

# 10. Inequality in education: the challenge of measurement

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*Education is essential to economic growth, poverty reduction, gender equality, public health, conflict resolution and the transformation to sustainable production and consumption. Ensuring equality in education can further accelerate the achievement of these and other Sustainable Development Goals (SDGs). This contribution discusses how to monitor progress toward reducing inequality in education, which indicators can be used, and what the challenges are for communicating these results.*

Economic inequality within countries is rising (Milanovic, 2013). This explains why one of the new SDGs is dedicated to reducing income inequality. Beyond this specific goal, the desire to 'leave no one behind' permeates the entire 2030 Agenda. The result is an unprecedented global commitment to monitoring progress using data disaggregated 'by income, gender, age, race, ethnicity, migratory status, disability, geographic location, and other characteristics relevant to national contexts' (United Nations, 2015). In the case of education (SDG 4), Target 4.5 focuses exclusively on the need to 'ensure equal access to all levels'.

Education is a fundamental human right which countries have committed to uphold since they signed the 1948 Universal Declaration of Human Rights. Education is also a key driver for attaining most SDGs by 2030, whether these concern gender equality, healthy families, poverty reduction, sustainable consumption, resilient cities or peaceful societies. Yet for education to have a positive impact in advancing these goals, it is necessary to first ensure equality of opportunity for learning. Given that individuals have varying abilities and competences, it is unrealistic to expect equality of education outcomes. However, such differences should not be amplified by individual circumstances at birth.

In practice, education remains a social institution that reflects and reproduces the socio-economic and cultural disadvantages that prevail in the rest of society (Bourdieu and Passeron, 1977). For instance, students from economically poor families are more likely to attend schools characterized by worse infrastructure,

fewer qualified teachers, less ambitious peers and outmoded pedagogical practices compared with those in more affluent areas. Hence they are more likely to end up with lower learning outcomes.

Eliminating inequality in education will amplify the positive influence of education on the achievement of other development outcomes. For example, for a given level of average education in the population, a more equal distribution has an additional impact on economic growth. An equitable delivery of education is critical for tackling the roots of discontent in cities. And studies of low and middle-income countries have shown that increased educational inequality is linked with a higher probability of conflict (UNESCO, 2014).

## Multiple ways of measuring inequality

The monitoring of inequality in education is critical to understanding how, and how much, education contributes to more equitable societies. This necessarily calls for a series of choices to be made.

First, educational inequality can be examined using indicators that capture different aspects of education ranging from resources to access, participation and attainment. These may, for example, include the percentage of individuals who have attained a particular level of education, or the number of years of education attained (e.g. Morrisson and Murtin, 2013; Meschi and Scervini, 2014). The increasing availability of national and international learning achievement surveys further enables the measurement of inequality in learning outcomes (e.g. OECD, 2010; Ferreira and Gignoux, 2014).

Second, different inequality measures can be used to summarize the degree of dispersion for a given educational indicator. Each measure has advantages and disadvantages, in both its technical qualities and the ease with which it can be communicated to non-specialist audiences and policy-makers. However, different inequality measures can also lead to different conclusions about the degree of inequality and its change over time for the same educational indicator (as illustrated in *Figure 10.4*).

Third, while it may be interesting to view the distribution of an education indicator throughout the population, policy-makers need to know how its value varies by individual characteristics if they are to address issues of inequality. The most important markers of potential disadvantage include gender, location, income or wealth, ethnicity and disability. To measure progress over time, inequality can also be examined across generations (e.g. Blanden, 2013).

Fourth, different data sources are available that measure different aspects of the education process and provide information on background characteristics. However, close attention needs to be paid to whether they are representative of the general population, and are sufficiently reliable to be used for the reporting of trends over time.

