

# Human Capital and Economic Growth

*Draft 6.0, 4 September 2016*

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## 1. Introduction

Afghanistan is one of the least developed countries in the world, with an estimated poverty rate of 35.8 percent (NRVA 2011/2012). As is the case with many other developing countries, poverty in Afghanistan is associated with other deprivations in well-being, including lack of education and skills, poor health, and limited access to services. Afghanistan is ranked 171<sup>st</sup> out of 188 countries in the United Nations Human Development Index (HDI), placing it as lowest ranking country outside of sub-Saharan Africa.

Having emerged from decades of conflict, Afghanistan is an example of a country that has made significant strides in rebuilding its economy, infrastructure and institutions. Nonetheless, these advances remain

fragile. The adult literacy rate<sup>1</sup> remains one of the lowest in the world at 31.4 percent, underscored by wide gender and geographical disparities. The human capital disadvantage along poverty, gender and rural-urban lines is particularly pronounced. For example, amongst the poor, the adult literacy rate is 24.4 percent, compared to 36.6 percent of the non-poor (World Bank 2015). Access to education and healthcare services, particularly for girls, continues to be compromised by insecurity, threats and intimidation (United Nations 2016). Latest figures predict that it will take Afghanistan between 20 to 25 years to achieve the same level of adult literacy of “comparator” South Asian, fragile or low-income countries; between 11 to 15 years for the same level of youth literacy; and between 12 to 23 years for the same level of primary school enrollment (World Bank 2015).

At the heart of the Government of Afghanistan’s development goals has been the recognition that their success will largely depend on human capital investment. Human capital refers to the “knowledge, information, ideas, skills, and health of individuals” (Becker 2002). When people invest in themselves through education and training, they can increase productivity, lift themselves out of poverty, contribute to economic, social and political life, and foster greater stability. Such thinking is reflected in the Afghanistan National Development Strategy (ANDS), the National Priority Programs’ (NPP) cluster on human resource development, the National Educational Strategic Plans (NESP I, II, and III), as well as the National Technical and Vocational Education and Training (TVET) Strategy. Furthermore, the education sector is heavily supported by the international community, with the Afghanistan Reconstruction Trust Fund (ARTF) comprising almost half of its budget (World Bank 2012).

Given the importance of human capital investment in determining Afghanistan’s future, exploring the concept of human capital is an important and significant topic of research. This document reviews the major theoretical contributions to the literature on human capital on and growth, as well as empirical evidence from around the world. Furthermore, it presents an overview of best practices and lessons learned from other countries’ experiences that may provide insights for Afghanistan.

## 2. Human capital and conflict

Conflicts often result in massive physical and human capital destruction. As Collier (1999) points out, war damages the economy of a country in multiple ways – through destruction of resources, disruption and social disorder, diversion of public expenditures from output-enhancing activities, dissaving and portfolio substitution. In his study of 92 countries, he estimated that conflict led to a reduction in GDP growth rate by 2.2 percent per civil war year. Hoeffler and Reynal-Querol (2003) also provided a similar estimate after studying a sample of 211 countries, and found that a five-year war reduces the average growth rate by 12 percent, or by 2.4 percent a year.

The numbers for Afghanistan are comparable to the global estimates mentioned previously. Marsden and Samman (2001) compared the country’s performance to that of Nepal (a similar country that did not experience conflict).<sup>2</sup> They found that Afghanistan’s GDP fell by 20 percent from 1980 to 1990, nearly 2 percent a year; from 1990 to 1995, GDP fell by 7.4 percent a year. Thus, between 1980 and 1994, while Nepal’s GDP grew by two-thirds, and the LDCs’ by almost a quarter, Afghanistan’s GDP was reduced to half.

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<sup>1</sup> Adult literacy is defined for the population aged 15 and above.

<sup>2</sup> The authors acknowledge that the scarcity of reliable statistics presents significant methodological problems.

Following war, high growth rates are not unusual for post-conflict countries like Afghanistan – due to investments that promote rapid catch-up growth (Chen et al 2008). However, Brauer and Dunne (2010) warn that the end of war does not necessarily imply economic security. In fact, elements of both micro insecurity (e.g. armed inhabitants who are desensitized to violence, high rates of robbery) and macro insecurity (e.g. risk that war will resume) may persist. Thus, even if it never materializes, the potential for conflict can have powerful negative incentive effects on investment, trade and economic growth (Skaperdas et al 2009).

Furthermore, while the overall effects of conflict may eventually average out at the macroeconomic level, they may nonetheless contribute to the emergence of poverty traps. Recent micro-level studies point to the persistent destructive effects on human capital. For example, a study of adolescent Tajik girls whose homes were destroyed during the civil war (1992-1997) revealed a lower likelihood of obtaining a secondary education, with subsequent adverse effects on future wages and life chances (Shemyakina 2006). Chamarbagwala and Morán (2011) examined the impact of Guatemala's 36-year-long civil war (1960–1996) on children's human capital accumulation for eight demographic groups based on gender, urban–rural residence, and ethnicity. They found a strong negative impact on the education of the two most disadvantaged groups – rural Mayan males and females. Thus, as Blattman and Miguel (2009) stressed, the most crucial questions about conflict are not whether it harms human capital, but rather “in what ways, how much, for whom, and how persistently.”

### 3. Returns to human capital: a review of the microeconomic literature

#### 3.1. Human capital theory

In the 1950s and 1960s, Theodore Schultz and Gary Becker introduced the concept of human capital to demonstrate how individuals' investment in themselves was analogous to firms' investments in physical capital. In other words, just as firms decide to invest in new machinery to increase their production, individuals can invest in their own education to gain future benefits. As such, human capital can be seen as a means of production – into which investment yields additional outputs. As Becker notes:

“For a while economists were relating differences [in economic well-being] primarily to differences in the amount of physical capital since richer people had more physical capital than others. It has become increasingly evident, however, from studies of income growth, that factors other than physical resources play a larger role than formerly believed, thus focusing attention on less tangible resources, like the knowledge possessed. A concern with investment in human capital, therefore, ties in closely with the new emphasis on intangible resources and may be useful in attempts to understand the inequality in income among people,” – Becker (1962)

Schultz (1961) expanded on the meaning of investment to include all activities that improved an individual's skills and productivity, including through (1) health expenditures; (2) on-the-job training; (3) formal education; (4) study programs for adults (such as agricultural extensions); and (5) migration. He also included both direct and indirect costs while obtaining human capital, such as foregone earnings, lost leisure time. Becker (1962) expanded on this idea to demonstrate how this return can be estimated econometrically, particularly for on-the-job training and schooling.

