

## **INEQUALITIES IN EDUCATION: INTERNATIONAL EXPERIENCE**

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### **Contents**

1. Introduction
  2. Measuring Educational Outcomes and Household Wealth
  3. The Wealth Gap in Educational Attainment and Enrollment
  4. The Gender Gap in Educational Attainment and Enrollment
  5. The Interaction of Wealth and Gender
    - 5.1. Gender Gaps by Wealth
    - 5.2. Wealth Gaps by Gender
  6. International Correlates of Education Gaps
- Acknowledgments  
Glossary  
Bibliography  
Biographical Sketch

### **Summary**

Comparing inequalities between the rich and the poor in education outcomes, or differences in outcomes for boys and girls across countries is difficult because of the lack of comparable data. The Demographic and Health Surveys provide a uniquely rich data source that overcomes this problem. Analysis of these household data from 43 predominantly poor countries reveals that in most countries there is a substantial gap in the educational attainment of children from rich and poor families. In countries with low relative gaps this is often because of the low levels of education among both the rich and the poor (mostly the case in countries in Western and Central Africa). In a subset of countries, mostly those in western, central, and northern Africa, as well as in South Asia, the education of girls is substantially lower than that of boys. While comparing the attainment of a slightly older cohort (children aged 15 to 19) to the enrollment of a younger cohort (children aged 6 to 14) suggests positive improvements in some countries, this is not always the case. Education gaps are not generally becoming smaller.

In some countries, notably Egypt, CAR, Nepal, India, Morocco, and Pakistan the gender gap is substantially larger among children from poorer families than from wealthier families, suggesting that in those countries poor girls have especially bad education outcomes. The size of education gaps does not appear to be systematically related to country level variables measuring income, income inequality, and public spending on primary education. This suggests that specific policies to increase education outcomes, including increasing the effectiveness of current expenditures, will be necessary in order to ensure education for all.

## 1. Introduction

It is difficult to compare differences in the educational attainment of the rich and poor, or girls and boys across countries because data are not typically comparable. The Demographic and Health Surveys (DHS), which are nationally representative household surveys carried out in numerous poor countries, provide an opportunity to overcome this difficulty as they are carried out using a similar methodology – including similar survey instruments – in all countries. The DHS do not collect information on household income or household consumption, which are the variables usually used to determine standards of living. They do contain information on the ownership of assets by household members, as well as characteristics of the household dwelling, which can be used to create an index to rank household by their “wealth”.

Applying this index to the data from 43 countries yields insights into education gaps within countries and how these compare across countries. In most countries, there is a large gap between the educational attainment of children from rich and poor families. While in some countries the gap is small, this is often because of the low levels of education among both the rich and the poor. In a subset of countries, mostly those in Western, Central, and Northern Africa, as well as in South Asia, the education of girls is substantially lower than that of boys. In some of these countries, the gaps persist in current enrollment rates suggesting that the gender gap is not closing in those countries. In yet a smaller subset of countries, the gender gap is substantially larger among children from poorer families than from wealthier families, suggesting a double hurdle for girls from poor families. The cross-country variation in education gaps is not strongly related to income, income inequality, or public spending on primary education. This suggests that specific policies to increase education outcomes, including increasing the effectiveness of current expenditures, will be necessary in order to ensure education for all.

## 2. Measuring Educational Outcomes and Household Wealth

Measuring educational enrollment 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 enrollment 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 a school-based survey would leave out children who are not in school. Therefore, one must use household surveys if one is to relate education outcomes to children’s background characteristics.

Cross-country comparability is a big problem as well. There are various collections of household datasets, but they frequently ask education questions in different ways in different countries. The DHS overcome this problem as they have been collected in many countries in very similar ways. The DHS were not primarily designed to collect information on education. Rather, their main purpose is to obtain nationally representative and cross-nationally comparable household-level data related to family planning, and maternal and child health. The more recent surveys did record data on

school enrollment (for household members aged 6 to 25) and educational attainment (for household members aged 6 and above) as reported by a chosen respondent. In the following discussion the two main indicators retained are the median grade attained among children 15 to 19 years old, and the school enrollment rate among children 6 to 14 years old.