### Communicating about inequality in education

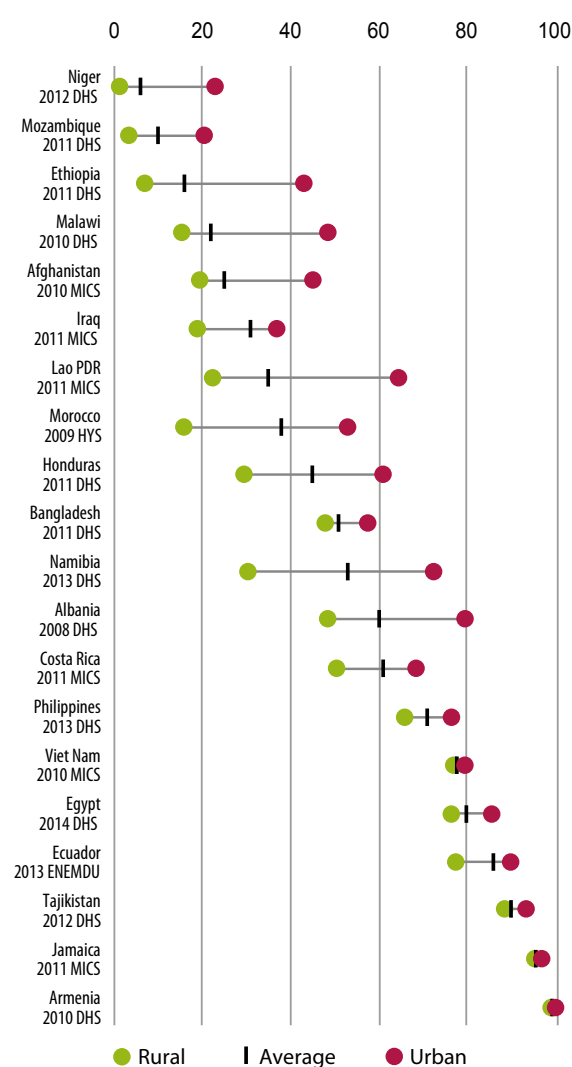
To illustrate inequality in education, the Global Education Monitoring Report developed the World Inequality Database on Education (WIDE), using demographic and health surveys (DHS), multiple indicator cluster surveys (MICS) and national household surveys (UNESCO, 2015).<sup>1</sup> It also developed accompanying graphics to help visualize the extent of inequality and facilitate comparisons between countries or between groups within countries.

For example, the percentage of young people who have completed lower secondary school varies from 6 per cent in Niger to 100 per cent in Armenia. It can also vary by more than 40 percentage points within countries – for example, between rural and urban areas in Laos and Namibia (*Figure 10.1*).

Overlapping markers of disadvantage show how disadvantages can cumulate, seriously affecting certain groups. In Nigeria, just 3 per cent of the poorest rural girls completed lower secondary school

in 2013. By comparison 17 per cent of the poorest rural boys and 95 per cent of the richest urban boys completed this level. In the Philippines, gender disparities worked in the opposite direction for lower secondary education, with a 25 percentage point advantage for the poorest females over the poorest males in both urban and rural areas (*Figure 10.2*).

**Figure 10.1 Lower secondary education completion rate by location, selected low and middle-income countries, 2008–14**



Note: The lower secondary completion rate is the percentage of young people (aged 3–5 years above lower secondary school graduation age) who had completed lower secondary school. See [www.education-inequalities.org/indicators](http://www.education-inequalities.org/indicators)

Source: World Inequality Database on Education.

**Figure 10.2 Lower secondary education completion rate by location, wealth and gender, Nigeria and the Philippines, 2013**



Source: World Inequality Database on Education

The Inter-Agency and Expert Group on SDG indicators has proposed the ‘parity index’ as the global measure of inequality in education. This is the ratio between the education indicator values of two population groups,<sup>2</sup> and ranges from 0 (extreme inequality at the expense of one group) to 1 (parity) (extreme inequality at the expense of the other group). For example, if 30 per cent of the poorest and 60 per cent of the richest have completed primary school, then the wealth parity indicator is 0.5. The measure has been proposed because it is the easiest to communicate to a broad audience.

However, the parity index has to be interpreted cautiously. In *Figure 10.3*, the horizontal axis shows the primary completion rate in selected countries, while the vertical axis shows the primary completion rate wealth parity index. On average, the index is higher – and therefore inequality lower – when the completion rate is higher (and vice versa). In other words, there is a risk that simple measures of inequality may be misleading if used out of context. In particular, it would be misleading to compare the value of the index of two countries at different levels of educational development, such as Honduras and Mauritania, and conclude that the latter is more unequal. However, the index is useful to analyse inequalities between countries at the same level of educational development: for example, for every 100 rich children who completed primary school, only 28 poor children did so in Pakistan compared with 51 poor children in Malawi.