Their work was followed by Mincer (1974), who pioneered a model, called the earnings function, on estimating rates of returns on years of schooling and on-the-job training. Mincer's work also provided important implications for understanding the dynamics between human capital investment and earnings throughout an individual's lifecycle, showing that one's wages rise over the lifecycle at a decreasing rate, yielding a concave earnings profile for most. The earnings function has become the accepted standard for labor analysis.

## 3.2. Empirical evidence

### 3.2.1. Individual returns to education

A large body of empirical work examines the individual benefits incurred from education. Global studies have consistently estimated that the rate of return to an additional year of schooling is centered at around 10 percent (Psacharopoulos and Patrinos 2004; Montenegro and Patrinos 2014). Furthermore, despite massive global investment in education (which has led to an increase in global skill supply), returns to education have declined only modestly. While the supply of schooling has expanded by almost 50 percent since 1980, the returns have only declined by 3.5 percentage points, or 0.1 percent a year, suggesting that that education continues to be a worthwhile long-term investment (Montenegro and Patrinos 2014). Selected studies on different types of education are presented below.

*Agriculture extension services:* The literature on the impact of extension services, primarily Farmer Field Schools (FFS), is fairly expansive. In more recent years, the impacts on subgroups, including female farmers and poorer farmers, have also been explored. A multi-country study in Kenya, Tanzania and Uganda (Davis et al 2016) demonstrated that participation in FFS increased production, productivity and income across all three countries. While greater overall changes were observed in Kenya and Tanzania, female-headed households in Uganda benefitted more so than male-headed households. Another study in Cambodia observed the positive impact of integrated pest management as practiced in FFS training on rice yields and profitability (Chhay et al 2016). Interestingly, extension services that utilized training of trainers (ToT) failed to demonstrate impact – pointing to “the inability of participant farmers to convey complex decision-making skills effectively to other farmers” (Carpio and Maredia 2011).

*Early childhood education:* Heckman (2000) demonstrated that children who receive early childhood education enter a cycle of reinforcing effects of human capital, in that skills produced at an early stage raises the productivity of investment in later stages (also known as dynamic complementarity). At current levels of investment, Heckman concludes that the United States underinvests in the very young and overinvests in mature adults with low skills. Evidence also suggests that early childhood education have meaningful impacts on children's early language, literacy and mathematical development. Furthermore, it also has broad and long-lasting effects, including higher achievement test scores and educational attainment, lower grade repetitions and special education, as well as reduction in crime in later in life. Furthermore, economically disadvantaged children reap the strongest long-term benefits (Barnett 2008).

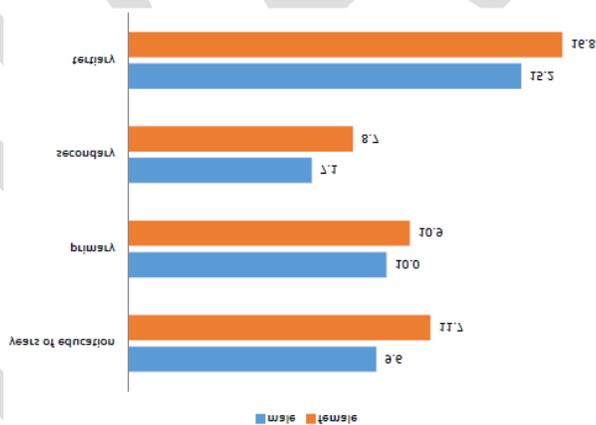
*Primary education:* Duflo (1998) demonstrated how the investment in primary school buildings (61,000 to be exact) across Indonesia in the 1970s had a positive effect on education and wages. She estimated that per each school constructed per 1000 children, children aged 2-6 received between 0.12 and 0.19 more years of education. Economic returns to this initiative ranged from 6.8 percent to 10.6 percent. Burde and Linden (2013) conducted a randomized control trial in Afghanistan to test the 1-year effect of village-based primary schools on academic participation and performance among approximately 1500 children. They found that while both boys' and girls' enrollment and test scores improved, the gains for girls were

large enough that in the treatment villages, the gender gap in enrollment was virtually eliminated and the gender gap in test scores was reduced by over a third.

*Girls' education:* Reviewing the empirical literature on the returns to education from a gender perspective in, Patrinos (2008) concluded that overall returns to female education are, on average, higher than those to male education. Overall, better educated women are healthier, are more productive, earn higher incomes, and participate more in public life. In terms of wages, Psacharopoulos and Patrinos (2004) demonstrated that providing girls with an extra year of schooling increases their wages on average, by 9.8 percent, compared with 8.7 percent for boys, although results vary by country. A more recent review of 139 economies estimated a similar return of 10 percent per additional year of schooling: the rate of return for males was 9.6 percent, whereas for females, the rate was much higher at 11.7 percent (Montenegro and Patrinos 2014).

There is also evidence from a 63-country study that increased female schooling led to more productive farming methods, and accounted for a 43 percentage point decline in malnutrition (Smith and Haddad 1999). In Cote d'Ivoire, women with no education (55 percent) had higher rates of female genital mutilation when compared to those with a secondary education (24 percent). Girls who have secondary education are also less likely to be victims of human trafficking, sexual harassment, domestic violence, and HIV/AIDS transmission (Rihani 2006).

*Higher education:* Until recently, the body of evidence had suggested that the wage returns to primary education were larger than at secondary and higher levels of education. However, more recent analysis has shown that the returns to tertiary education are higher (Colclough, Kingdon and Patrinos 2010) and estimated to be at 17 percent, higher than both primary and secondary education as demonstrated in the figure below (Montenegro and Patrinos 2014).



Source: Montenegro and Patrinos (2014).

*Adult literacy:* Despite the recognition of adult literacy in achieving education for all, support and funding towards such programs have historically been modest. By extension, rigorous evidence on the impact of adult literacy programs remains limited. Furthermore, existing evidence points to disappointing results: while impacts on decoding simple information (i.e. letters, syllables and words) are statistically significant,

few adults have achieved the speed threshold of reading comprehension<sup>3</sup> (Aker and Sawyer 2016). Mathematical literacy has fared better, but likely because such skills are used in day to day life.

Analysis points to several reasons as to why adult literacy programs have shown little impact: insufficient attention on andragogy (teaching to adults), limited understanding of the adult cognition and neurophysiology, as well limited acknowledgement of the opportunity costs and challenges that adults face when it comes to attendance, retention and motivation levels (Abadzi 2003; Aker and Sawyer 2016).

A more recent development in adult education has been family literacy programs which seek to simultaneously enhance both child and adult literacy. Such interventions can include teaching literacy-related skills to parents and to children independently, as well as training parents to become more involved in their children's literacy development (Wasik 2004). Another evaluation of a mother literacy and participation program in India showed that interventions had a significant impact not only on mothers' literacy, but also on children's improved math skills – a demonstration of the intergenerational and social dimensions of adult literacy (Banerji, Berry and Shotland 2015).

