementarity. Ultimately, they conclude that while poorer countries have seemingly large increases in output associated with attaining US schooling levels, the proportion of the initial output gap accounted for by this increase is quite small. For example, while a country may double or triple its output by matching US schooling levels, this still equates to less than a 1 percent reduction in the initial output gap between the country and the United States. This disheartening finding provides further support for researchers who claim that quality of schooling is a more appropriate measure of educational attainment than years of schooling.

For example, Hanushek and Woessmann (2010) argue that "the evidence [over the past decade] suggests that the quality of education, measured by the knowledge that students gain as depicted in tests of cognitive skills, is substantially more important for economic growth than the mere quantity of schooling" (p. 248). This claim is in reference to a growing number of studies that have found an effect of educational quality on economic growth, using data from international student achievement tests (Barro, 2001; Bosworth and Collins, 2003; Coulombe and Tremblay, 2006; Hanushek and Kimko, 2000; Hanushek and Woessmann, 2008; Jamison et al., 2007; Woessmann, 2002). For their analyses, Hanushek and Woessmann (2010) use previously unavailable data to address this issue. First, they conduct an analysis using the more traditional approach of examining the relationship between years of schooling and economic growth (as a percentage of gross domestic product (GDP) per capita) from 1960 to 2000. This analysis finds that an additional year of schooling is associated with long-run growth that's approximately 0.6 percent higher. However, adding educational quality to the model (measured as the average mathematics and science scores across international assessments) not only increases the share of explained variation in economic growth from 25 percent to 73 percent, but also renders the association between years of schooling and growth insignificant. The association between educational quality and economic growth, on the other hand, shows 2 percent higher growth for a 1 standard deviation increase in quality. In other words, models that neglect to include measures of education quality can only explain a small fraction of changes in economic productivity—and they incorrectly attribute a significant amount of that change to years of schooling.

In more recent work, Hanushek and Woessmann (2012) use a variety of estimation techniques to conclude that their previous findings are robust to alternative estimates. Additionally, they find "direct evidence that both providing broad basic education—education for all—and pushing significant numbers to very high achievement levels have economic payoffs" (Hanushek and Woessmann, 2012, p. 301). Similarly, Barro (2013) analyzes panel data for approximately 100 countries from 1960 to 1995 and finds that there is a significant, positive relationship between science scores on international assessments and economic growth—and, like Hanushek and Woessmann, concludes that the effect of school quality on growth is more important than the impact of years of schooling. Using a slightly different approach, Hanushek et al. (2013) examine the impact of autonomy on student ability (as measured by international assessments). They find that autonomy is significantly correlated with changes in performance but that this relationship is positive in advanced countries but negative in developing countries. Furthermore, the negative effect in developing countries is strongest with regard to autonomy in academic content but is still significant for personnel and budgeting. This is an extremely interesting finding given the tendency toward decentralization for many developing countries—which may in fact be detrimental to student achievement and, consequently, economic growth.

After decades of mixed results and misspecified models, this new line of research provides promising evidence for the relationship between education and economic development. Ultimately, it appears that knowledge and cognitive skills could be more important for economic growth than quantity of schooling. For, as Hanushek and Woessmann (2012) offer: "[S]chool policy can, if effective in raising cognitive skills, be an important force in economic development" (p. 300).

What Education is Most Worthy of Investment?: From Models to Monopolies

Economists such as Harbison and Myers (1964) helped quantify the 'need' for skilled manpower in agriculture, mining and manufacturing by comparing the ratio of managers, technical specialists and manual laborers across countries. They found that, if more developed countries had a different ratio within the same industry, such as mining, then new investments within the sector under consideration were justified to advance the developing country toward that of its competitors.

Manpower forecasting became the dominant method of responding to the question of what type of education should receive new investment. At a 1963 UNESCO meeting of education ministers in Addis Ababa, each

participating country arrived with a manpower plan justifying new investments. The technique was so prevalent that when the World Bank began to invest in education in 1962, manpower planning became the sole analytic tool. Every education project between 1962 and 1980 was justified on the basis of manpower planning (Heyneman, 2005). When a new meeting of education ministers was held in Jomtien, Thailand, in 1990, however, no country came with a manpower plan. The story of education and development begins with the battle over methods to justify investments and the ramifications of one method over another.

In spite of its popularity, manpower planning was known to have important problems and distortion effects (Anderson, 1969; Anderson and Bowman, 1967). Manpower planning could only justify an expansion of specific skill training, essentially vocational and engineering education. The assumptions behind investing in vocational education were effectively challenged in the 1960s (Foster, 1965). It was pointed out that the models included neither monetary costs nor benefits. This suggested that vocational programs could be expanded without considering the costs, alternative uses of capital or evaluating the basis of profitability. Manpower forecasting could not justify investments in primary, general secondary or tertiary education, or improvements in education quality. Hence these important areas were neglected by development assistance agencies until manpower planning could be challenged effectively and replaced with economic rates of return (Heyneman, 1995; 1999; 2005). Manpower forecasting created distortions as well. Because they could not justify general secondary education, secondary investments, for economic reasons, were required to have a diversified curriculum. This included metal shops, wood shops, domestic science (for girls) and agricultural farms. Every secondary school investment project of the World Bank between 1962 and 1980 contained these workshops. They increased the unit cost by 2.5 times, were systematically under-utilized and quickly shifted to academic purposes as soon as possible because the demand for academic training was greater than the demand for training in diversified subjects (Heyneman, 1985; 1987).

