

Education inequalities around the world



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Introduction

Measured by the percentage of children who reach the last year of primary school, the primary completion rate, the world has made substantial progress towards reaching the Millennium Development Goals (MDG) of enabling all children to 'complete a full course of primary schooling'.¹ The primary completion rate in low-income countries increased from 66 to 74 per cent between 1991 and 2004, with growth in all of the poorer regions: Latin America and the Caribbean (86 to 97 per cent); Middle East and North Africa (78 to 88 per cent); South Asia (73 to 82 per cent); Sub-Saharan Africa (51 to 62 per cent).²

But there remain large inequalities in education across and perhaps more importantly, frequently large inequalities within, countries. Documenting inequalities across countries is straightforward. While some countries, including several in Africa, are on track to reach the MDG of universal completion, many others, especially in Africa are severely off track. So while some countries are reaching 100 per cent of children completing primary school, the rate was below 50 per cent in many countries (all Sub Saharan African).³ But country averages mask the fact that within countries a sizeable population of children still fails to complete school: both in countries where progress is being made on average and especially in countries where progress has been slower.

By analysing a very large collection of household data sets, the work described here documents patterns in inequalities in educational attainment – especially those associated with household economic status. There are three main findings. First, within country gaps associated with economic status can be truly enormous – as large if not larger than differences across countries. Second, the schooling attainment patterns that give rise to these inequalities vary substantially across countries – suggesting that country specific policies will be the key to addressing shortfalls. Third, inequalities associated with economic status are typically larger than those associated with other commonly cited sources of educational gaps.

Data and methodology

The results described here are derived from an ongoing project aimed at compiling household survey datasets and extracting systematic information about education inequalities from them (more details on this project are at <http://econ.worldbank.org/>

[projects/edattain](#)).⁴ The compilation covers 216 datasets to date from 88 countries: 36 in Sub-Saharan Africa; 21 in Latin America and the Caribbean; 11 in East Asia and the Pacific; 11 in Europe and Central Asia; 6 in South Asia; and 3 in the Middle East and North Africa. The number of Commonwealth countries from each of these regions, respectively, is: 15; 2; 1; 0; 4; and 0, for a total of 22. Country coverage is determined primarily by the availability of data. The data are from Demographic and Health Surveys (DHS), UNICEF's End-of-Decade Multiple Indicator Cluster Surveys (MICS2), as well as Integrated Household Surveys (IHS), such as those from the World Bank's Living Standards Measurement Study (LSMS) project. In the following analysis, only the last year for which data are available is used (the full list of countries, years, and type of data used are in Table 1).

Measuring educational enrolment and attainment in poor countries is deceptively difficult. For example, children who are reported by schools to be enrolled are frequently absent more often than in school. Relying on household surveys is not a panacea: reported school enrolment can still mask large periods of absenteeism. Nevertheless, self-reported school outcomes are generally more reliable than administrative data. More importantly, in order to study school participation and attainment one must use household surveys if one is to relate education outcomes to children's background characteristics and integrate children and youth who are not in school into the analysis.

Two methodological points are worth dwelling on. First, many of the surveys analysed (for example all 143 DHS and MICS2 datasets) do not include information on per capita household consumption expenditures – which is typically the preferred variable for use in poverty analysis such as that carried out here. In order to overcome this limitation the analysis uses an index based on consumer durables owned by households (such as a radio, television, bicycle) as well as characteristics of the household's dwelling (such as the roofing and flooring material, or the type of toilet facilities used) to derive population quintiles. The poorest 20 per cent of the population live in the 'poorest quintile' and the richest 20 per cent live in the 'richest quintile'.⁵

Second, the approach to estimating attainment used here relies on estimating 'grade survival'. Starting from a cohort of children and youth (aged 10 to 19 in this case) one can estimate the probability that each has completed grade 1. Among those, one can derive the probability that each has completed grade 2 and so on. Multiplying through these probabilities results in what is

known as the Kaplan-Meier survival probabilities and yields the expected probability that a child or youth will complete a given grade. The method implicitly accounts for the fact that some in the cohort are still in school and will ultimately complete a higher grade than they are currently observed to be in.⁶

Attainment shortfalls and economic status

The gap in education attainment between the richest and poorest quintiles in the same country can be truly staggering (Figure 1). For example, in Sierra Leone roughly 20 per cent of the poorest quintile complete grade 6, whereas over 70 per cent in the richest quintile do so. Gaps are typically largest in Sub Saharan African and South Asian countries.

