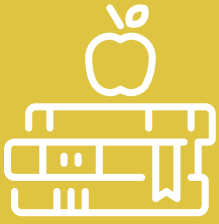


Public Disclosure Authorized
Public Disclosure Authorized
Public Disclosure Authorized
Public Disclosure Authorized
Public Disclosure Authorized

THE PRICE OF EXCLUSION:
DISABILITY AND EDUCATION

DISABILITY GAPS IN EDUCATIONAL ATTAINMENT AND LITERACY

CHATA MALE & QUENTIN WODON
DECEMBER 2017



THE PRICE OF EXCLUSION:
DISABILITY AND EDUCATION

DISABILITY GAPS IN EDUCATIONAL ATTAINMENT AND LITERACY

CHATA MALE & QUENTIN WODON

BACKGROUND TO THIS SERIES

More than one billion people may experience some form of disability. Of those, up to one in five may experience significant disabilities. Individuals with disabilities have on average worse socioeconomic outcomes than those without disabilities. They often have poorer health, lower levels of employment and earnings, and higher poverty rates. In developing countries, the prevalence of disability and its impacts on a wide range of development outcomes are typically larger.

Children with disabilities are especially at a disadvantage in terms of school enrollment, educational attainment, and learning. Many children with disabilities never enroll in school, or drop out prematurely. They also often learn less while in school. Ensuring that these children have the same opportunities as other children is a challenge, but also an opportunity, in that inclusive education may bring benefits to all children, and not only those with disabilities.

Awareness of the need for inclusive education systems is increasing. The United Nations Convention on the Rights of Persons with Disabilities has been ratified by 175 countries. It calls for full integration of persons with disabilities in societies. Several targets in the Sustainable

Development Goals are related to disabilities, including with respect to inclusive education. However, at the country level, and especially in low and middle income countries, resources are often lacking to effectively promote inclusive education.

This note is part of a series on *The Price of Exclusion: Disability and Education* prepared as part of broader work program on out-of-school children with funding from the Global Partnership for Education. The series documents gaps in education outcomes between children with and without disabilities. It also showcases examples of programs and policies and lessons from the literature on how to improve inclusion in education systems.

KEY MESSAGES

This note provides an analysis of gaps in educational opportunities for children with disabilities. It also measures the impact at the margin of exclusion related to various types of disabilities on education outcomes for children. Four main outcomes are considered: whether children ever enroll in school, whether they complete their primary education, whether they complete their secondary education, and whether they are literate. The analysis is implemented using the most recent census data available for a total of 19 countries. Key findings are as follows:

- The Sustainable Development Goals (SDGs) call for ensuring inclusive and quality education for all and promoting lifelong learning (Goal 4). The SDGs explicitly mention equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities. Unfortunately, gaps in education outcomes between children with and without disabilities have been increasing over time.
- For children without disabilities, completion rates at the primary level have increased substantially over the last few decades. Smaller gains have been observed for children with disabilities. As a result, the gap in primary completion rates between children with and without disabilities has increased over time from a few percentage points a few decades ago to 17.6 points for boys and 15.4 points for girls in the latest available census data.
- Many children with disabilities are never enrolled in school. Among children aged 11, the likelihood of having ever enrolled in school was 13 percentage points lower for children with disabilities versus children without disabilities at the time of the latest available census data. As for primary education, the disability gap in ever enrolling has increased over time.
- Large gains in secondary completion rates have also been achieved for boys and girls without disabilities, but gains are again smaller for children with disabilities, leading to disability gaps in completion rates of 14.5 points for boys and 10.4 points for girls.
- The last indicator considered for the analysis of trends over time is literacy. In part, as a result of differentiated trends in educational attainment by disability status,

the disability gaps for literacy also grew over time, reaching 16.2 points for boys and 15.5 points for girls.

