

International Data on Educational Attainment Show Significant Differences and Challenges

Fourth Edition of Dataset by Economists Barro and Lee Extends Years Up to 2010

Economists Robert J. Barro and Jong-Wha Lee have released the fourth edition of their dataset on educational attainment. Estimates of the level of education among specific age groups are available in five-year intervals for 146 countries from 1950 to 2010. When the first version of the dataset was released in 1993, it covered 129 countries for the years 1960-1985. Their International Data on Educational Attainment is available in the Economic & Social Database (ESDB). Sometimes referred to as the “Barro-Lee Dataset,” it provides information about the distribution of educational attainment of the adult population over age 15 and over age 25 for the total population and the female only population at seven levels of schooling— no formal education, incomplete primary, complete primary, incomplete secondary, complete secondary, incomplete tertiary, and complete tertiary. The data also cover average years of schooling at all three levels. Barro and Lee use census and survey data for their estimates, filling in missing observations by forward and backward extrapolation.¹

Countries on Divergent Paths in 2010

The Barro-Lee Dataset highlights the wide range of country experience in educational attainment. Estimates for 2010 show nine countries with more than sixty percent of their population aged 25 and older having had no schooling at all, while other developing countries have achieved average years of schooling that exceed the median value for high-income countries.

| Countries with Highest Percentage of Population Aged 25 and Older with No Schooling in 2010 | |
|---------------------------------------------------------------------------------------------|-------|
| Niger | 78.2% |
| Mali | 77.1% |
| Mozambique | 74.5% |
| Gambia | 72.2% |
| Yemen | 69.3% |
| Afghanistan | 66.1% |
| Sierra Leone | 65.1% |
| Benin | 63.9% |
| Cote d'Ivoire | 60.5% |

| Developing Countries with Average Years of Schooling for Population Aged 25 and Older Exceeding High-Income Country Median ² (= 10.57 years) | |
|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| Czech Republic | 12.33 |
| Estonia | 12.00 |
| Hungary | 11.67 |
| Slovakia | 11.57 |
| Ukraine | 11.28 |
| Fiji | 11.04 |
| Lithuania | 10.90 |
| Armenia | 10.79 |
| Romania | 10.59 |

¹ For complete details on the estimation procedures, visit <http://www.barrolee.com> or refer to the research paper that accompanies the dataset: “A New Data Set of Educational Attainment in the World, 1950–2010,” Robert J. Barro, Jong-Wha Lee, NBER Working Paper No. 15902, April 2010.

² Median value of average years of schooling for high-income countries is based on the 27 high-income countries in the Dataset; the country with the median value of 10.57 years of schooling is Belgium.



Data for 1950-2010 Show Full Range of Long-Term Experience

Looking at twenty-year periods for all of the countries in the dataset indicates that the typical developing country achieves moderate increases in educational attainment, while a small number of countries accomplish a rapid rise in attainment. Considering any twenty year period for any of the 146 countries reveals that in 99 percent of the cases, educational attainment increased over the two decades. In some cases where attainment declined, such as in Algeria from 1950 to 1970, the likely cause was a long period of civil war. But while increases are the norm, rapid increases are less common.

Using average number of years of total schooling for the population aged 25 and over, attainment more than doubled in two decades in 24 percent of the cases. Of course, many of the cases where the increase was small (less than a ten percent gain) were in high-income countries with educational attainment levels already relatively high in 1950. There were nine episodes of educational attainment increasing by fivefold or more over two decades, including Morocco (1970-1990), Nepal (1965-1985), and Togo (1970-1990), but all were cases with extremely low starting points, *i.e.*, less than one year of schooling. But starting from a relatively higher level of attainment does not preclude rapid gains, as the next table shows.

| Episodes of Countries Starting with At Least 1.5 Years Average Schooling in Population 25+ and More than Tripling the Average in Twenty Years | | | | | |
|-----------------------------------------------------------------------------------------------------------------------------------------------------|------------|-------------------------|----------|-------------------------|------------------|
| Country | Start Year | Average Years Schooling | End Year | Average Years Schooling | Percent Increase |
| Botswana* | 1980 | 2.29 | 2000 | 7.62 | 233% |
| Bahrain | 1970 | 1.88 | 1990 | 6.04 | 221% |
| Algeria | 1980 | 1.74 | 2000 | 5.50 | 217% |
| Congo (Brazzaville) | 1975 | 1.52 | 1995 | 5.13 | 238% |

*Botswana also accomplished this increase for the 1975-1995 period.