Economic rates of return offered a different method of responding to the question of whether there was an over-investment in education. If economic rates of return were lower than zero, for instance, it might be assumed that the investments were un-economic. They were also used to guide decisions within the education sector as to where new resources might be allocated. The techniques had been used in sector work (Carnoy and Thias, 1972; Heyneman, 1980; Heyneman, 1979), but early in the 1980s the techniques were introduced as a rationale for project justification. The distortions were a result not of the technique itself, but the interpretation

of the results. On the basis of a meta-analysis of rate of return studies, it was concluded that rates of return were higher for primary than secondary and higher for secondary than post-secondary (Psacharopoulos, 1994). This led some to conclude that public investments should shift away from higher education toward primary education and that higher education should be financed in part through private fees and tuitions made possible through student loans (Psacharopoulos et al., 1986). These conclusions began to be referred to as the World Bank's "short policy menu" (Heyneman, 2005). The reaction from the academic world was strong and largely hostile (Lauglo, 1996; Bennell, 1996; Samoff, 1999; Morna, 1994; Watson, 1996). While the issue with rates of return models raised in the first section of this chapter stems from concerns about the measurement of educational attainment, this debate was largely focused on how to appropriately measure economic productivity.

There were two ramifications of this debate. The "short policy menu" recommended a decrease in public investment in higher education and that led to concerns that low-income countries would be under-represented wherever there were important trade, technology and economic decisions to be made. This was so damaging to the image of the World Bank that they sponsored a Task Force to study the role of higher education and development in which, for reasons of professional credibility, no World Bank employee was associated (Task Force on Higher Education and Society, 2000). The distribution of that report precipitated a final debate over the use of economic rates of return. Their conclusion:

> The Task Force . . . believes that traditional economic arguments are based on a limited understanding of what higher education institutions contribute. Rate-of-return studies treat educated people as valuable only through their higher earnings and the greater tax revenues extracted by society. But educated people clearly have many other effects on society: educated people are well positioned to be economic and social entrepreneurs, having a far-reaching impact on the economic and social well-being of their communities. They are also vital to creating an environment in which economic development is possible. Good governance, strong institutions, and a development infrastructure are all needed if business is to thrive—and none of these is possible without highly educated people. Finally, rate-of-return analysis entirely misses the impact of university-based research on the economy—a far-reaching social benefit that is at the heart of any argument for developing strong higher education systems. (Task Force on Higher Education and Society, 2000, p. 39)

The Task Force report was followed by other publications all of which tried to re-balance the development priorities by pointing out the benefits of higher education institutions (World Bank, 2002; 2009; Salmi, 2009; Altbach and Salmi, 2011; Yusuf and Nabeshima, 2007)

As we have stated, the debate over the economic rate of return had the effect of distorting development priorities in the education sector. Combined with the emphasis on Education for All, the development community shifted from simply placing an emphasis on primary education to a semi-monopoly of primary education over other priorities. Attention to higher education declined; universities concluded that they had little role in development, and countries where universal enrollment had long been acquired may have believed that they were bypassed by the development priorities. In part, this has led to a conclusion that Education for All had been a failure politically (Heyneman, 2009; 2010; 2011).

The shift from manpower planning to economic rate of return illustrates a larger principle: that models can become fads and fads can become monopolies. The current reliance on "hard education evidence" such as experiment/control and randomized trials has affected development economics and the policies of development assistance agency operations in low-income countries. While the trend is growing, it is too early to suggest that these models have a monopoly like those acquired by manpower planning and economic rate of return. However, sufficient experience has been gathered to suggest that while more precise, these "hard evidence" models can sometimes represent an elegant method of answering a question of minor importance—should reading be taught by the whole word method? Is this software more cost effective (Castillo and Wagner, 2014)? The size and sequence of investments may sometimes be counter intuitive. For instance, Mary Jean Bowman once argued that investments in higher education led to the demand for primary education (Bowman, 1962). What we can learn from this experience is to be cautious of models in general and not allow empirical evidence to contradict what may simply be common sense. Ultimately, while we believe it is as important as ever for governments, policy makers and aid organizations to focus on raising the quality of schools, we recognize that measuring educational quality and schooling objectives is no simple task.