- When looking through regression analysis at the marginal effects of exclusion associated with disabilities, findings are similar to the results from simple statistical comparisons. Across the 19 countries, the average reductions at the margin for children with disabilities in the probabilities of ever enrolling in school, completing primary schooling, completing secondary schooling, and being literate are estimated at 11.9 points, 16.8 points, 13.9 points, and 16.4 points respectively.
- The marginal effects on education outcomes of exclusion related to disabilities are often larger than the effects of other child or household characteristics. For example, the marginal effect of a disability is often larger than that of the quintile of wealth of the child's household.
- Overall, the analysis demonstrates that children with disabilities are being left behind by global efforts to improve education opportunities for all. The rising gaps between children with and without disabilities in developing countries call for stronger policies and interventions to achieve the target of inclusive education adopted under the Sustainable Development Goals.

PRIMARY EDUCATION COMPLETION

This note measures gaps in educational outcomes between children with and without disabilities using census data for 19 countries. Separate notes are being prepared with more detailed results for each country. While census data are known to underestimate the extent of disabilities and may thereby capture for the most part severe disabilities, they are nevertheless useful – given their large size – to look at trends over time in educational outcomes for children with and without disabilities. Census data are also useful to measure the impact at the margin of exclusion related to disabilities on education outcomes. Four main education outcomes are considered: (1) whether children ever enroll in school; (2) whether they complete their primary education; (3) whether they complete their secondary education; and (4) whether they are literate. This section considers first primary education completion (see Box 1 on methodology).

Disability gaps in educational attainment for older individuals could be underestimated. This is because older individuals may have suffered from a disability after leaving school. This would tend to reduce the measures of disability gaps observed for older individuals.

Figure 1 provides primary completion rates for individuals aged 16 to 58. Completion rates for children aged 12-15 are not shown because they tend to be too low versus expected lifetime completion rates. This is because in many countries, some children enter primary school late or repeat grades, which leads them to complete primary school well beyond the normal completion age of 12 in most countries. The census data for the various countries were for the most part implemented between 2008 and 2011. This implies that changes that may have taken place in the last few years are not accounted for, but it is unlikely that such changes would reverse the long-term trends observed across countries in the census data.

Four groups are considered: boys with no disability, girls with no disability, boys with one or more disabilities, and girls with one or more disabilities. The statistics in Figure 1 are average completion rates for individuals of the corresponding age across the 19 countries at

the time of the last publicly available census data for each country (three-year moving averages are used to better capture underlying trends). For children without disabilities, completion rates at the primary level increased substantially. The gain is at 20.8 percentage points for boys and 34.5 percentage points for girls over the 42 years separating the youngest and oldest groups. Girls have essentially caught up with boys in terms of primary completion. Smaller gains are observed for children with disabilities, at 7.9 percentage points for boys and a much larger 23.8 points for girls. Girls with disabilities have caught up with boys with disabilities at that level, but for both boys and girls, there seems to be a plateau in terms of the completion rates for primary school. This is especially visible with the trend for boys with disabilities, with smaller gains over time and with girls also potentially affected by the same plateau according to data for the most recent years.

As a result of these trends, the absolute gap in primary completion rates between children with and without disabilities has increased dramatically over time. This is visualized in Figure 2. Several decades ago, as fewer children had the opportunity to complete primary school, differences in completion rates by disability status were at only four to six percentage points for boys and girls alike. At the time of the latest available census data for the countries included in this analysis, recent gaps are at 17.6 points for boys and 15.4 points for girls. In short, completion rates have improved for children with disabilities, but much more slowly than has been the case for children without disabilities, so gaps have widened.



For children without disabilities, completion rates at the primary level have increased substantially. Smaller gains have been observed for children with disabilities. As a result, the absolute gap in primary completion rates between children with and without disabilities has increased dramatically over time.