In the African countries where grade 6 completion is lowest among children from the richest quintile, it is typically quite a bit lower among children from the poorest quintile. For example, in Burundi, Guinea and Niger only about 50 per cent of children from the richest quintile complete grade 6 and fewer than 20 per cent of children from the poorest quintile do so. Even as

attainment rises somewhat in the richest quintile, children from the poorest quintile often lag behind. For example, in Mozambique where slightly more than 80 per cent of children from the richest quintile complete grade 6, only about 30 per cent of children from the poorest quintile do so.

In The Gambia, only just over 80 per cent of children from the richest quintile complete grade 6 and again, only about 30 per cent of children from the poorest quintile do so. Worryingly, in several Sub Saharan African countries where grade 6 completion is over 90 per cent, the gap between rich and poor can remain quite large (for example, Nigeria, the United Republic of Tanzania, Uganda, Zambia).

Inequality in grade 6 completion between the rich and poor is systematically large in countries in the South Asia region. For example, in Bangladesh, Nepal and Pakistan less than 40 per cent of children in the poorest quintile complete grade 6 while between 70 and 80 per cent of children in the richest quintile do so. In India the gap is extremely large: virtually all children from the richest quintile complete grade 6 whereas only about 40 per cent of those in the poorest quintile do.

Table 1 Countries and year of latest survey included in the analysis

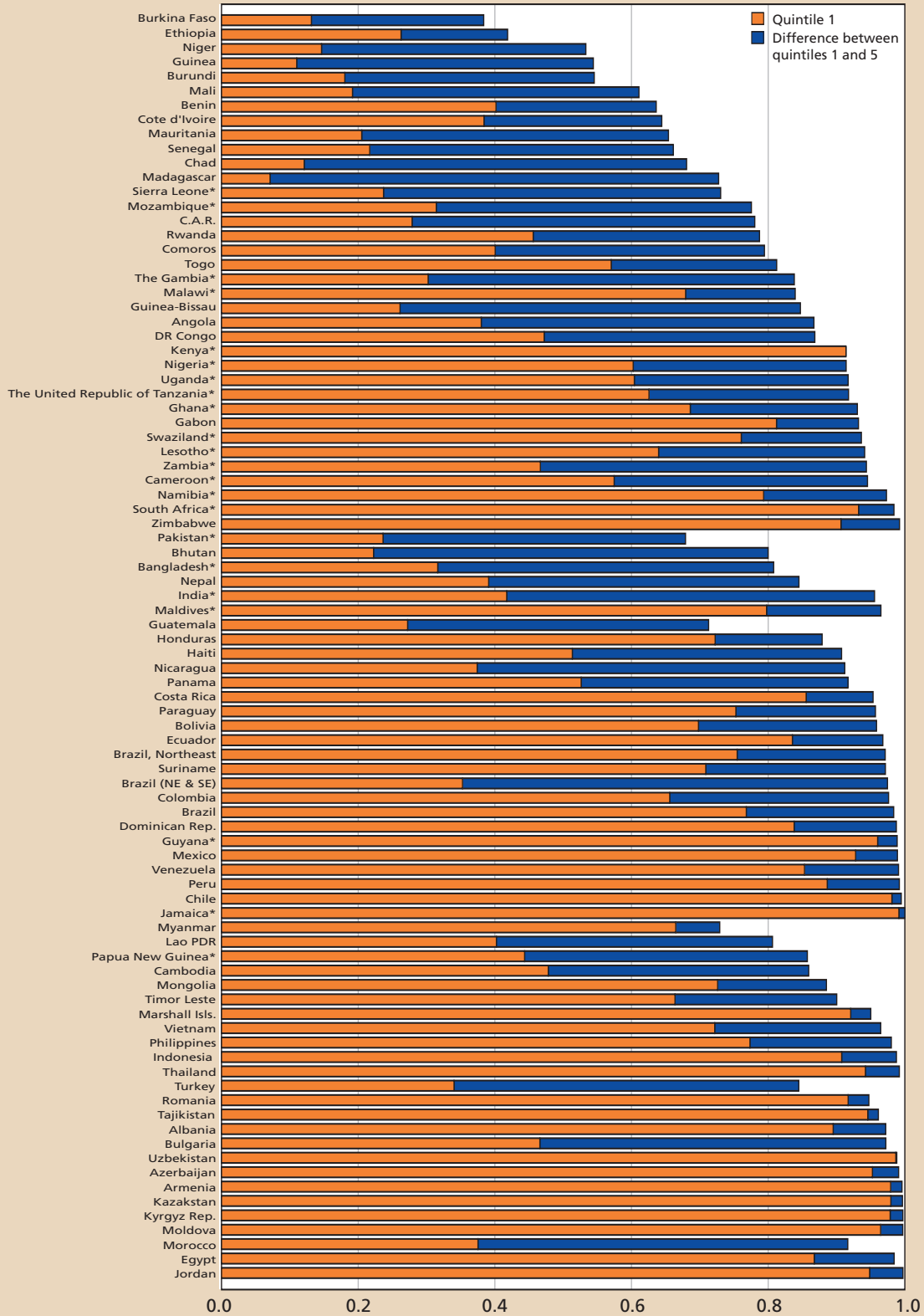
Country and year	Survey type	Country and year	Survey type	Country and year	Survey type