### 3.2.2. Social returns to education

More recently, a strand of microeconomic literature has begun to consider the externalities to education – that is the wider benefits that spillover from the individual into society. Such externalities could include both monetary (e.g. increased productivity and wages of neighbors) and non-monetary benefits (e.g. reduced crime, better intergenerational health outcomes, etc.) Despite its significant policy implications, the evidence on social returns remains limited. A review of some the key literature is presented below:

*Wages and Productivity:* Appleton and Balihuta's (1996) study in Uganda showed that farmers with 4 years of primary school had a 7 percent higher crop than those with no schooling. But more interestingly, an additional year schooling led to a 4 percent increase in output for neighboring farmers. Similarly, in India, Foster and Rosenzweig (1995) showed how farmers' adoption of high-yield seed varieties during the Green Revolution led neighboring farmers to crowd in, resulting in higher profitability.

In the United States, Moretti (2004) estimated the social return to higher education by comparing wages of otherwise similar individuals living in metropolitan areas with different shares of college educated workers in the labor force. After controlling for city-specific shocks that may raise wages as well as unobserved individual abilities, he finds that a 1 percentage point increase in college share in a city raised average wages by 0.6-1.2 percent – specifically, it raised the wages of high-school dropouts by 1.9 percent, high school graduates by 1.6 percent and college graduates by 0.4 percent. Finally, Card's (1995) study on college proximity in the United States revealed that men who grew up in areas near a four-year college had significantly higher education and earnings than those who did not, even when controlled for regional and family background factors.

*Reduction of Violence:* Much literature has also been dedicated to studying the effect of education on violence. Overall, the consensus is that education has a pacifying effect, and conversely, lower education suggests a higher propensity toward violence.

Cincotta et al (2003) showed that countries with large “youth bulges” with low education – as is common in low and middle-income countries – are at higher risk of violence. In a similar vein, Alesina and Perotti's

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<sup>3</sup> The minimum standard for literacy acquisition is the ability to read a word in 1-1.5 seconds with 95 percent accuracy.

(1996) study of 71 countries reveal that countries with higher levels of education tend to be more socio-politically stable. Oyefusi (2008) found that low educational attainment significantly increased the willingness of young people to participate in armed struggle for local resource control in the Niger Delta.

There are several explanations as to why education may reduce violence. First, the provision of education is likely to lower grievances as it a strong signal to the people that the government is attempting to improve their lives, even in desperate times (Øtsby and Urdal 2011). Second, greater levels of educational attainment increase the opportunity cost of young people to join a rebel group (Collier and Hoeffler 2004). Finally, education is thought to promote social cohesion, such as learning how to work together peacefully, which in turn enables socioeconomic stability. Heyneman (2003) stated that education promotes social cohesion in four ways: (1) it helps provide knowledge about social contracts among citizens and between citizens and the state; (2) it creates spaces that decrease the “distance” between individuals of different backgrounds to as to foster collective trust; (3) it is expected to equitable by providing quality opportunity for all; (4) it is expected incorporate the interests of many different groups while simultaneously provide a common underpinning for citizenship.

*Reduction in Crime:* Lochner and Moretti (2003) studied the effects of education on criminal behavior and find that differences in educational attainment between black and white Americans explained the 23 percent gap in black-white incarceration rates. They predicted that a 1 percent increase in high school completion rate of all men aged 20-60 would save the United States as much as 1.4 billion USD per year in reduced costs of crime in society. In a separate study conducted across the United States, Anderson (2009) showed that minimum drop-out age requirements had a negative effect on juvenile violent crime.

*Increased household and intergenerational health:* A growing body of research suggests that female education demonstrates a wide range of spillover effects within her household, to her children, as well as to her community.

**Effect on sibling’s education:** Qureshi (2011) explored the impact of oldest sisters’ education on the human capital acquisition of her younger brothers in Pakistan. She found that an additional year of schooling for the oldest sister increased the younger brother’s completed years of schooling by 0.42 years and his probability of being enrolled by 9.6 percentage points. It also increased the probability of a primary school-aged younger brother being literate and numerate by 7-19 percentage points.

**Effect on fertility and infant mortality rates:** In a study of 65 low and middle-income countries, Subbarao and Raney (1995) calculated that the proportion of girls with secondary education would have reduced the fertility rate from 5.3 to 3.9 children per women, as well as the infant mortality from 83 to 38 per 100,000 live births. In addition, Bongaarts (2010) found that education levels are positively associated with the demand for and use of contraception, and negatively associated with fertility and desired family size throughout Sub-Saharan Africa. Children of mothers with five years of primary education are 40 percent more likely to live beyond age 5 (Summers 1994). A year of additional schooling for the mother is often associated with a 5 to 10 percent reduction in her child's likelihood of dying in the first five years of life (Schultz 1999).

**Effect on children’s health and education:** In a study of 2000+ Moroccan households, Glewwe (1999) found that Moroccan mothers improved their children’s health by using literacy and numeracy skills that they acquired in school. In a study conducted by the World Health Organization (1988), women in Burkina Faso who had a secondary education were less likely to subject their daughters to female genital

mutilation (FGM). In Burkina Faso, the prevalence was much lower among girls who had educated mothers (48 percent) than those who did not (78 percent).

Andrabi, Das and Khwaja (2009) showed that, in Pakistan, the presence of a girls' school in a woman's birth village not only increased her average level of education by 0.61 years, but also had a positive effect on her children's education. Similarly, an evaluation conducted on three interventions in rural India – comprised of a mothers' literacy program, a training for mothers on how to enhance children's learning at home, and a combination of the two – showed that the interventions had a significant positive impact across mother' literacy and empowerment, as well as their children's math skills (Banerji, Berry and Shotland 2015).

## 4. Human capital and growth: a review of the macroeconomic literature

Whereas the microeconomic literature is aimed at estimating the relationship between education and income and productivity, the macroeconomic literature is focused on understanding how the social stock of human capital is central to economic growth. Human capital, however, plays a different role in neoclassical and endogenous growth models.

### 4.1. Neo-classical (or Solow) growth model

In neoclassical growth theory, human capital is a factor of production along with physical capital. In other words, human capital growth would raise the marginal product of physical capital, and thus induce further accumulation of physical capital, thereby raising the total output. On the other hand, the growth of physical capital would raise the marginal product of human capital, thereby increasing the demand for human capital (as opposed to the unskilled labor (Mincer 1974). However, in the long-run, an economy will reach steady-state growth, and any increase in the growth rate can only be driven by exogenous technical progress.

To this effect, Mankiw, Romer and Weil (1992) developed what is known as the augmented Solow model or MRW model, and found evidence for conditional convergence, which could account for 78 percent of the cross-country variance of output per capita in 1985. In addition, by using data from across regions in the US and Japan, Barro and Sala-i-Martin (1995) conducted convergence tests and showed that the MRW model was consistent with the speed of convergence.