ILSAs and the Globalization of Ideas on Education Policy

Measurements of academic achievement have a long history, but their frequency, heterogeneity and, most importantly, their scale have changed (Kamens and McNeeley, 2010). Beginning as a pilot project in the 1960s, the international administration of tests of academic achievement has since proliferated.[1] The first tests were attempted in 12 countries with non-representative samples, and the most recent tests were applied in 65 countries. ILSAs in the future will likely be applied in different jurisdictions—states (perhaps in Brazil, Russia, the United States and

India) as well as municipalities. The expansion of ILSAs has been driven by demand for results from educational and political leaders, academics, journalists and those who forge public policy, including economic policy. This has led to an increase in visibility, debates over interpretations and the implications of the results.

An examination of ILSAs in education finds that types of international testing have been diversified over time, and the number of participating countries has increased, particularly after 2000 (Heyneman and Lee, 2014a). For instance, the number of participating countries in Trends in International Mathematics and Science Study (TIMSS) increased from 45 in 1999 to 63 in 2011. One of the currently best-known assessment programs, the Program for International Student Assessment (PISA) was organized by the Organisation for Economic Co-operation and Development (OECD) and first administered to its member countries in 2000. Participation in this assessment of mathematics, science and reading for 15-year-olds doubled over the next decade. While 32 countries participated in PISA in 2000, 65 countries participated in 2012—the most recent assessment of PISA—because the OECD invited non-OECD member countries to participate (Kamens, 2013).

Beyond just participation, performance on PISA and other ILSAs has proven to be of extraordinary value in assessing education systems—and it will remain an important component of education debate for the foreseeable future (Schleicher, 2009). The question is how the education community should treat the results. Should it vigorously rail against the tests and their visibility in political debates (Meyer and Benavot, 2013, p.41; Meyer, 2013)? Should the results be used to reinforce education policy positions held *ex ante*? Should a case be advanced for communities to not participate?

Systems of large-scale testing concentrate on particular content areas that are required and measurable. These can include knowledge, which is expected to be used on a frequent basis, such as economic principles, scientific evidence, and the skills of synthesis and evaluation. They can also include knowledge of information that is not expected to be used on a frequent basis, such as the periodic table of elements (Feuer, 2012, p.11).

But schools are expected to accomplish many goals other than in particular content areas. These may include the incorporation of characteristics such as diligence, empathy, social responsibility and the normalcy of performing manual labor. They may include skills of leadership, cultural awareness and the ability to care for animals. They may also include proficiency in a second language or actions thought to foster particular outcomes such as community service and cross-cultural experiences. One

problem of ILSAs is that they are not able to reflect the degree to which school systems accomplish these other goals (Heyneman, 2005).

In addition to narrow coverage, ILSA results are associated with other weaknesses. On the basis of ILSA results, it is common to infer trends from snapshots in time, which may lead to generalizations that are premature. For example, prior to its stagnation in economic performance in the 1990s, in the 1980s many assumed that Japan's achievement scores were responsible for its superior economic performance. ILSAs may be biased in other ways. For instance, there may be a tendency for scores to be biased upwards in countries experiencing population declines (Feuer, 2012, p. 11).

Attributing changes in economic performance to scores in mathematics achievement (Hanushek and Woessmann, 2009) may be tenuous given that economic performance depends on a wide variety of influences. Current students would not have an impact on labor market productivity without a time lag of a decade or more, but the association with economic performance rarely accounts for this. Even in high-performing countries there are persisting internal variations—gender gaps in Finland, high-performing states within the United States. Moreover, it may be the case that the direction of the influence is the opposite from what is assumed. Economic performance, for example, may have an influence on school performance (Feuer, 2012, pp. 17–18).

Regardless of economic performance, it may be dangerous to rely on ILSA results to determine education policy. When applied properly, international comparisons are used to inform; when applied improperly they are used to mimic. For instance, unlike students in the United States, students in Finland are rarely subjected to quantitative evaluations in their schools, yet they perform well on PISA (Sahlberg, 2011). But Finnish children from both rich and poor families have similar values with respect to education. Teachers may not have to face the same problems of classroom discipline, as do teachers in the United States. Raising the stakes for American pupils is one method of instilling a desire to perform well among students who have problems with understanding the importance of their education. Where that importance is already well understood and already present across socio-economic strata, frequent performance tests may not be necessary. The key is to not use the presence or absence of a sector policy in a high-performing country to dictate a transfer of that policy elsewhere.

One illustration of how tenuous it may be to extrapolate from one environment to another is the discovery of the prevalence of shadow education among the Asian nations so successful in PISA. While it is true that PISA scores are high among pupils in South Korea, it is also the case that