BOX 1: ANALYZING DISABILITY AND EDUCATION OUTCOMES WITH CENSUS DATA

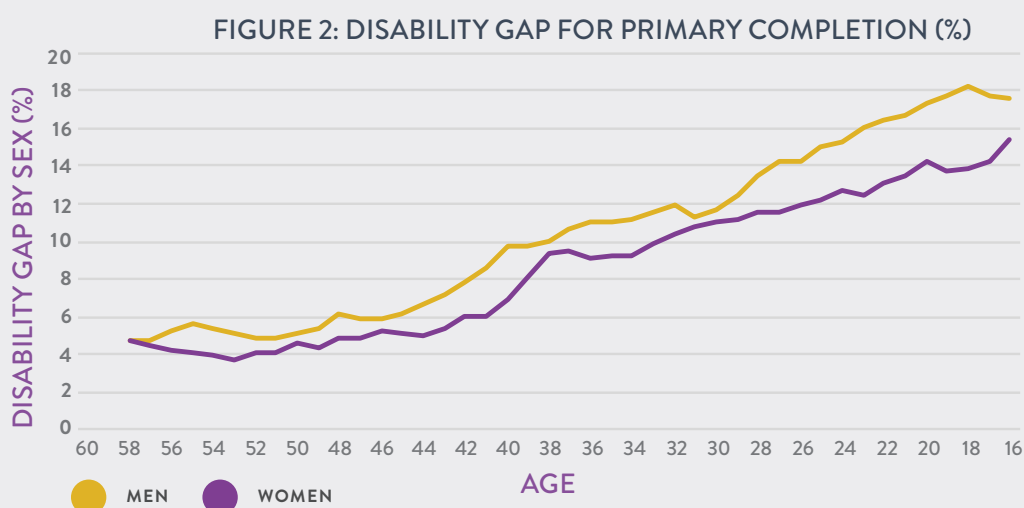
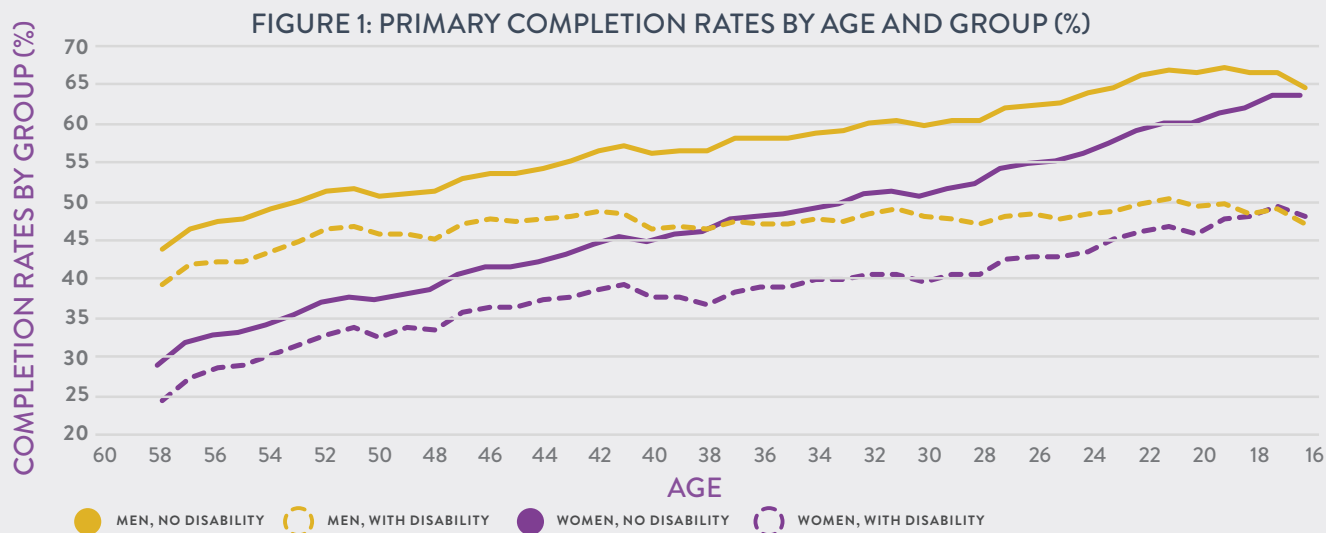
The use of census data for work on disability and education has both advantages and limits. The main advantage is the fact that the number of observations in the dataset is large even when only a subsample is available for the analysis. This means that the number of individuals with disabilities in the dataset is sufficient to measure trends over time in education outcomes and the impact at the margin (controlling for other factors affecting education outcomes) of exclusion related to disabilities. Marginal impacts can be estimated for children with disabilities, as well as by type of disability. For example, the impact of exclusion related to psychosocial or cognitive disabilities can be compared to that of visual impairment, or hearing impairment (while this is not done in this note, it is done in separate notes in this series). By contrast, in most cases, the sample size of household surveys with questions on disabilities is insufficient to consider trends over time or to disaggregate the analysis by type of disability.