### 4.2. Endogenous growth model

Despite its contributions to modern economics, the neo-classical model was nonetheless unable to explain why or how technological progress occurs. Furthermore, it was not able to explain the large differentials in income observed around the world. The model implied more rapid convergence of incomes than seem to be occurring, particularly between high-income and low-income countries.

Thus, in response to the dissatisfaction with the neoclassical growth model, the endogenous growth model was developed, mainly led by economists Paul Romer (1986) and Robert Lucas (1988). Unlike its predecessor, the endogenous growth model placed human capital as the central determinant of economic growth:

“The main engine of growth is the accumulation of human capital-of knowledge-and the main source of differences in living standards among nations is differences in human

capital. Physical capital accumulation plays an essential but decidedly subsidiary role. Human capital accumulation takes place in schools, in research organizations, and in the course of producing goods and engaging in trade.” – Lucas (2003)

Aghion and Howitt (1998) noted that the role of human capital in endogenous growth theory can be divided into two major categories. The first category sees sustained growth as primarily being driven by the accumulation of human capital. As such the differences in growth rates across countries is attributed to the rates in which human capital is accumulated. This approach is attributed to Robert Lucas (1988) who built upon contributions of Hirofumi Uzawa (1965).

The second category of models (initiated by Nelson-Phelps in 1966), attributes growth to the existing stock of human capital, which generates innovation, which in turn, leads to technological progress and sustained growth. Paul Romer further developed this growth model to give an endogenous explanation of the source of technological change, implying that an economy with a larger stock of human capital will experience faster growth.

Barro (1990) extended the endogenous growth models to include government services, and predicted that public expenditures and taxation would both have temporary and permanent effects on growth. Bleaney et al (2001) tested this model in OECD countries, and their results supported Barro’s model. Easterly and Romelo (1993) further found that investments in transportation and communication were consistently correlated with growth, although the effects of taxation were less so.

#### 4.2. Growth and gender inequality in education

The theoretical arguments about the impact of women’s education on economic growth can be categorized into five areas (Klasen and Lamanna 2009). First, gender equality in education increases the amount of human capital in society, which boosts economic performance. Second, female education leads to low fertility, which provides more capital per worker, reduces the dependency burden and increases savings rates and average per capita income. Third, female education and entry into the labor market allow semi-industrialized countries to be competitive in global markets: gender wage discrimination fosters investment and growth, particularly in female-intensive export-oriented light manufacturing industries (Seguino 2000). Fourth, female education leads to higher earnings, which can lead to increased female agency and decision-making power. This matters because women tend to save more, exercise more caution, and invest in more productive ways, including meeting their household’s basic needs and devoting a large share of resources to their children’s education and health, thus promoting the next generation of human capital (Stotksy 2006). Finally, research shows that where the influence of women in public life is greater, the level of corruption is lower, which results in higher investment and growth (Mason and King 2001).

#### 4.3. Empirical growth regressions

Because the microeconomic literature strong education delivers economic benefits to individuals, one would expect to see similar effects on groups of individuals, or countries. As such, a considerable number of studies have tried to assess the causal impact of education on a country’s GDP. However, the evidence remains mixed and counterintuitive. On one hand, the work of Mankiw, Romer, and Weil (henceforth MRW, 1992) and of Barro and Sala-i-Martin (1995), found a significant positive association between education and subsequent rates of growth. On the other hand, Pritchett (2001) found no relationship, which compelled him to ask, “Where has all the education gone?” Further, Islam (1995) used a panel data approach to MRW’s work, and yielded significantly different results than the original study – with a negative or insignificant effect.

Other studies paint a more puzzling picture. Benhabib and Spiegel (1994)'s first set of results, using the MRW model, found that human capital growth has an insignificant and negative effect on per capita income growth; however, when they followed Nelson-Phelps (1966), the results told a more positive story. Further, Bils and Klenow (2000), using Mincerian returns to education, showed that growth has a stronger impact on education than education does on growth. Finally, Lau, Jamison and Louat (1991) pooled data from 58 developing countries from the time period of 1960 to 1986 to estimate the percentage change in GDP in response to a one-year increase in average educational attainment, and the effect ranged considerably: from negative to more than 5 percent a year.

The contradictory evidence can be extended to studies on gender-disaggregated human capital effects on growth. Barro and Lee (1994)'s study of 138 countries revealed that female education had a negative impact on growth. Birdsall, Ross and Sabot (1997), on the other hand, demonstrated no significant differences between genders; increasing enrollment for girls and boys were equally effective. However, more recent cross-country analyses have shown to be more consistent with findings from the microeconomic literature. In a review of recent empirical literature, Lorgelly (2000) concluded that, overall, female human capital had a greater impact on economic growth than male human capital. Klasen and Lamanna (2009), using cross-country data over the period 1960–1980, found that gender gaps in education and employment significantly reduce economic growth, and can explain growth differences between regions. Abu-Ghaida and Klasen (2004) further estimated the economic costs of failing to meet the 2005 Millennium Development Goal (MDG) on gender equality for 45 countries. They calculated that these countries suffered 0.1-0.3 percentage points lower per capita growth rates, will have 0.1-0.4 more children per woman, and, by 2015, an average of 15 per 1000 higher rates of under-five mortality and 2.5 percentage points higher prevalence of underweight children under five.

## 5. Reconciling micro-macro discrepancies

As demonstrated in the previous section, the macroeconomic evidence on education is undoubtedly much weaker than the microeconomic evidence. Possible explanations for the failure to replicate the microeconomic results at the macroeconomic level include:

- (1) Usage of different proxies for human capital;
- (2) Measurement errors and poor data quality;
- (3) No account of variations in quality in education; and
- (4) Lack of understanding on the role of institutions – due to models that reduce human beings to dependent variables in a series of mathematical equations

### 5.1. Proxies for human capital

The most popular indicators that are often used as single process of human capital include adult literacy rates, school enrollment rates and average years of schooling. While these proxies give us general ideas about education levels, any power they have would, as Judson (2002) noted, “depends on the assumption that the proxy is collinear with the country’s whole human capital stock...[and] most proxies should not be expected to be collinear with human capital accumulation over the full range observed in cross-country datasets.” For example, the adult literacy proxy has shown limited explanatory power in cross-country growth recessions. Literacy may be useful in developing countries where primary education is expanding, but eventually literacy stabilizes at near 100 percent even as higher educational attainment continues to grow. Furthermore, literacy itself is neither objectively nor consistently defined across countries, thereby posing challenges for global comparisons.