Albania 2002	IHS	Ghana 2003*	DHS	Nicaragua 2001	IHS
Angola 2001	MICS2	Guatemala 2002	IHS	Niger 2000	MICS2
Armenia 2000	DHS	Guinea 1999	DHS	Nigeria 2003*	IHS
Azerbaijan 2000	MICS2	Guinea-Bissau 2000	MICS2	Pakistan 2001*	IHS
Bangladesh 2004*	DHS	Guyana 2000*	MICS2	Panama 1997	IHS
Benin 2003	IHS	Haiti 2001	DHS	Papua New Guinea 1996*	IHS
Bhutan 2003	IHS	Honduras 1995	IHS	Paraguay 2001	IHS
Bolivia 2003	DHS	India 1998*	DHS	Peru 2004	DHS
Brazil 2001	IHS	Indonesia 2002	IHS	Philippines 2003	DHS
Brazil (NE & SE) 1996	IHS	Jamaica 2002*	IHS	Romania 1994	IHS
Brazil, Northeast 1996	DHS	Jordan 2002	IHS	Rwanda 2000	MICS2
Bulgaria 2001	IHS	Kazakistan 1999	DHS	Senegal 2000	MICS2
Burkina Faso 2003	IHS	Kenya 2003*	DHS	Sierra Leone 2000*	MICS2
Burundi 2000	MICS2	Kyrgyz Rep. 1997	DHS	South Africa 1999*	IHS
C.A.R. 2000	MICS2	Lao PDR 2000	MICS2	Suriname 2000	MICS2
Cambodia 2004	IHS	Lesotho 2004*	DHS	Swaziland 2000*	MICS2
Cameroon 2004*	DHS	Madagascar 1997	DHS	Tajikistan 2000	MICS2
Chad 2004	DHS	Malawi 2005*	IHS	Tanzania, United	
Chile 2003	IHS	Maldives 1998*	IHS	Republic of 2004*	DHS
Colombia 2005	DHS	Mali 2001	DHS	Thailand 2002	IHS
Comoros 1996	DHS	Marshall Isls. 1999	IHS	Timor Leste 2000	IHS
Costa Rica 2001	IHS	Mauritania 2000	IHS	Togo 2000	MICS2
Cote d'Ivoire 2002	IHS	Mexico 2002	IHS	Turkey 1998	DHS
DR Congo 2001	MICS2	Moldova 2000	MICS2	Uganda 2000*	IHS
Dominican Rep. 2000	MICS2	Mongolia 2000	MICS2	Uzbekistan 2000	MICS2
Ecuador 1995	IHS	Morocco 2003	DHS	Venezuela 2000	MICS2
Egypt 2003	DHS	Mozambique 2003*	DHS	Vietnam 2002	DHS
Ethiopia 2000	IHS	Myanmar 2000	MICS2	Zambia 2001*	DHS
Gabon 2000	DHS	Namibia 2000*	DHS	Zimbabwe 1999	DHS
Gambia, The 2000*	MICS2	Nepal 2001	DHS		