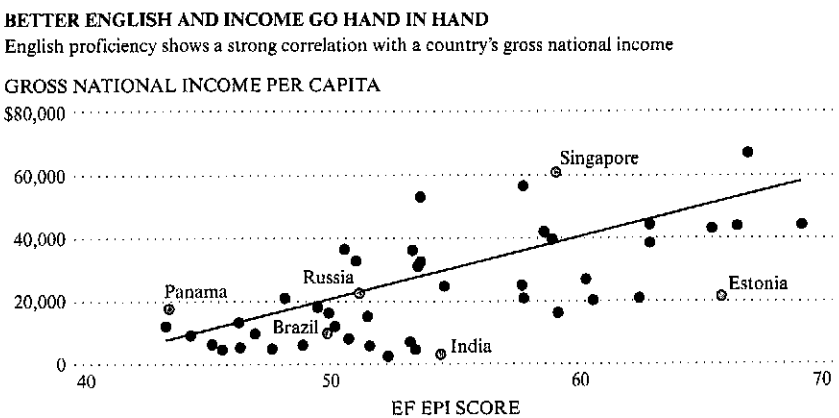
the typical Korean pupil spends the entire period of adolescence preparing for their tests, with little room for other development experiences or goals. Scores may be higher in Korea, but Korean adolescents have little experience locating employment or participating in sporting events. These activities may be as common an expected experience among American adolescents as participating in shadow education is for adolescents in Asia (Heyneman, 2013). In predicting future economic performance, which is more relevant? In determining balance among well-adjusted adults, which is more important? These are the questions which ILSAs raise, but cannot answer.

MICRO ISSUES

Language of Instruction: The Ideal, the Feasible and the Political

Education is delivered by means of language. The question is what language is most effective? The language of the home? The national language? An international language? The answer matters, but after decades of debating this issue, it appears that researchers continue to be divided when it comes to choosing a medium of instruction. At one end of the spectrum are those who feel as though "the world's linguistic and cultural diversity is under assault by the forces of globalization—cultural, economic and political forces that work to standardize and homogenize, even as they stratify and marginalize" (McCarty, 2003, p. 147). This fear is exacerbated by the claim that "nearly one-half of the world's 6000–7000 languages are facing rapid extinction with the possibility that up to 90% will disappear in the 21st century" (Thomson, 2003, p. 91). At the other end are people who believe that English language skills are the key to increasing human capital—so much so that they are "synonymous with economic growth, technological advancement, and modernity as a whole" (Mandal, 2000, p. 1011). Interestingly, the driving force behind the arguments for people at both ends of the spectrum is the spreading dominance of English as the global language for science, business, popular culture and, increasingly, education. What is known to a lesser extent, however, is the impact of English on economic development.

Despite the fact that linguists have intuitively asserted that language plays a role in economic development, there is relatively little empirical evidence of this interaction in the developmental economics literature (Arcand and Grin, 2013). The largest amount of evidence pointing to economic value for increased English language skills has come at the individual level, where researchers have found positive effects such as higher



Source: United Nations, GNI per capita ppp(s), 2012 and EF EPI 2013 report.

Figure 3.1 English proficiency and economic development

salaries in Switzerland, increased employment opportunities in Japan, higher wages in West Bengal and reductions in expected earnings for non-native English speakers in Australia (Kapur and Chakraborty, 2008; Chiswick and Miller, 2008; Grin, 2001; Kobayashi, 2007). At the national level, one of the only pieces of evidence comes from the most recent edition of Education First's English Proficiency Index (EF EPI). This report found that there is a strong correlation between English proficiency and gross national income (GNI) per capita across the 60 countries and territories surveyed for the 2013 edition of EF EPI (see Figure 3.1, above).

In previous work, however, Seargeant and Erling (2011) noted that while English-speaking countries tended to sit among the top with regard to economic production, there was no reason to believe that such a correlation would exist between English language acquisition and economic growth. Arcand and Grin similarly assert that the correlation found in the EF EPI is actually driven by omitted factors that are related to both English proficiency and economic prosperity. While they initially find a statistically significant effect of English language skills (based on Test of English as a Foreign Language (TOEFL) scores) on economic development (measured by GDP per capita), the effect disappears once regional controls are added to the model. This leads the authors to conclude that competence in a dominant language is not associated with economic advancement and that "in short, English isn't 'special' in terms of economic development or growth" (Arcand and Grin, 2013, p. 265). Interestingly, Laitin and Ramachandran (2014) find that it's not the specific language but

how similar it is to that spoken by the local population that has the most significant impact on per capita income. Whether or not English has a direct impact on economic growth, the reverse has been found to be true. Using data from more than 160 countries, De Grauwe (2006) finds that economic development has a significant, negative impact on linguistic diversity. Accordingly, the use of English as the language of instruction has increased as countries have become more prosperous. Conversely, the number of languages worldwide has declined. The fear of this reduction in linguistic (and cultural) diversity has been one of the driving forces in the recent "mother tongue" movement.

Mother tongue instruction is purported to have three major benefits for students: language acquisition, language retention and cultural retention. The last two benefits were the main impetuses for the recent "shift in both policy and practice toward greater inclusion of indigenous language and content" in schools over the past two decades (Hornberger, 2000, p. 197). With regard to language acquisition, recent work by Taylor and Coetzee (2013) provides some of the most compelling evidence for mother tongue instruction. In their study of South African students in grades 4–6, they find that mother tongue instruction in grades 1–3 provides significant gains in English proficiency as compared to students in schools with English-only instruction, after accounting for selection into schools. This is extremely important for students in South Africa (all of whom are required to take their high school exit exam in English), as well as for policy makers who are interested in the debate of mother tongue versus English-only instruction in early grades. Despite this evidence of the important benefits of mother tongue instruction, it is not without its drawbacks and obstacles.