Enrollment rates are also another proxy for human capital. However, as they are measures of flows of investments in human capital rather than its stock, they only capture part of the accumulation of stock. Second, as Psacharopoulos and Arriagada (1986) argued, there is a long time lag between investment in education and additions to the human capital stock. In addition, some investment in education may never translate into human capital stock as current students may drop out, repeat grades or not participate in the labor force. In other words, enrollment rates say little about the outcomes of enrollment. Hence, they suggest the more accurate indicator is the educational attainment of the labor force, which will be discussed next.

Educational attainment, in the form of average years of schooling, is the most widespread indicator of human capital. The most prominent data series is initially produced by Barro and Lee (1993), who used census and survey data reported by UNESCO to calculate attainment levels for 68 countries between 1965 and 1985. However, since data was only available for 40 percent of the observations, the remaining data was derived by using a “perpetual inventory method.” In a subsequent paper, Barro and Lee (1996) updated their estimates to 1990, extended their coverage to the ages of 15-24, and utilized enrollment ratios to avoid overstating enrollments. In their 2001 revision, they used gross enrollment ratios adjusted for repetition to account for children who enter school earlier or later. They also introduced more “quality” measures of human capital, including international test scores. In the most recent 2010 version, the data set was updated for 146 countries from 1950 to 2010, and was disaggregated by sex and 5-year age intervals. Despite improvements in the computing educational attainment, average years of schooling cannot account for the fact that the cost of a year of education differs between primary, secondary and tertiary levels and that it will not be comparable across countries.

## 5.2. Measurement error and data reliability

Several authors have explored the lack of data reliability and measurement errors which compromise efforts to calculate the returns to education. Krueger and Lindhal (2001) argued out that errors in measurement are inevitable due to poor quality of data. For example, UNESCO data used by Barro and Lee (1993, 1996, 2001, 2010) are not only limited, but they also do not take into account of the variations in the classification of educational attainment – including the treatment of TVET and the number of years associated with different levels of schooling. Nonetheless, Krueger and Lindahl show that even when measurement error issues are addressed, a positive role for human capital emerges.

De la Fuente and Domenech (2000) argued that the Barro and Lee data contain a lot of noise, leading to significant inconsistencies in country rankings. They present a new estimate of educational attainment that adjusts for classification change, and reveal that the coefficient on the change in educational attainment was twice as high as previous literature. However, this study was restricted to OECD countries. Cohen and Soto (2007) proposed a global data series constructed from national censuses, OECD and UNESCO sources as a direct substitute for the Barro-Lee measure. They computed educational attainment for the period of 1960-2000 and estimated annual returns to schooling in the range of 7-10 percent.

## 5.3. Accounting for quality

The majority of economic studies on education focus on the quantity of education, as measured through school attainment. While quantity allows for convenient measurement and comparisons, it can be very misleading. For instance, quantity of schooling makes two implicit assumptions – that education is uniform throughout the world, and that formal schooling is the only means of knowledge development. Firstly,

education content and quality differ within a country as well as across countries. As Hanushek and Wößmann (2007) observed, “Who would sensibly assume that the average student in Ghana or Peru would gain the same amount of knowledge in any year of schooling as the average student in Finland or Korea? Still, using the quantitative measure of years of schooling does exactly that.” Second, student learning is far more complex than the education provided in a classroom. A variety of factors outside of school, including family, peers, others as well as innate abilities, shapes one’s knowledge development. Thus, ignoring these factors introduces another element of measurement error in economic analyses, and thus undermine the usefulness of the available literature. Rather, Hanushek and Wößmann (2007) argued that the quality of education matters more than quantity. To this effect, Hanushek and Kimko (2000) introduced an alternative data set that uses international test scores mathematics and science as a proxy for the average educational performance of a country’s entire labor force. Their calculations showed that one standard deviation difference in scores was related to a 1 percent difference in annual per capita GDP growth rates.

Unfortunately, since data on internationally comparable test scores are limited, Hanushek and Kimko were forced to fill in missing values based on a regression method, and thus worked with unreliable data. Wößmann (2003) made further improvements by incorporating Hanushek and Kimko’s measure of educational quality into measures of human capital stock (namely Barro and Lee 2001) and from Psacharopoulos (1994) for world average rate of return to education.

#### 5.4. Role of institutions

Another explanation for the discrepancies in growth literature is that the institutional environment could be so perverse that increasing education actually leads to lower growth. Institutions “consist of formal rules, informal constraints (norms of behavior, conventions, and self-imposed codes of conduct), and the enforcement characteristics of both. In short, they consist of the structure that humans impose on their dealings with each other” (North 1992).

This thinking is part of recent literature that emphasizes the importance of economic institutions in shaping the incentives of people, particularly in how they influence investments in physical and human capital and technology. North stated that the institutional framework affects the relative profitability of unproductive piracy and productive activity, and if human capital is used in the former rather than the latter, the effect on growth would be detrimental. Thus, in countries with poor institutions, the higher returns to investments in rent-seeking activities may be privately advantageous, but do not contribute to society (Pritchett 2001).

## 6. Looking forward in Afghanistan

While the evidence for education may exhibit some inconsistencies, the general consensus among authors is that “education remains a positive, significant, and profitable investment for individuals... as such, there are few better investments one can make” (Patrinos 2016). A considerable body of evidence supports the theory that increasing the human capital of a population not only brings benefits to individuals and society, but supports economic growth and poverty reduction. Furthermore, human capital investment delivers other non-economic benefits, including the promotion of peace and stability.

To this effect, over the last several decades, governments have directed significant resources into providing educational access. Many countries have made impressive strides. For example, Bangladesh’s educational attainment was once among the lowest in the world, but now more girls than boys attend school. Indonesia has made strong progress in improving educational access outcomes, and achieved gender parity in both primary and secondary school. India witnessed a surge in enrollment, following heavy investments in school infrastructure, such that 98 percent of habitations have a primary school located within a kilometer, and 92 percent have an upper primary school located within three kilometers (Sahni 2015). Afghanistan has also witnessed the highest enrollment rates in its history, with approximately 4.3 million boys and girls enrolling in primary and secondary school in 2003 – compared to 2001 when girls were barred from school and only 1 million boys were enrolled. (World Bank 2005).

However, such improvements in access and resources have not always translated with an equivalent increase in quality and outcomes. Studies show that teachers are critical to student learning, but they are constrained by limited knowledge, skills and motivation. Furthermore, many disadvantaged groups still remain marginalized; they tend to demonstrate irregular attendance, drop out more, perform worse and less likely to transition into secondary school (Lewin and Little 2007).

Looking forward in Afghanistan, how can these challenges be addressed? This paper has attempted to review the theoretical and empirical literature to inform lessons that may be more broadly applicable to Afghanistan. This section synthesizes the findings, and provides case examples of how other countries’ experiences in their goals to make meaningful gains in education.