* Commonwealth countries



Figure 1 Cross-country patterns of grade 6

Completion by richest and poorest quintiles



Note: * indicates Commonwealth countries.

Source: Author's calculations from household surveys. See <http://econ.worldbank.org/projects/edattain>

Established 1992

In the Latin American countries covered in this analysis, children from the richest quintile typically complete grade 6, but there is substantial variability in the share of the poorest quintile who do so. For example, in Nicaragua about 90 per cent of those in the richest quintile complete grade 6 but less than 40 per cent from the poorest quintile do so.

In Honduras by contrast, where completion is similar in the richest quintile, it is quite a bit higher in the poorest quintile (around 70 per cent). In the East Asian countries there is more variability among the richest quintile (ranging from about 80 per cent in Cambodia, Lao PDR and Papua New Guinea, to close to 100 per cent in Indonesia and Thailand) and similar variability in the poorest quintile.

Pattern of educational attainment: survivor profiles

The percentage of children and youth who complete grade 6 - and within country differences therein - is a useful summary of attainment. But important for policy is the pattern of how those children attain the grade they do and where differences arise. Grade survival profiles show the whole pattern of school completion and give useful insights into where one might want to start in order to design policies to address problems.

Compare for example, Sierra Leone and Mozambique (Figure 2). In both countries about 25 to 30 per cent of children from the poorest quintile have completed grade 6. In Sierra Leone, however, roughly the same percentage completed at least one year of schooling while in Mozambique almost 70 per cent of children from the poorest quintile had completed at least one year of schooling. Clearly, in Mozambique poor children are starting school and then either dropping out or repeating grades, whereas in Sierra Leone they are not enrolling in school at all. In both these countries, gaps between rich and poor start at enrolment and perpetuate themselves through the basic education cycle.

In South Africa, where the vast majority of children complete grade 6 (and even grade 9), all children start school. To the extent that there is a gap between rich and poor, it emerges slowly across school years, accelerating progressively in upper primary and lower secondary school. This pattern is similar - although magnified - in Brazil where virtually all children have completed one year of schooling and inequalities grow consistently across the basic education cycle. In the United Republic of Tanzania by contrast, a large gap in the percentage of children who have completed even one year of schooling is exacerbated in the transition year from primary to lower secondary school. Similarly, in Indonesia, virtually all the gaps between rich and poor occur at the transition to lower secondary school - although in Indonesia almost all children complete the primary cycle.

In India and Pakistan, gaps between rich and poor remain fairly constant over the entire basic education cycle - including at the very beginning. In these countries, it is not dropout and repetition that drive inequalities but differences in the percentages of children who ever go to school. Bangladesh embodies all of these patterns simultaneously. Inequalities in grade completion start at entry - increase progressively over the primary school