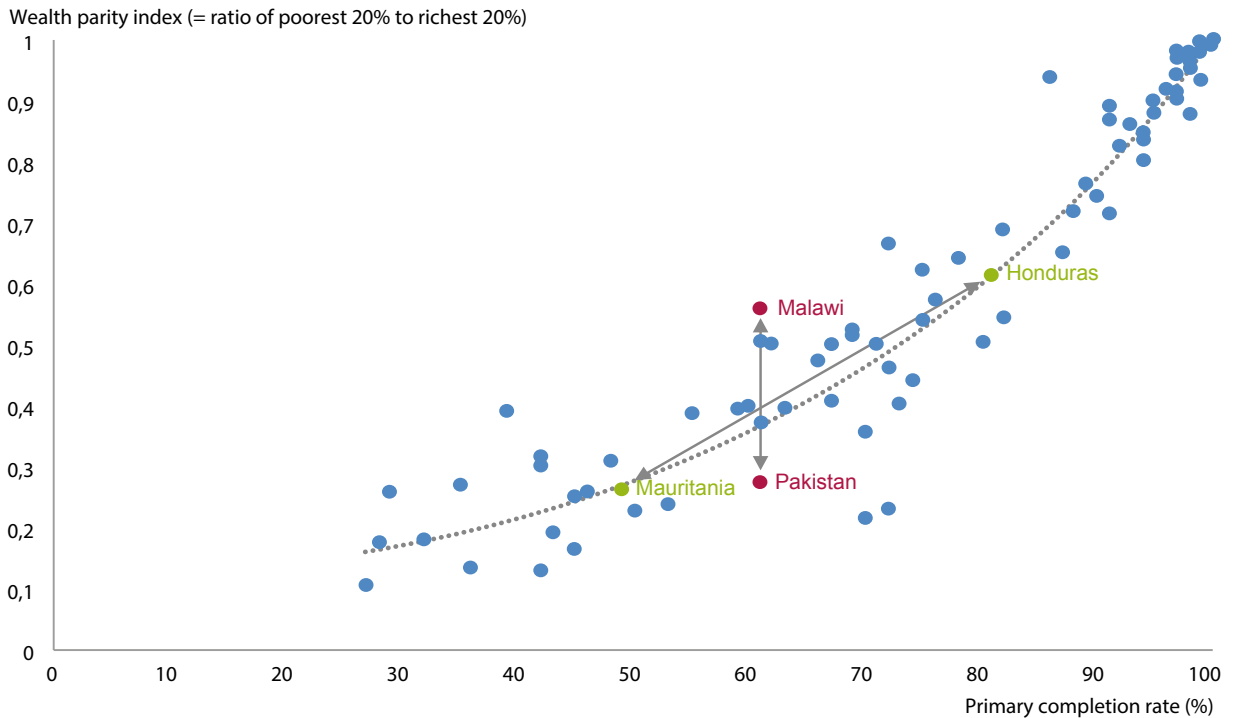
If we want to show how an education indicator is distributed in a population ranked by a characteristic such as wealth (from poorest to richest) then the concentration index can be used. This index is calculated as being twice the area between the concentration curve (which shows the actual distribution) and the diagonal line (which shows perfect equality): the farther a line is to the right of the diagonal, the higher the inequality.

For example, regarding the lower secondary education completion rate in sub-Saharan Africa by wealth in both 2000 and 2010, the poorest 40 per cent of young people represented less than 20 per cent of lower secondary school completers. But while inequality fell overall between 2000 and 2010, the concentration curves highlight that it is the middle classes that benefited most, while the poorest have done worse. Clearly, it behoves us to develop and use measures that are sensitive to the educational progress of all groups (*Figure 10.4*).