### **1. Teachers are the driving force behind student learning outcomes. Thus to enhance the quality of education, appropriate incentive structures must be in place to enhance teacher quality.**

Globally, measurements of education systems focus on access and attainment, and to a lesser extent on student learning outcomes and the key inputs required to achieve those outcomes. As such, despite gains in enrollment and completion rates, many students do not acquire basic literacy and numeracy skills despite multiple years of schooling (Dundar et al 2014). For example, in Afghanistan, school enrollment increased from approximately 1 million children in 2001 to over 9 million in 2015, of which 39 percent are girls. But evidence shows that the quality of education remains low, with studies suggesting that less than half of children are able to meet the minimum required learning outcomes at their education level (GOA 2015).

Improving the quality of learning first requires an understanding of what policies work and do not work. As such, enhanced assessment systems are necessary to monitor progress in learning outcomes and

improvements in schooling quality over time. Large-scale performance assessments are often the only indicator of student learning, particularly in contexts where governments and school administrations do not have the capacity to monitor student learning on a frequent basis. Steps are already being taken by the Ministry of Education to develop standardized assessment tests for students in Grades 3 and 6.

Furthermore, it is crucial to create the appropriate enabling environment for improving quality through appropriate incentive structures and capacities. Evidence has shown that simply providing more money and resources to schools has done little to improve student learning outcomes (Hanushek 2006). Thus, assessment activities need to be aligned with improvements in teacher quality, revision of textbooks, reform of academic supervision and use of technologies.

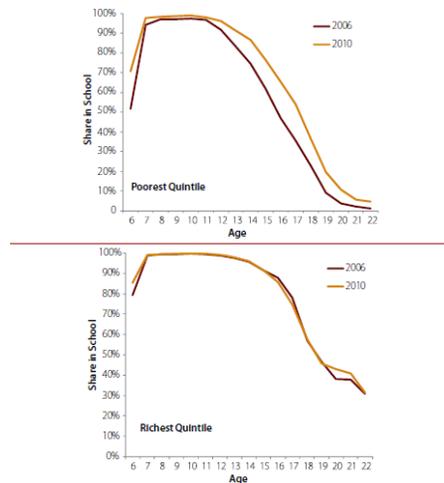
From all these activities, it is becoming broadly recognized that teacher quality is the most important factor in determining school quality (Hanushek 2010). Teachers are the driving force behind their students' learning outcomes. At their core, teachers are transmitters of the knowledge and skills of generations of children. Thus, their competence and commitment are two of the most important determinants of a country's education success. However, research has shown that teacher qualifications and experience seldom predict their effectiveness in raising student achievement (Dundar 2014). Even among teachers with similar education and experience, there is a wide range of their effectiveness. Indeed it may be that a teacher's qualifications do not translate to actual teaching skills and effort, or a willingness to work by subject and working conditions. Thus, instead of focusing on "input policies" to improve education quality, Hanushek (2010) suggests that policies focus on finding the right incentive structures – whether it be bonus pay schemes for teachers or rewards for well-performing schools.

#### **Indonesia: The Teacher and Lecturer Law (Teacher Law)**

In 2005, Indonesia introduced a reform package to attract, retain, motivate and develop teachers by upgrading its teaching workforce. The Teacher and Lecturer Law (commonly called the Teacher Law) required teachers to acquire a four year degree, pass a competency test to begin a certification process, become certified and continue their professional development. Teachers' income was significantly increased, to be commensurate to that of lawyers and doctors (Chang et al. 2014). Their pay was to be financed through funds from a constitutional mandate that obligated the government to allocate a minimum of 20 percent of its budget to education.

Historically, teachers experienced low social status and pay compared to other civil servants, which translated into poor performances and low motivation (Tobias et al 2014). Following the reform's powerful monetary incentive, the percentage of primary teachers with a four-year degree increased by 176 percent, in addition to a fivefold increase in enrollment in university education programs (Chang et al., 2014).

The biggest return to this reform was the rapid increase in access and equity, with children from poor families enrolling earlier and staying in school longer. The share of 15 year olds from the poorest consumption quintile who enrolled in school increased from 60 to 80 percent between 2006 and 2010 (Cerdan-Infantes et al 2013). However, access to senior secondary and tertiary education remained low for the poor, as demonstrated in the graph below.



Source: Cendran-Infantes et al (2013).

The fact that the Teacher Law became a reality is a landmark achievement in itself. While attempts had been made in the past to deal with poor student performance with salary increases, improved training and professional development, the Teacher Law is unique in its attempt to address the issue comprehensively (Jalal et al 2009). The reform required political orchestration amongst numerous stakeholders, with repercussions on every aspect of the education system and at all levels of government.

That being said, the reform has not been without its challenges. A recent randomized evaluation of the program revealed that increased salaries led to teachers to be more satisfied with their income, less likely to report financial stress, and less likely to hold outside jobs. However, the increase in salary did little to impact teacher and student learning outcomes (de Ree et al 2016). Further improvements need to be made, such as the lack of quality assurance and accountability mechanisms (World Bank 2010) and ensuring better cooperation between multiple stakeholders (Cerdan-Infantes et al 2013).

## **2. Gender disparities in education impede growth. Particularly in rural areas, the number of schools and female teachers must be expanded to increase girls' enrollment, retention and learning. Policies should also**

Empirical evidence shows that educated women earn higher incomes, participate more in the formal labor market, have fewer children, marry later and are generally healthier. Furthermore, educated women enhance the productive capacity of the economy, improve development outcomes for the next generation, and promote more representative institutions and policy making (World Development Report 2012).

As such, supporting girls' education has remained at the forefront of Afghanistan's development objectives. Nonetheless, Afghan girls remained deprived of education. The country reports the highest level of gender disparity in primary education in the world, with only 70 girls in primary school for every 100 boys, or 0.70 in the Gender Parity Index.<sup>4</sup> The disparity increases as the level of education increases

<sup>4</sup> Latest country-level data on the United Nations Millennium Development Goal Indicators for Goal 3 (Promote gender equality and empower women) are available at: <http://mdgs.un.org/unsd/mdg/Metadata.aspx?IndicatorId=9>

to 0.55 for secondary education and 0.33 in tertiary education. Access remains particularly for the most vulnerable populations – girls in rural areas.

Gender inequality in education presents detrimental economic consequences for countries. A global empirical analysis of regions between 1960 and 2000 revealed that South Asia, the Middle East and North Africa, and sub-Saharan Africa have large education gender gaps that correlate with weak economic growth. In more recent years, the MENA region has reduced its gender gap faster than South Asia, which has led to greater economic growth. In South Asia, only Bangladesh worked to reduce its gender gaps and as a result is experiencing higher growth levels.