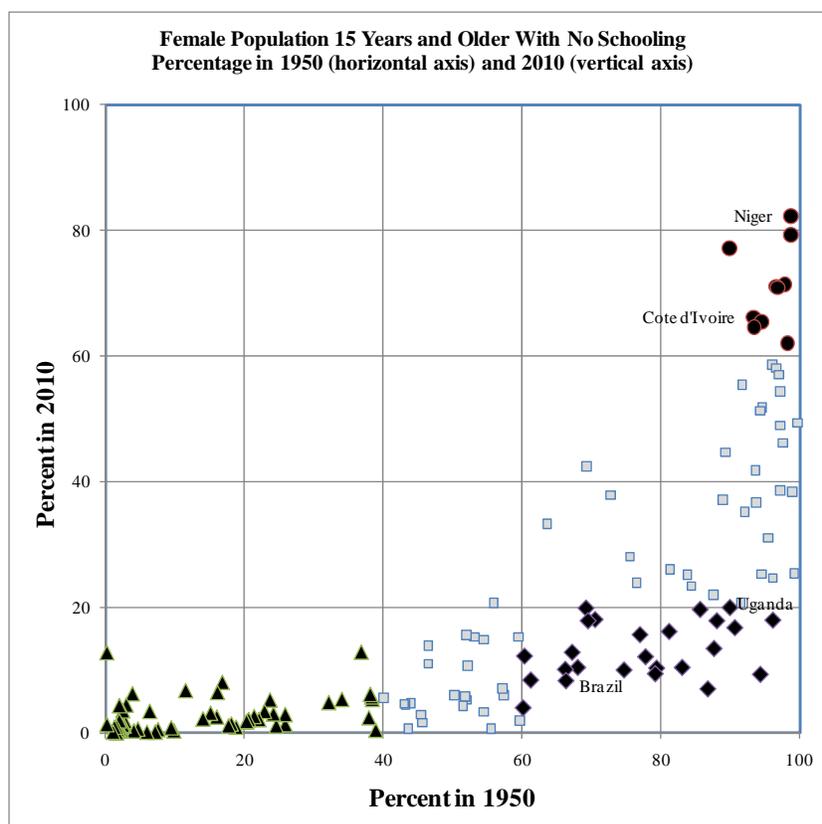
Data for Female Population Indicate Significant Improvement in Attainment in Many Countries, But Not All

All of the estimates in the Barro-Lee Dataset are available for the total population as well as for the female only population. Comparing the 1950 and the 2010 levels of educational attainment for females aged 15 years and older also highlights the wide variety of country experience.

The graph on the next page shows a single data point for each country in the dataset. One key indicator of potentially urgent development needs is "Percentage of Females Aged 15 Years and Older With No Schooling." This indicator approaches zero in countries with extensive education systems, but can exceed eighty percent in countries that have pervasively failed to educate their female population.

The 1950 percentage of females with no schooling is plotted along the horizontal axis and the 2010 value is along the vertical axis. When the data point is closer to the bottom of the graph, the country is closer to achieving education for all of the female population as of 2010.

Use the key below the graph to identify the types of country experience from 1950-2010.



| Symbol | Number of Countries | Description |
|--------|---------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ● | 10 | There are a small number of countries such as Cote d'Ivoire and Niger which are clustered in the upper parts of the graph. The female populations without schooling in those countries were all nearly 100 percent in 1950 and the improvement over sixty years has still left more than 60 percent of them without schooling. |
| ◆ | 24 | More numerous are the countries clustered in the lower right hand corner of the graph. Those countries, such as Brazil and Uganda, all had more than 60 percent of the female population without any schooling in 1950, but had cut that percentage to below twenty by 2010. |
| ▲ | 55 | Countries which are clustered in the lower left hand corner of the graph are typically high-income countries with relatively low percentages of females without any schooling in 1950 and even lower percentages in 2010. |
| □ | 31 | All of these countries reduced the percentage of females without any schooling over sixty years. The subgroup closest to the horizontal axis all had the percentage in the 40-60 range in 1950, but had cut it to below twenty by 2010. The subgroup in the right hand side of the graph all began the period with the percentage higher than sixty and had reduced it by 2010. |

In a small number of high-income country cases clustered in the lower left hand corner of the graph, the percentage of females without any schooling was extremely low in 1950 but had increased slightly by 2010.

International Data on Educational Attainment (The "Barro-Lee Dataset") is available through the Economic & Social Database (ESDB) at <http://esdb.eads.usaidallnet.gov/>. The ESDB is maintained by the Economic Analysis and Data Services (EADS), the central source for data on developing countries at the U.S. Agency for International Development. EADS provides technical staff and policy makers with access to social and economic data, with analytical and technical support, and with data based research services. For more information, contact statsunit@devtechsys.com.