For example, Nancy Hornberger, one of the strongest advocates for mother tongue instruction, offers that "there are many unanswered questions and doubts surrounding multilingual education as to policy and implementation, program and curricular design, classroom instruction practices, pedagogy, and teacher professional development" (Hornberger, 2009, p. 198). In the simplest terms, the difficulties with implementing mother tongue instruction fall into two broad categories: buy-in and resource mobilization. Buy-in refers to the need for parents and educators to believe in the benefits of mother tongue instruction—which often turns out to be quite difficult. Returning to the South African example, Tshotsho (2013) notes that there is a continued devaluation of indigenous languages as compared with English and Afrikaans, which has resulted in many black South Africans choosing English as their medium of instruction. Neke (2005) additionally asserts that English language policies are supported by many Tanzanians because "[Tanzanians] believe that

English will enable them and their children to gain the social prestige and status accorded those with knowledge of this linguistic resource" (p. 78). Similarly, in interviews with Taiwanese teachers regarding the policy of English as a compulsory subject, Su (2006) observed that all teachers agreed with the policy due to the international "worth" of English, noting "that you cannot find a good job if your English language skills are not good enough" (p. 273). Despite strong support from governmental and international aid organizations in Peru, it was ultimately found that "the principal challenge to Intercultural Bilingual Education is the fact that indigenous parents have an entirely different vision than intercultural activists" (García, 2004, p. 361). As for resource mobilization, the concern is with regard to shortages in the supply of teachers, funding, materials, books and facilities—which place additional strain on already overburdened public education systems. Accordingly, in impoverished school systems with multiple languages, logistical challenges may prohibit instruction in the mother tongue. Languages are rarely situated in discrete locations. For example, previous work in Uganda found that only 22 percent of the Ugandan classrooms were monolingual while 47 percent had more than four languages. The typical classroom in Uganda had 3.8 languages (Heyneman and Jamison, 1980). Similar statistics can still be found in many countries today. In the end, Mufanechiya and Mufanechiya (2011) sum up the issues surrounding mother tongue instruction by noting that "consultations with relevant stakeholders, attitude change and resource production and mobilization are among some of the many issues militating against the use of mother tongue as a medium of instruction" (p. 194).

Ultimately, while the debate over language of instruction is unlikely to be resolved soon, the main issue from a policy standpoint is with regard to the views and needs of communities and families. Assuming that sufficient resources are available to the extent that mother tongue instruction is demanded by parents, it should be provided. If, however, there is no evidence that families have expressed their preference, it would not be advisable to promote policies of mother tongue instruction.

Privatization: are there limits to state feasibility?

Due to mounting financial problems and increased pressure from bilateral and international aid organizations, the use of non-government industries for the provision of historically government-provided services increased dramatically throughout the developing world in the 1980s (Cowan, 1990). Initially, much of this growth began in the health and transportation sectors with the non-government provision of the education sector lagging behind. This primary focus on non-merit goods (i.e.

goods that are provided based on an individual's ability and willingness to pay (Musgrave, 1959)) followed the pattern of privatization in advanced countries that began decades, and in some cases centuries, earlier. As a matter of fact, many economists argue that the provision of merit goods such as education should never come from the private sector, particularly in developing countries (Roth, 1987). The underlying belief is that only the state can provide an education system that promotes national unity and social cohesion, while for-profit institutions have no incentive for providing educational services to the poor, and non-profit charities will still require public subsidies to deliver services at scale. Additionally, Lewin (2007) claims that if non-subsidized providers in low-income communities depend on community revenue, including tuition, they are essentially drawing down the community's wealth—thus forcing poor families to choose between educational services and other necessities such as food and health services. Accordingly, Watkins (2004) asks, "Should the world's poorest people really be expected to choose between health and the education of their children? And what is the market rationale to suggest that such choices make sense for the rest of society?" (p. 9).

Furthermore, some argue that non-government schools can undermine the public education system, that even low-cost private schools will never be able to accommodate the poorest households, and that no OECD or rapidly developing country has depended on non-government provision to achieve universal attendance in basic education (Lewin, 2007; Probe Team, 1999; Rose and Adelabu, 2007; Srivastava and Walford, 2007; Watkins, 2004).

Despite these arguments and concerns, the trend toward privatization in education in low-income countries became apparent in the mid-1990s, and much of the growth since has come in the form of low-fee private schooling (Phillipson et al., 2008; Srivastava and Walford, 2007; Srivastava, 2013). One of the major arguments for the expansion of this sector is that with scarce government resources and a need to provide a unified education system there is ultimately a limit to what the public education sector can provide in developing countries (James, 1993). This brings up two important policy questions: 1) What is the impact of government resources (i.e. spending) on privatization across countries? 2) What is the appropriate public policy for development agencies and governments with regard to low-cost private schools in developing countries?