It is widely understood that girls' education remains low due to cultural or religious factors, but new evidence seems to suggest that households are more than eager to send their girls to school as much as boys, but are more constrained by security concerns when the schools are too far (World Development Report 2012). In rural Pakistan, a study showed a decrease in primary school enrollment for girls who had to cross hamlet boundaries to attend school, an effect that did not occur for boys (Jacobi and Mansuri 2011). In rural Ghor Province of Afghanistan, distance proved to be very important for school enrollment, falling by 16 percent for every additional mile a child had to walk to school. Girls were disproportionately affected – the enrollment rate for girls fell by 19 per additional mile, while boys' fell by 13 percent per additional mile. But when a community-based school is available in close proximity, the rate of girls' attendance increased by 16.8 percentage points above boys (Burde and Linden 2013). As such, promoting education facilities in rural areas has the potential to dramatically increase students' enrollment, and reduce existing gender disparities.

Of course, increasing the number of schools has to be accompanied by other factors that are conducive to girls' education, namely female teachers. Studies have shown that the presence of women in schools can have an impact on girls' access, retention and achievement by encouraging girls to complete their studies, providing guidance, ensuring protection from unwanted attention, advocating on their behalf, and promoting more girl-friendly learning environments (Kirk 2006). Expanding the number of qualified female teachers is thus urgent in rural provinces, such as Paktika, Paktia, Khost and Uruzgan, where they comprise less than 5 percent of total general education teachers (GOA 2015).

### **Turkey: Intergenerational benefits of female education**

Turkey's Mother-Child Education Program (MOCEP) presents a unique initiative that has combined both adult education and early childhood development to address the intergenerational benefits of female education. It has also been studied longitudinally and has been absorbed into the country's national education policy.

The Mother-Child Education Program (MOCEP) began as a small Bogazi University-led research program in 1982 and has since been expanded to become a public program that is funded by the Directorate for Apprenticeship and Non-Formal Education at the Ministry of Education. The program is designed to support disadvantaged mothers of 5 and 6 year olds in improving their children's cognitive and socio-emotional development.

MOCEP gathers groups of 20 to 25 mothers for weekly sessions over a period of 25 weeks. Sessions cover a variety of modules, including mother enrichment, reproductive health and family planning, and children's cognitive development. All sessions are meant to improve mothers' parenting skills, self-

confidence and self-efficacy. The program is facilitated by adult education instructors who are trained by MOCEP, and who make regular home visitations to observe the mother working with her child.

A series of evaluations indicated both immediate and long-term positive effects. Among the trained mothers, evaluation findings showed positive mother-child interactions, increased mothers' self-reporting as better mothers, wives and individuals, and greater interest in their children's education (Bekman 1998). In addition, a 10-year longitudinal study demonstrated "higher school attainment, higher primary school grades and vocabulary scores, more favorable attitudes towards school, and better family and social adjustment" (Kağıtçıbaşı et al 2001).

MOCEP has since been expanded to serve local communities throughout the Middle East as well as Turkish migrant communities in Europe.

### **3. Diversity in schooling can fill the education gap in poor and rural areas where governments cannot reach. By embracing and strategically partnering with non-government education providers, the government can balance competing dynamics between modernization, religion and tradition.**

The evidence base suggests that diversity in school choice is a positive attribute of education systems. Non-government education – whether they are provided by grassroots, religious or private institutions – can remove supply constraints, particularly for the poor and marginalized (World Bank 2014). Furthermore, these schools offer a positive alternative for more conservative communities, as they can incorporate local cultural values and practices. While quality constraints still persist, a coordinated approach among multiple providers can improve the performance of the education system as a whole.

Non-formal education is one of the major educational interventions being supported by governments and international aid agencies. Usually called community-led or village-based schools, these schools cater to vulnerable and inaccessible students with the goal of increasing their exposure to the official government curriculum. They are usually operated by non-state providers (in particular, NGOs) and are characterized by small scales, strong community participation and low operational costs. Evaluations of programs being implemented throughout Asia have shown that they have increased enrollment and narrowed gender gaps. Two initiatives, in Bangladesh and India, are highlighted below.

Second, contrary to popular perception, the rise of religious schools has also made significant contributions toward inclusive education, including that of girls. Studies suggest that with adequate incentives, religious educational institutions can play an important role in narrowing educational gaps—between genders, among economic classes, and between religious and secular schools—in countries with Muslim majorities. Indeed, Islamic education systems have demonstrated a willingness to collaborate with non-Muslims as a means to adapt to the demands of globalization as well as expand their spheres of influence (Park and Niyozov 2008).

#### **Bangladesh: BRAC's non-formal education program**

NGOs have played an important role in promoting access to education in Bangladesh, particularly for girls in rural areas. Sukontamarn (2005) explored the impact of NGO schools in raising female enrollment and test scores in rural areas, with results showing that the entry of NGO schools significantly increased girls' enrollment as compared to boys. Furthermore, when comparing rural and urban areas, the effects of NGO schools in increasing girls' enrollment were found mainly in the rural areas.

Recognizing the benefits of NGO involvement, the government of Bangladesh has maintained a public policy that has balanced official oversight while allowing operational autonomy (Alamgir et al 2006). The relationship with NGOs is evidenced through long-standing partnerships, a fiscal policy that allows for the provision of tax deductions for charitable contributions, effective working relationships, and inclusion of NGOs' role in delivering pro-poor services as part of the national poverty reduction strategy (World Bank 2006).

The most well-known NGO education program is BRAC's non-formal primary education program, which began in 1985 with 22 one-room schools that offered primary education in rural areas. The program enrolled 70 percent girls, and made concerted efforts to hire female teachers. The program has since been expanded into urban schools and ethnic minority regions of the country. To date, 5.35 million children have completed the primary school (BRAC 2015). Furthermore, BRAC students demonstrated higher rates of completion than government public schools, as well as higher test scores across life skills, reading, writing, and numeracy, at a third of the cost of a government public school<sup>5</sup> (Chabbott 2006).

The BRAC model has been adapted in Afghanistan, Ethiopia, Philippines, Sierra Leone, Somalia, South Sudan, and Tanzania. Inspired by the success of BRAC, the government of Bangladesh rolled out Reaching Out-Of-School Children (ROSC) program. Dang et al (2011) found that ROSC schools increase the probability of enrollment between 9 and 18 percent and perform as well as non-ROSC schools in raising test scores, even demonstrating positive impacts on academically stronger students.

### **Bangladesh: Feminization of Madrasas**

In the 1980s, concerned that the thousands of madrasa were not adequately preparing students for employment outside the religious sector, the government of Bangladesh offered all-male, unregistered madrasas financial incentives on the condition that they modernize their curricula to teach science, mathematics, and English. (Asadullah and Chaudhury 2008). The modernization efforts continued onto promote the "feminization of the madrasa" sector when a partnership was formed with Islamic schools to scale up the Female Secondary School Assistance Project (FSSAP), a program that was made available to all unmarried girls who attend recognized institutions.<sup>6</sup> Furthermore, any type of school that participated in the project received financial incentives depending on the number of girls enrolled.