There are also limitations when using census data for the analysis of the relationships between disability and education outcomes. First, the data tend to underestimate the prevalence of disability. Second, despite efforts to improve questionnaire, the only information that is typically available relates to whether a child has a disability or not, and not whether the disability is severe or mild. These two limitations are related. To identify in a census individuals with disabilities, it is more useful to ask questions about the difficulties that individuals may have in performing various tasks and activities.

The Washington Group on disability has proposed six such questions related to core functional domains: seeing, hearing, learning, walking, cognition (remembering or concentrating), self-care (washing all over or dressing), and finally communicating. For each question, four responses are suggested – the individual has no difficulty, some difficulty, a lot of difficulty, or no ability at all to perform the task. These questions help detect disabilities that may be less severe. By contrast, when a single question is asked in a census, the result is typically a substantially lower rate of disability identifying only those with the most severe disabilities in the household as having a disability.

The limitations of census data impose limits to the analysis that can be performed. Readers should be aware that in practice, only severe disabilities tend to appear in census datasets. Another limitation of the analysis is that in most countries censuses are implemented only once every ten years. Therefore, the data may not always be fully representative of the latest developments in education systems. A third limit is that the timing of the disability is not observed. Especially for older individuals, the disability may have been observed after the individual has left school. In that case, the comparisons of educational attainment for individuals with and without disabilities (through statistics or regression analysis) may be less precise in identifying the role of disabilities in affecting educational attainment for older individuals. This is one of the reasons why the regression analysis is performed on comparatively younger age groups than the statistical comparisons which are provided for all age groups. Because censuses tend to identify severe disabilities that are often observed at or soon after birth, the risk of bias may however not be too large.

Despite these limitations, and given the lack of alternatives, census data remain a useful source of data for measuring for multiple countries and in a relatively comparable way the impact of exclusion related to disabilities on education outcomes, especially over time, and the impact of exclusion by type of disability. The analysis in this note is carried with census data from 19 countries: Bangladesh 2011, Burkina Faso 2006, Cambodia 2008, Costa Rica 2011, Dominican Republic 2010, Ethiopia 2007, Ghana 2010, Indonesia 2010, Kenya 2009, Liberia 2008, Mali 2009, Malawi 2008, Mexico 2010, Mozambique 2007, Peru 2007, South Africa 2011, South Sudan 2008, Vietnam 2009, and Zambia 2010. This note reports average trends in education outcomes over time across the 19 countries, as well as the marginal impacts of exclusion related to disabilities for these education outcomes. More detailed analysis at the country level is available in separate notes in this series.



ENROLLING IN SCHOOL

The gaps in primary school completion between children with and without disabilities may be due in part to the fact that children with disabilities are at a higher risk of dropping out before completing the cycle than children without disabilities. However, many children with disabilities never even get to enroll in school. Indeed, the disadvantages faced by these children start in their early childhood years including for enrollment at the primary level. Figures 3 and 4 provide data on the share of children who ever enrolled in school. Statistics are computed for individuals aged 12 to 58. Statistics for children aged 6-10 are not shown because some of these children could still enroll at a later age. This is less likely for children aged 11 and over if they have not yet enrolled by then.