In arguably the last comprehensive study of factors impacting the differences in public and private provision of education across countries, James (1993) found that the private secondary school sector in developing countries was nearly twice that of advanced countries and that one of the most significant predictors of this difference was low public spending on

education in developing countries. While this finding was important at the inception of the Education for All movement, there is reason to believe that it would no longer hold today. For example, while more than 100 developing countries have made commitments to increase public spending on education (coupled with assistance from aid organizations) as a result of Education for All, many of these countries are seeing a concomitant expansion of their private schooling sector—especially at the primary level (WEF, 2000; UNESCO, 2012). Accordingly, based on an analysis of longitudinal data from 2002 to 2009 for 128 countries, we find that public spending is no longer a significant predictor of private enrollment rates in either primary or secondary schools (Stern, 2014). This finding is important for policy makers who disagree about the role of public versus private schooling in developing countries. More specifically, if increased public spending decreased private enrollments (thus increasing public enrollments), as found in James (1993), this would provide continued support to those who argue that public schooling is underfunded, and that providing additional resources to the public sector is the best approach for assisting countries to reach education for all (Lewin, 2007). However, since public spending is no longer predictive of private (or public) enrollment rates, it now appears that providing additional resources to the public system may well be a misguided approach. While this work does not assess the merits of public versus private schooling, the findings are instrumental for policy makers and aid organizations interested in supporting the growth of either the public or private education sector in developing countries.

While it is important to understand the economic factors that drive privatization at the national level, it is equally important to understand the impact that low-cost private schools have on educational opportunities. Over the past few years, with a continued expansion of low-fee schools across developing countries, international and bilateral aid agencies have indeed begun to evaluate the role of the low-fee private school sector in assisting countries to meet their Education for All goals. An increasing number of studies have examined the quality and expansion of low-cost private schools over the past decade. For example, Fennell (2013) uses a non-random sample of youth and adult interviews in Pakistan in order to gain a better understanding of the perceptions of low-fee private schools in Sargodha and Charsadda. She ultimately concludes that private schools are perceived as having more dedicated teachers, more individualized attention and more accountability, while public schools benefit from better infrastructure and resources. Mixed findings have also been found in Nepal and Indonesia, where private schools for the poor have been argued to provide greater access than the public sector but where concerns are often raised about their quality (King, 1997; Heyneman and Stern,

2014; Save the Children, 2002). Voicing similar concerns about the quality of low-fee private schools in Malawi, Rose (2005) offers that limited government control over educational privatization resulted in "the mushrooming of low-cost, low-quality unregistered schools" (p. 164).

On the more positive end of the quality spectrum, Tooley and Dixon (2005) found achievement gains for low-cost private school students when compared with similar public school students in India, Nigeria, Ghana and Kenya, after controlling for a variety of background characteristics. In India, Tooley and Dixon (2005) found that private schools had lower teacher absenteeism and ultimately concluded that there were significant gains in mathematics, English and Hindi for private, unaided students. Similar results were found in Nigeria for mathematics, English and social studies. Based on work conducted in Ghana's Ga district, they found that raw test scores for private school students (in both registered and unregistered schools) were higher than their public school counterparts in mathematics, English and religious/moral education. In a more recent re-analysis of Tooley and Dixon's 2005 study in Kenya, Dixon et al. (2013) find that private school students scored better in mathematics and Kiswahili than their public school counterparts, based on a multilevel model (which provides some benefits over their original analyses but still neglects to take selection into account—which is an issue in the low-cost private school literature on the whole). Stern and Heyneman (2013) also offer that low-fee private schools throughout Kenya appear to be performing at least as well as their nearby public school counterparts on national exams. Heyneman and Stern (2014) assert that similar results were found in Jamaica.

While much work is still needed on the quality of low-cost private schools across countries, one thing is clear: the low-fee private sector is rapidly expanding, and it appears to be reducing the pressure on an often overburdened public school sector. Ultimately, we recommend that students attending all schools (public and private) should be included in poverty reduction and assistance strategies. Furthermore, in order to gain a better understanding of the full scope and quality of low-fee private schools, it is necessary for governmental statistical functions to include non-government schools in calculations of enrollment rates. Lastly, while the expansion of low-cost schools provides further evidence of public education sector inadequacies in low-income countries, we believe that the state should remain the basic conduit for education, as well as the main source of education finance and the provision of schooling. But because the demand for non-state education is pervasive in OECD countries, it may be the case that there are "natural limits" to how much one can expect from the state, any state, to effectively deliver public education when learning needs and public preferences are naturally diverse.