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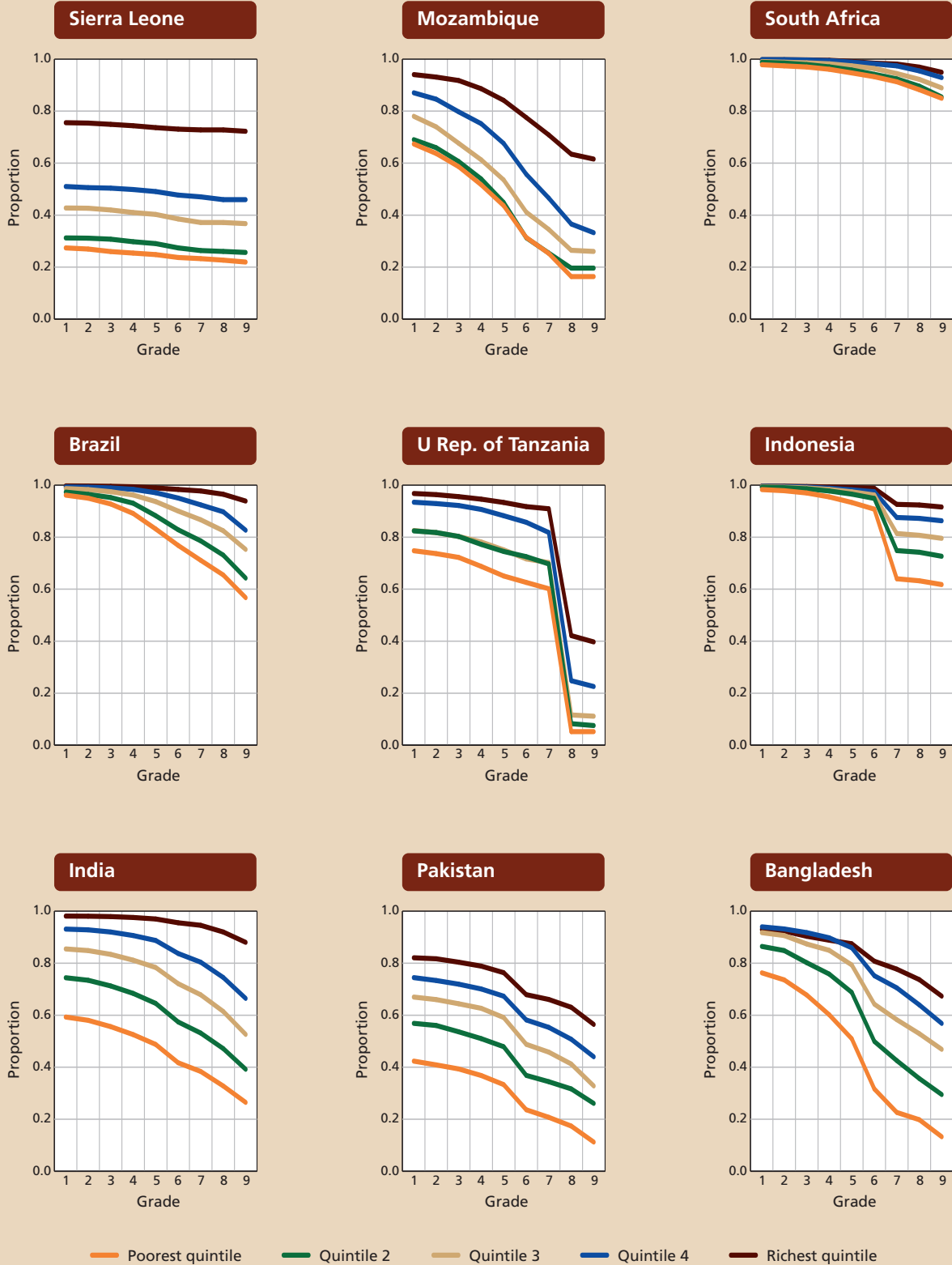
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Figure 2 Grade survival profiles

Proportion of cohort from each quintile who have completed each grade



Note: Graphs show Kaplan-Meier survival curve estimates of grade survival in the cohort of 10–19 year olds.

Source: Author's calculations from household surveys. See <http://econ.worldbank.org/projects/edattain>

years as poor children drop out and repeat grades and the gap between the two is exacerbated in the transition to secondary school.