## Conclusion

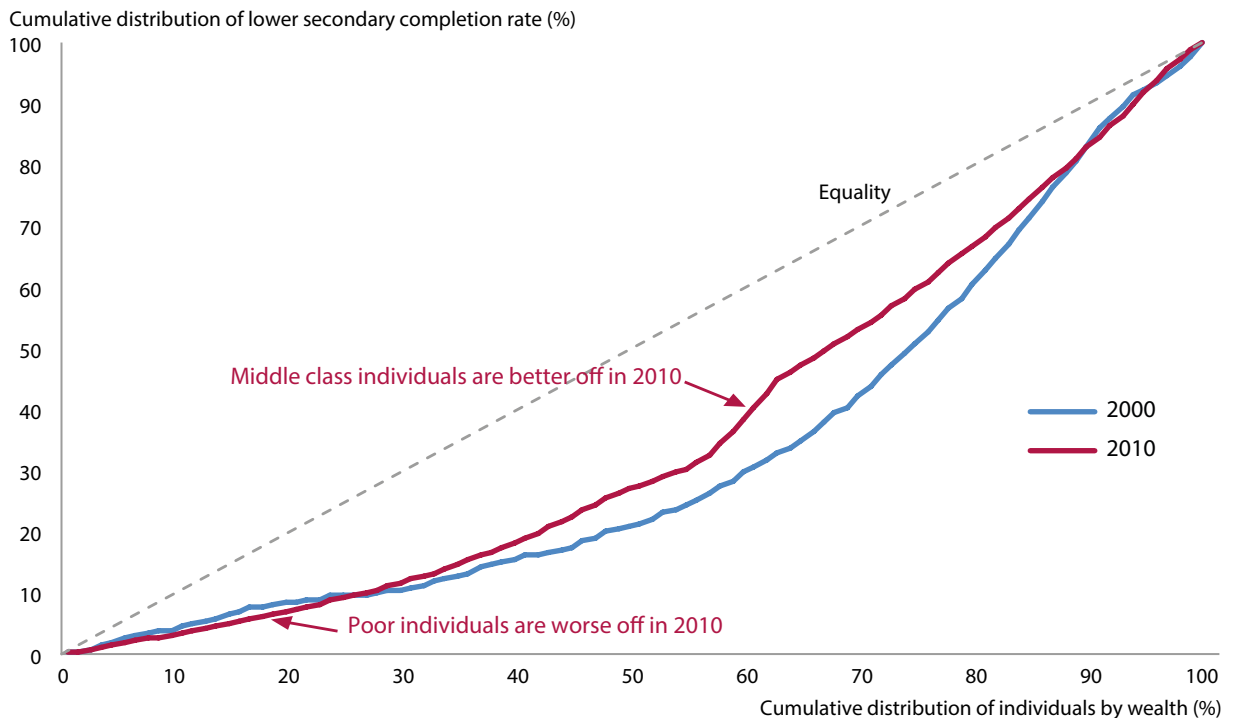
The increasing availability of household and school-based surveys has made it possible to do more high-quality, in-depth analyses of inequality in education both within and between countries. However, distinct challenges remain for the monitoring of progress toward the global target of achieving equal access to all education levels by 2030, including the need to articulate clear messages for broad policy audiences.

**Figure 10.3 Primary education completion rate and wealth parity index, selected low and middle income countries, 2008–14**



Source: Global Education Monitoring Report team analysis using household surveys

**Figure 10.4 Concentration curve of the lower secondary education completion rate, sub-Saharan Africa, 2000 and 2010**



Source: Global Education Monitoring Report team analysis using household surveys

Greater consensus is needed among the international community as to which education indicators, inequality measures, individual characteristics and data sources should be emphasized.

### Notes

1. See [www.education-inequalities.org/](http://www.education-inequalities.org/)
2. Such as female over male for the gender parity index or the poorest over the richest for the wealth parity index.

### Bibliography

**Blanden J. 2013.** Cross-country rankings in inter-generational mobility: a comparison of approaches from economics and sociology. *Journal of Economic Surveys*, Vol. 27, No. 1, pp. 28–73.

**Bourdieu, P. and Passeron, J. C. 1977.** *Reproduction in Education, Society and Culture*. London, Sage.

**Ferreira, F. H. G. and Gignoux, J. 2014.** The measurement of educational inequality: achievement and opportunity. *World Bank Economic Review*, Vol. 28, No. 2, pp. 210–46.

**Meschi, E. and Scervini, F. 2014.** Expansion of schooling and educational inequality in Europe: the educational Kuznets curve revisited. *Oxford Economic Papers*, Vol. 66, No. 3, pp. 660–80.

**Milanovic, B. 2013.** Global income inequality in numbers: in history and now. *Global Policy*, Vol. 4, No. 2, pp.198–208.

**Morrisson, C. and Murtin, F. 2013.** The Kuznets curve of human capital inequality: 1870–2010. *Journal of Economic Inequality*, Vol. 11, No. 3, pp. 283–301.

**OECD. 2010.** *PISA 2009 Results: Overcoming Social Background – Equity in Learning Opportunities and Outcomes*, Vol. 2. Paris, OECD.

**United Nations. 2015.** *Transforming Our World: The 2030 Agenda for Sustainable Development*. New York, United Nations.

**UNESCO. 2014.** *Sustainable Development Begins with Education: How Education Can Contribute to the Proposed Post-2015 Goals*, Global Education Monitoring Report. Paris, UNESCO.

**UNESCO. 2015.** Education in 2030: equity and quality with a lifelong learning perspective. Insights from the EFA Global Monitoring Report's World Inequality Database on Education (WIDE), Global Education Monitoring Report Policy Paper 20. Paris, UNESCO.

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