Gender: The Gradual Shift in Under-Representation from Female to Male

To a large extent, the history of education and development is symbolized by the struggle for equality by women and girls. When schools and universities opened in the 18th century, their doors were open primarily for men. At some of the world's most elite institutions—Harvard, Oxford, Yale and Princeton—women did not gain access until well into the 20th century. When primary schooling began to spread through Sub-Saharan Africa and South Asia, girls were systematically left out. Today, the major development institutions—the World Bank, the United Nations, the United Nations Children's Fund (UNICEF), the Department for International Development (DFID), the United States Agency for International Development (USAID), Ford and Rockefeller Foundations—have universally taken on the issue of gender parity as a priority among their institutional objectives. This has stimulated an abundance of hypotheses and research models concerning the impact of education on patterns of child-rearing, nutrition, intra-family allocation of resources, the practice of family planning and many other effects (World Bank, 2001; 2008).

After decades of efforts in trying to achieve universal education, in many parts of the world the gender gap remains. However, the gender gap has begun to change. Figure 3.2 shows that the ratio of girls to boys in primary school has been steadily increasing in most regions for the past 20 years. More specifically, UNICEF has found evidence of girls attending school at higher rates than boys in countries such as Colombia, Haiti,

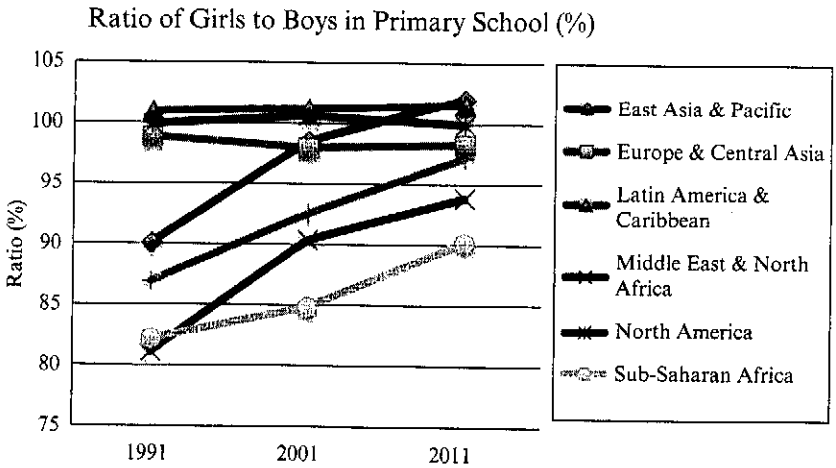


Figure 3.2 Gender parity in primary school from 1991–2001

Tanzania, Malawi and Suriname (UNICEF, 2003). The main hypothesis underlying these trends is that as countries develop economically, the gender deficit for females declines. In many growing economies the proportion of females in primary, secondary and even universities has begun to reach parity, and in some cases, extend beyond parity in favor of women instead of men.

Even more striking is the fact that the gender gap across the wealthy industrial democracies, members of the OECD, has reversed in areas far beyond primary enrollments. Today, girls often outperform boys on tests of academic achievement, persist in school longer, and enter and graduate from higher education at rates above males (see Table 3.1).

Women have begun to make up a majority of the new entrants in some professions, such as medicine and law, traditionally dominated by males. Salary differences on the average favor men, but economic returns to investment in schooling are often higher for women (Schultz, 2002; Dougherty, 2005). In some countries, the educational dominance of females has become so prevalent that education policy analysts have begun to worry about males who may be underprivileged and/or underperforming (Weaver-Hightower, 2008; 2009; Mahony, 1998). China, in fact, has implemented gender-based quotas favoring men in university entrance examinations (Fincher, 2014). And there is a three-year pilot program currently being implemented in Jamaica and three other Caribbean countries in an attempt to address the educational underachievement of boys. The aptly named "Advancing the Education of Boys" project has mainly been designed to curb the high drop-out rate for boys in the region (Smith-Edwards, 2013). Perhaps most interesting is the fact that while the gender gap for reading and mathematics scores on PISA have remained relatively constant for OECD countries since 2003, female students in non-OECD countries have widened their advantage in reading and lessened their deficit in mathematics (see Tables 3.2 and 3.3).

Three conclusions might possibly be advanced at this stage. The first is that women and girls have been the subject of discrimination throughout history and remain so today in many regions of the developing world. The second is that the gender gap is not stagnant. In middle-income countries, even those which have traditionally been dominated by cultures favoring males, such as Latin America, the shift is most startling. In many countries, not just industrial democracies, the gender gap has begun to reverse. The most consistent reversal is for OECD countries, where females are represented at levels over parity across levels of education in terms of academic achievement and persistence toward educational completion. Development economics has yet to adequately incorporate the ramifications of this shift in terms of either theory or

Table 3.1 *Percentage of female college graduates in OECD countries (1998, 2005 and projections)*