The nine countries illustrated here show how varied the cross-country patterns in enrolment and dropout can be – and how inequalities between rich and poor manifest themselves in different ways. Clearly, addressing lack of completion (overall or within the poorest quintiles only) will require in-depth analysis of country-specific conditions, constraints and opportunities. But the patterns illustrated by these nine countries point to some general lessons.

First, when all children attend some school and then the poor increasingly drop out over the entire basic education cycle, it is unlikely that physical access to schooling is the primary determinant of dropout. Policies to stimulate the demand for schooling are likely to be the right starting point for addressing the issue. Note that this potentially includes increasing the quality of schooling, thereby making it more attractive and worthwhile to rich and poor alike. When there are large gaps even at entry, then it is more likely that a combination of demand and supply policies is likely to be important.

Second, in many countries (such as Sierra Leone, Mozambique, South Africa, India, Pakistan, and Brazil among the nine countries discussed above) there is no break in grade completion in the transition to the secondary cycle. Rather, the gap between rich and poor grows progressively larger in a smooth way. In these countries, access to secondary school places is unlikely to be the main constraint on secondary schooling. Contrast these to countries where there is a sharp break in the transition (for example the United Republic of Tanzania or Indonesia) where it is likely that rationing of secondary school places – either explicitly through an exam or implicitly through lack of facilities – creates a binding constraint on expansion beyond the primary cycle.

Variability of educational inequality within-country

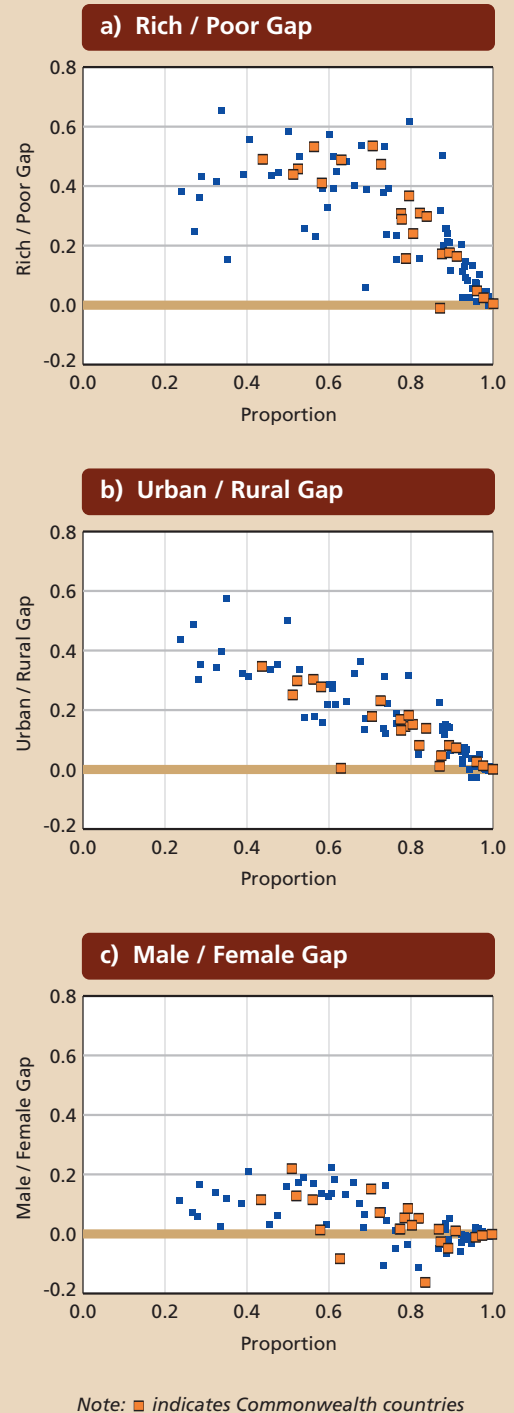
Economic status is, of course, only one source of inequality in educational attainment. Children from excluded groups (such as ethnic minorities, or lower castes in South Asia), orphans or other vulnerable children, or children with disabilities have lower attainment – even at the same level of economic well being.⁷ However, poverty status (or being in the poorest quintiles) is associated with the largest education gaps when countries are far from universal education.