The DHS have been carried out in numerous countries covering the major regions where the world's poor live: Western and Central Africa, North Africa, South Asia, Eastern and Southern Africa, Central America and the Caribbean, East Asia and the Pacific, South America, and Middle East and Central Asia (roughly ranked from lowest to highest by the educational attainment of the poor). While such a large collection of comparable datasets is attractive, it is not exhaustive of all countries in the world. This discussion is therefore limited to those countries with a DHS survey that contains the pertinent information. The DHS do not ask about household income or consumption expenditures, the variables usually used to rank households by economic status. The surveys carried out since 1990 do, however, include two sets of questions related to the socio-economic status of the household. First, households are asked to report about ownership of various assets, such as whether any member owns a radio, television, refrigerator, bicycle, motorcycle, or car. Second, questions are asked about housing characteristics, namely whether electricity is used, the source of drinking water, the type of toilet facilities, how many rooms there are for sleeping, and the type of materials used in the construction of the dwelling. There is substantial overlap in the questions asked in different countries, but the precise list varies.

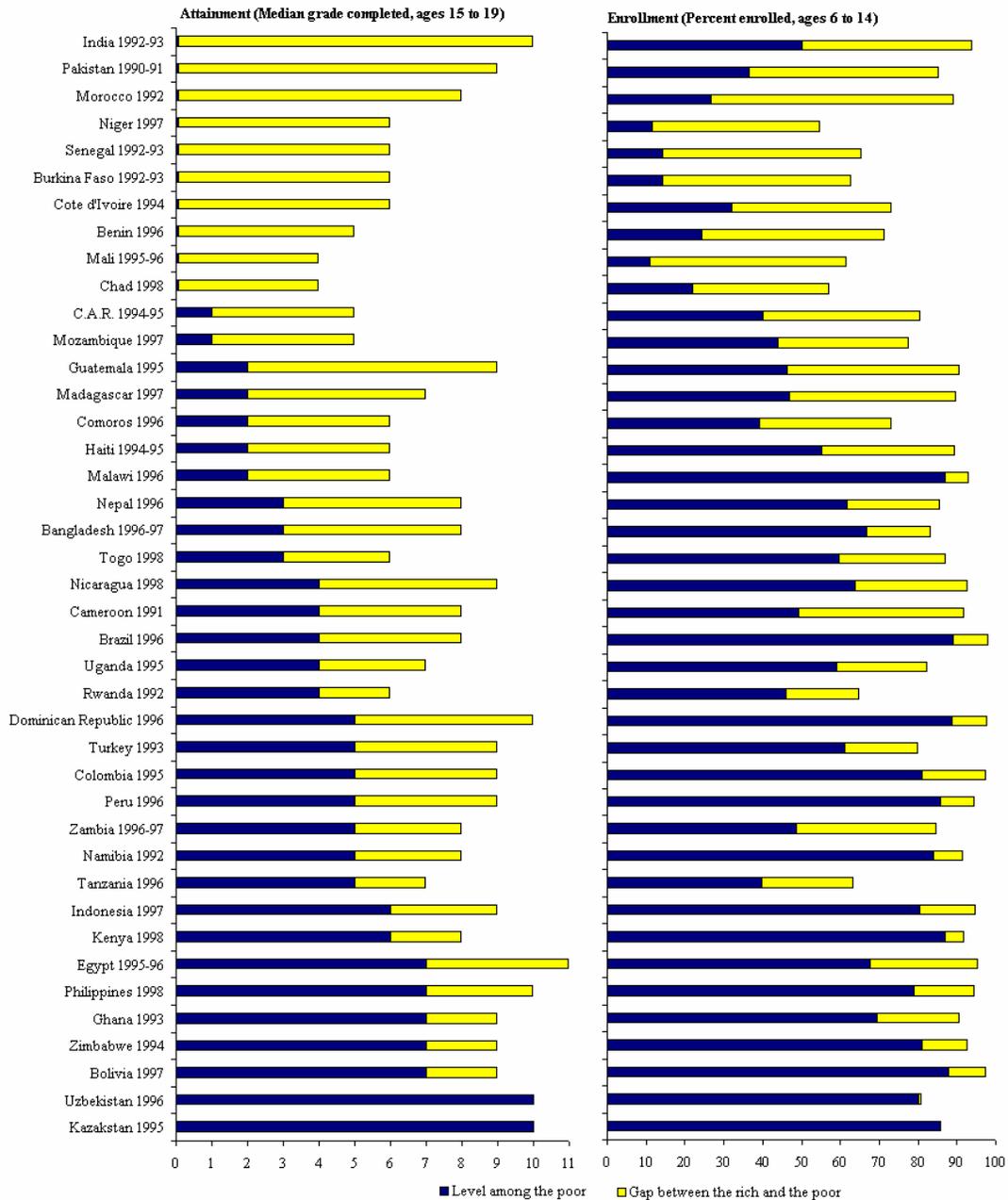
In order to use these variables to rank households by their economic status, they need to be aggregated into an index, and a major problem in constructing such an index is choosing appropriate weights. Filmer and Pritchett in a 2000 paper argue that a useful approach is to use the method of principal components. Principal components is a technique for summarizing the information contained in a large number of variables to a smaller number by creating a set of mutually uncorrelated components of the data. Intuitively, the first principal component is that linear index of the underlying variables that captures the most common variation among them. The assumption is that the first principal component captures the wealth of a household. Many of the results described here are based on applications those authors make of this "asset index".