Efforts undertaken to mainstream privately funded madrasas into publicly funded schools were successful. The converted madrassas are now registered with the government, follow state-mandated course outlines, use officially approved textbooks, and have become fiscally dependent on the state. Many employ female teachers (most of them graduates of secular schools) and educate girls, who make up almost half of their enrollees (Asadullah and Chaudhury 2008).

The high responsiveness to the availability of madrassas to girls reflects both the persistence and relaxation of gender norms in Bangladesh. While families may send their female children to madrasas because they are considered more conservative, moral, and protected from external influences and

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<sup>5</sup> Cost per completer at a BRAC school is estimated to be at 84 USD per student in 2003, approximately a-third of the cost of a completer of a formal government school, calculated at 246 USD per student in 2001.

<sup>6</sup> The FSSP was launched in 1994. To earn their monthly cash stipend, girls needed to remain unmarried, maintain a 75 percent attendance rate, and secure at least 45 percent marks in their annual examinations. Their parents also had to promise not to marry off their daughters before the age of 18.

thereby more aligned with gender norms, the availability of madrasas has nonetheless relaxed girls' physical mobility constraints (Asadullah and Wahaj 2012). Thus, in many ways, progressive gender norms can still co-exist with traditional gender norms surrounding women's roles and expectations.

Finally, while enrollment has significantly increased, the evidence on their effectiveness as compared to formal schools remains mixed. Asadullah et al (2007) concluded that there is no difference in test scores between religious and formal schools in secondary school. However, significant learning deficit by gender and primary school types were observed. Girls and graduates of primary madrasas demonstrated significantly lower test scores.

### **Indonesia: Modernization of Madrasas and Pesantren**

Indonesia's reforms demonstrate an early trend of curricular integration of religious schools to ensure that they were offering general educational content, including mathematics, history and English. In the 1970s, reforms were accelerated to ensure that both madrasa and pesantren (Islamic boarding school) students were learning from similar textbooks to that of general schools, prepared and published by the Ministry of Education and Culture. The curriculum was revised to accommodate 70 percent of general studies with 30 percent of Islamic religious sciences. In 1975, the signing of the "Agreement of the Three Ministers" between the Ministers of Religious Affairs, National Education and Internal Affairs paved the way for making madrasa degrees educationally equivalent to formal schools, thus allowing madrasa graduates to continue their studies in general institutions of higher learning, and vice versa for secular students (Azra et al 2007). In 2003, the government brought Islamic educational institutions into the mainstream by recognizing them as being on par with general schools, in that they would follow the national curriculum (Asadullah and Chaudhury 2008).

Unlike Islamic schools in Bangladesh, Indonesian schools do not receive large-scale financial support from the government, so one might expect that there would be less incentive to follow government-mandated curricula. However, what is striking about Indonesia's Islamic education system has been its willingness to the ideals of Indonesian nationhood and the Muslim public's demand for marketable skills. For example, modern madrasas now include Western-style classrooms and blackboards, along with an increased emphasis on educating girls, sports, and extracurricular activities (Hefner and Zaman 2007).

Beegle and Newhouse (2005) used public examination records on graduates of secondary junior schools and assess the relative effectiveness of public madrasa, private secular, private madrasa, other private Muslim and non-Muslim religious schools. Their study found that students attending public madrasas perform no worse than those attending public secular schools, and students attending private madrasas perform no worse than their counterparts in private secular schools.

#### **4. Educational outcomes depend on enabling institutions**

Throughout Afghanistan's history, the political control and manipulation of the education system has contributed to its social unrest and instability. As such, good governance matters to ensure that educational opportunities are available for all, and that funds are spent effectively and efficiently. Weak governance disproportionately affects the poor and disadvantaged who rely on governments to deliver education services. When such services are unavailable, unaffordable or of poor quality, the poor have little recourse to pursue their education. Such circumstances erode equity.

Bad governance also leaves the education system vulnerable to corruption. To make up for unmet resources, schools may levy unauthorized fees, with the poor for being forced to pay for education

(UNESCO 2009). A recent UNODC survey cites that bribery has become a major challenge in education, with the percentage of those paying a bribe to a teacher having jumped from 16 percent in 2009 to 51 percent in 2012. Furthermore, in addition to bribes from students and families, teachers have been offered bribes by the Ministries of Education and Higher Education to help students pass exams by interfering with grades or allowing them to cheat (UNODC 2013). Even at the Ministry level, there have been recent reports of distortion and falsification of data to meet political or financial targets, and allegations of embezzlement.<sup>7</sup>

Education delivery necessarily requires the right institutional structures to ensure that all dimensions – whether it is teacher policy, curricula and standards, school constructions and monitoring systems – are effective and accountable. The consensus among development experts has been that decentralization of services, including education, enables community involvement and obliges local state actors to be responsiveness to their needs. But successful education decentralization is dependent on a broader governance strategy.

In Afghanistan, the decentralization framework is articulated in the 2010 Subnational Governance Policy, developed by the International Directorate for Local Governance (IDLG), in response to the need for better cohesion and coordination in the decentralization effort. However, the current 400-page document is “an unwieldy amalgam of sound situation analysis, broad aims and complex policies that assigned wide-ranging and ambiguous responsibilities to many subnational governance institutions, rather than clarifying roles and relationships” (Nixon 2012). The inability of the governance system to function in a streamlined and effective manner, exacerbated by political patronage and interference, will continue to challenge education delivery efforts at the local level.

Overall, real progress in educational outcomes will only be seen if wider institutional factors are addressed. This implies that education sector plans must be integrated into Afghanistan’s broader economic growth and poverty reduction strategies, so as to ensure that priorities are aligned.

#### **4. Reliable education data is necessary for effective policymaking.**

Policymakers recognize that they can achieve better development results by using rigorous evidence on which to base their decisions. Evidence-based policymaking can reduce wasteful spending, expand innovative programs and strengthen accountability (Pew-MacArthur 2014). However, such benefits can only be realized with accurate and reliable data. Unfortunately in Afghanistan, the dearth of data is widespread. The Ministries of Education and Higher Education face poor data and recordkeeping on student enrollment, staff in schools, as well as on financial flows to education. Even scarcer is the information on the consequences of investments in education.

Efforts to institutionalize educational statistics and indicators are underway through development of the Education Management Information System (EMIS). Better data allows the government to monitor performance, set appropriate benchmarks, and plan and forecast spending. Furthermore, it allows for greater understanding on the effectiveness of current education efforts, as well as for cross-country comparisons.

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<sup>7</sup> Office of the Special Inspector General for Afghanistan Reconstruction (SIGAR). Letter of Inquiry to USAID. 11 June 2015. <https://www.sigar.mil/pdf/special%20projects/SIGAR-15-62-SP.pdf>

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