Consider the relationship between the rich-poor gap in grade 6 and overall grade 6 completion (Figure 3a). As one deviates from universal completion (which would be indicated as a point with a value of one on the horizontal axis and zero on the vertical axis), the gap between the richest and poorest quintiles grows sharply. The gap between richest and poorest quintiles averages about 40 percentage points when overall completion of grade 6 is about 80 per cent. Clearly economic status is strongly related to shortfalls in attainment.

Urban and rural residence is likewise a strong correlate of shortfalls in completion (Figure 3b). This is perhaps unsurprising as in most countries, the majority of the population in the poorest

Figure 3 Inequalities in grade 6

Completion by household economic status, urban/rural residence, and gender



Source: Author's calculations from household surveys. See <http://econ.worldbank.org/projects/ledattain>



quintiles lives in rural areas. But the fact that the slope is flatter than that associated with economic status indicates that poverty is a better predictor of inequality in completion than rural residence. This means that in many cases, poverty - be it urban or rural - is associated with shortfalls in schooling.

Being female, on the other hand, is a much weaker predictor of shortfalls in completion (Figure 3c). Gender gaps in grade 6 completion are typically much smaller than the gaps associated with economic status or urban-rural residence. Raising completion among the poor is therefore usually more likely to lead to larger increases in the aggregate than raising completion among girls. That said, in some countries, especially those in South Asia, as well as those in North and West Africa, the gender gap is a significant one – especially among the poor.⁸

Conclusion

Gaps in educational attainment associated with poverty are typically large in poor countries. When universal completion is not achieved, poverty is usually one of the strongest correlates of the shortfall. But the pattern by which poverty manifests itself varies substantially. In some countries most of the difference between rich and poor starts at enrolment and remains fairly constant over the basic education cycle; in others initial gaps grow progressively over the basic education cycle; in others gaps are small and only really express themselves in the transition to secondary schooling. Achieving the MDG of universal primary completion will depend on countries' effectiveness at drawing the poor into the education system and keeping them there.

Endnotes

- 1 The primary completion rate—favored by the World Bank for monitoring progress towards reaching the MDG—is typically measured by its proxy: the ratio of the number of non-repeaters in the terminal grade of primary school to the number of children of the official age of the terminal year of primary school.
- 2 <http://www.developmentgoals.org>.
- 3 See, for example, World Bank (2005).
- 4 Previous papers based on data from this project have documented shortfalls in schooling associated with economic status (Filmer and Pritchett 1999) and the interaction of economic status and gender (Filmer 2006).
- 5 This approach is described and defended — and applied to the analysis of education inequalities in India — in Filmer and Pritchett (2001). When this index is not available, per capita household consumption is used to derive population quintiles.

- 6 Note that the results from this approach will yield a different number from the PCR, or even the “school life expectancy” calculated by UNESCO (e.g. UNESCO 2004). The survival curve approach is analogous to that used in the calculation of child mortality rates. In those rates, children who have not yet reached their fifth birthday are nevertheless used to calculate the probability of dying before age five since the information that they have survived to their current age can be exploited.
- 7 For empirical evidence on education gaps associated with orphan status see Ainsworth and Filmer (2006); and associated with disability status see Filmer (2005).
- 8 This interaction between wealth and gender gaps is discussed in more detail in Filmer (2006).

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Biographical notes

Deon Filmer is a Senior Economist in the Development Research Group (Human Development and Public Services Team) of the World Bank, Washington, DC. He received his PhD in Economics from Brown University in 1995 after which he joined the research group at the World Bank. He was core team member of the 2004 World Development Report, *Making Services Work for Poor People*. His research focuses on the determinants of inequalities in human development outcomes, and, in particular, how the behaviour of individuals, households and providers interact with public policy in the determination of health and education outcomes.