	1998	2005	2015	2020	2025
Australia	57	56	62	62	62
Austria	46	52	62	60	57
Belgium	–	58	67	67	66
Canada	57	59	–	–	–
Czech Republic	50	57	55	61	66
Denmark	–	59	66	68	67
Finland	61	62	65	63	60
France	55	56	65	66	66
Germany	48	53	65	61	55
Greece	–	61	–	–	–
Hungary	57	64	66	73	77
Iceland	57	68	74	74	75
Ireland	52	56	59	59	62
Italy	57	59	68	70	70
Japan	50	49	49	54	55
Korea	47	49	54	56	57
Luxembourg	58	–	–	–	–
Mexico	55	55	46	51	55
Netherlands	51	56	70	70	68
New Zealand	60	61	74	74	76
Norway	61	62	65	65	63
Poland	53	66	63	62	65
Portugal	–	65	–	–	–
Slovak Republic	–	57	54	55	59
Spain	58	58	64	68	70
Sweden	59	63	74	76	76
Switzerland	40	43	49	48	44
Turkey	44	44	35	37	39
United Kingdom	53	58	72	72	71
United States	56	58	61	57	56
Country Average	54	57	62	63	63
Comparable Average	54	57	63	64	63

Note: The projections are based on a linear regression of rates of award of degrees by gender observed between 1998 and 2005, then applied to the United Nations population projections by gender.

Source: Vincent-Lancrin (2008).

Table 3.2 *PISA reading scores by OECD membership (gender gap = female – male)*

	OECD			Non-OECD		
Year	Male	Female	Gender Gap	Male	Female	Gender Gap
2003	477	511	+34	429	459	+30
2006	470	509	+39	396	438	+42
2009	474	513	+39	412	453	+41
2012	478	515	+37	429	469	+40

Table 3.3 *PISA math scores by OECD membership (gender gap = female – male)*

	OECD			Non-OECD		
Year	Male	Female	Gender Gap	Male	Female	Gender Gap
2003	505	494	−11	452	442	−10
2006	500	488	−12	435	429	−6
2009	501	490	−11	440	434	−6
2012	499	489	−10	453	448	−5

development policy (Bleach, 1998; Alloway and Gilbert, 1997). Is it a problem? Will female advantage in education extend into the labor market (Autor and Wasserman, 2014)? Should boys be the subject of advantageous quotas? Is their difficulty associated with the way boys think? Is there a pedagogy specific to gender (Epstein, 1998; Gurian, 2001; Keddie and Mills, 2008)? Should boys be treated differently in terms of where and when they attend school? Should classrooms be segregated by gender (Weaver-Hightower, 2009)? Does the fault lie with the education system itself (Whitmire, 2010)?

In terms of development theory, is the shift in the gender gap a concomitant of economic development? Should one anticipate similar shifts as countries move from low to middle income? Or as economies shift from manufacturing to services? Is the shift associated with the lack of demand for male-dominated professions? Is male underperformance associated with the decline in economic hardship? As social safety nets develop and male contributions to family financial security become less essential, does the male desire to try hard in school decline? In sum, the shift in the gender gap from female to male is perhaps among the most interesting and significant aspects of development and will be the subject of much analytic work and policy experimentation in the next decade.

SUMMARY

Half-a-century old, the issue of education and development is now becoming mature. No longer is it dominated by simple justifications for greater investment. Although greater investment appears to be important, there are many examples and instances of high productivity with lower levels of investment and deep dilemmas on what exactly to invest in. No longer is it dominated by simple divisions of nations into developed and developing. While differences continue between rich and poor, there is considerable evidence that nations may move from one category to another. With instantaneous communications today, low- and middle-income countries demand participation in international assessments and information about education reforms characteristic of their trading partners, regardless of location or level of wealth. This suggests that education and development, as a separate field, is soon to merge with education policy more generally. Traditional interests, stemming from the 1960s, may view these developments as threatening. We do not. Rather we see this shift as being a normal process of maturation.

This chapter has pointed out both past and current indications of this maturation process. With regard to measuring the impact of education on development, we have highlighted the shift in emphasis from educational quantity to quality in relation to economic growth. We have pointed out the tendency for models to become monopolies and the distortions in policy which that can generate. We have also examined the worldwide growth in ILSAs of achievement. We have commented on the content and the political nature of the ILSA findings. Based on recent trends, it seems undeniable that ILSAs will continue to grow in number and frequency and will increasingly represent sub-national education systems in states and major metropolitan areas. But we have pointed out that they continue to represent only a small portion of what schools and school systems are expected to accomplish.

In the second half of this chapter, we focused on the micro-level issues that are faced by students and teachers across developing countries. We have pointed out that, however ideal pedagogically, mother tongue instruction is often infeasible and counter to demand. Our conclusion is that international languages, and English in particular, will be the mechanism for making the relationship between education and development even closer. We have pointed out that there has been a profound shift in demand from public to low-cost private schools and have explained why this trend will continue. Given that this shift is pronounced in high-income countries too, we have raised the question as to whether there are logical limits to what the state can provide in terms of educational quality for the

variety of learning needs in diverse populations. Lastly, while females have traditionally been under-represented at all levels of education, we have pointed out that this is changing, and that in many parts of the world, boys are becoming the under-represented group. And we speculate on the implications of this important shift, including the implications for human development theory.

We do not know how the literature on education and development will evolve in the future. Nevertheless, the issues we have raised may provide a reasonable indication of its direction.

NOTE

1. Adapted from Heyneman and Lee (2014b) and Heyneman and Lykins (2008).

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