The asset index is calculated separately for each country; individuals are sorted by it within each country and cutoffs for the poorest 40 percent, the middle 40 percent, and the richest 20 percent of the population are derived. Households are then assigned to each of these groups on the basis of their value of the asset index. A "poor" child is therefore a child from a household in the group in which 40 percent of the population with the lowest asset indexes live.

### **3. The Wealth Gap in Educational Attainment and Enrollment**

Figure 1 shows the levels of the schooling indicators among the poor and the gap between the rich and poor. There are large differences across countries in these "wealth gaps". In some countries the difference in the median years of school completed by children aged 15 to 19 from rich and the poor households (attainment wealth gap) is

only one or two years, whereas it reaches as high as nine or ten years in some countries. In some countries the difference in the enrollment rate of children aged 6 to 10 (enrollment wealth gap) is close to zero, whereas in others it is as large as 63 percentage



points.

Figure 1: Wealth gaps in the median grade completed by children aged 15 to 19 and in the enrollment of children aged 6 to 14.

The attainment wealth gap is the highest in the world in South Asian countries where the poor are not going to, nor staying in, school. The median grade completed among the poor is zero in India and Pakistan (that is less than half of the poor in these countries

ever finish even one year of schooling), 2 in Bangladesh, and 3 in Nepal. However, the richer groups in these countries have high levels of attainment. India has the world's largest attainment wealth gap of 10 years with the poor having median grade completed of zero, while for the rich attainment is 10 years. This is followed closely by Pakistan at 9 years. These differences are mirrored in enrollment rates for the young cohort at the time of the survey. In India and Pakistan something in the order of 50 percent of children aged 6 to 14 from poor households are enrolled, whereas about 90 percent of those from rich households are.

Western, Central and Northern African countries form the next group of countries with low attainment rates, and large attainment wealth gaps. Like South Asia, the median grade completed among children of the poor in many of these countries is zero. Attainment wealth gaps tend to be smaller in these countries (ranging from 4 to 6 years) since the rich do not achieve very high levels of schooling either. Enrollment rates tell a similar story: these reach extremely low levels among the poor (11 percent in Mali and Niger) and are higher, but still low by international standards, among the rich. The remaining countries, drawn from Eastern and Southern Africa, Latin America, and Europe and Central Asia countries have smaller wealth gaps and do not sort into such clear groups on the basis of these indicators. Attainment wealth gaps are typically quite large in Latin American countries, larger even than those in Eastern and Southern African countries. Haiti has a pattern similar to those in Western and Central Africa with median grade completed of 2 for the poor and only 6 for the rich, while Guatemala has a pattern like that in South Asia with a gap of 7 (2 for the poor versus 9 for the rich). The attainment wealth gap in the South American countries (Brazil, Bolivia, Colombia, Peru) is 4 years in all four countries with the median grade completed ranging from 4 to 6 for the poor, and from 8 to 10 for the rich. In each of these countries, though, the enrollment rate among 6 to 14 year olds is relatively high suggesting that the gaps should diminish over time.

Attainment wealth gaps in the Eastern and Southern African countries are typically small: between 1 in Kenya and 3 in Uganda and Zambia. While enrollment among the poor is promising in Kenya (over 85 percent) it is substantially lower in the other countries from this region. The attainment wealth gap is equal to 3 for the two East Asian countries (Indonesia and Philippines). This is due not to especially low attainment for the poorest groups, but rather to higher levels of attainment among the rich. The wealth gap in median grade completed is 4 in Egypt and Turkey, again due largely to the high attainment of the richest group. In both of these countries enrollment rates among the poor are not especially high, suggesting that the attainment wealth gap will not close rapidly.

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## Biographical Sketch

**Deon Filmer** is a Senior Economist in the Development Research Group of the World Bank. He completed his Ph.D. in Economics at Brown University. He works in the Public Services cluster of the Development Research Group. His research focuses on how individual and household behaviors interact with public policy in the determination of health and education outcomes.