Patterns observed in Figures 3 and 4 for ever enrolling in school are similar to those observed in Figures 1 and 2 for primary completion. For children without disabilities, the likelihood to ever enroll in school increased by 20.7 points for boys and 35.9 points for girls over the 47 years separating the youngest and oldest age groups. Girls caught up with boys, as is the case for primary completion. Smaller gains are observed over the period for children with disabilities, at 9.8 points for boys and 25.9 points for girls. Even if girls with disabilities have caught up with boys with disabilities, absolute gaps in the likelihood of ever enrolling in school between children with and without disabilities have grown over time. This is shown in Figure 4. At the time of the latest available census data, the absolute gaps associated with disabilities were at 13.2 points for boys and 12.7 points for girls.

Many children with disabilities are never enrolled in school. At the time of the latest census data, among children aged 11, the likelihood of having ever enrolled in school was 13 percentage points lower for children with disabilities versus children without disabilities. The disability gap has increased over time.



FIGURE 3: SHARES OF CHILDREN EVER ENROLLED BY AGE AND GROUP (%)

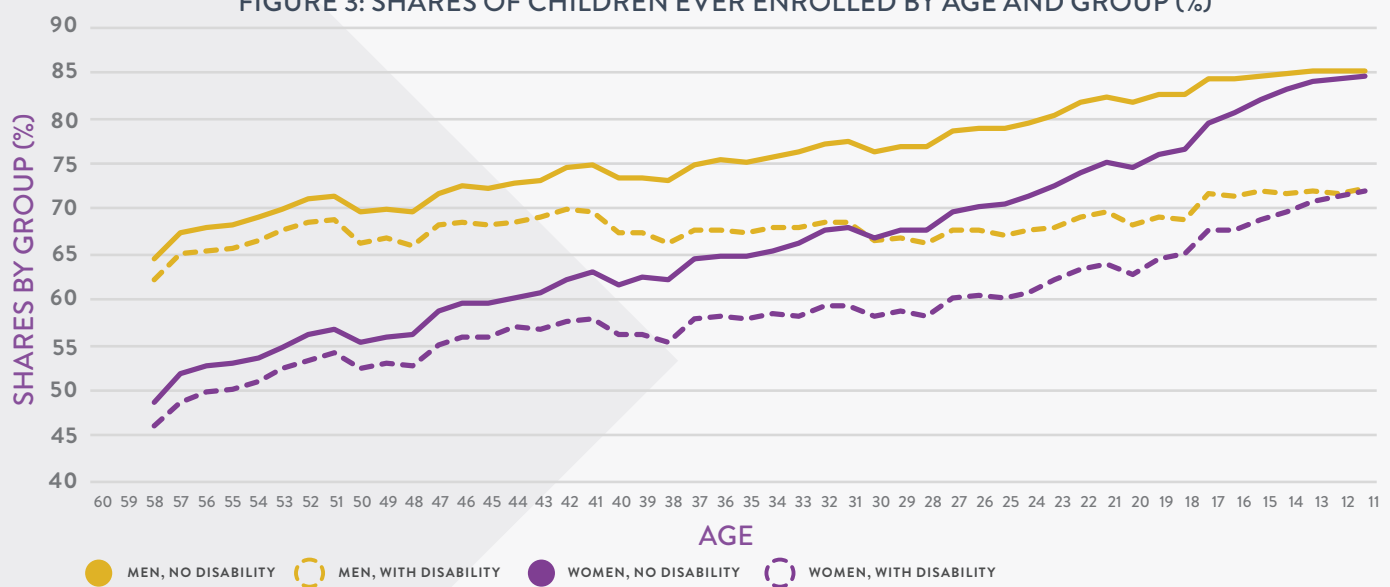
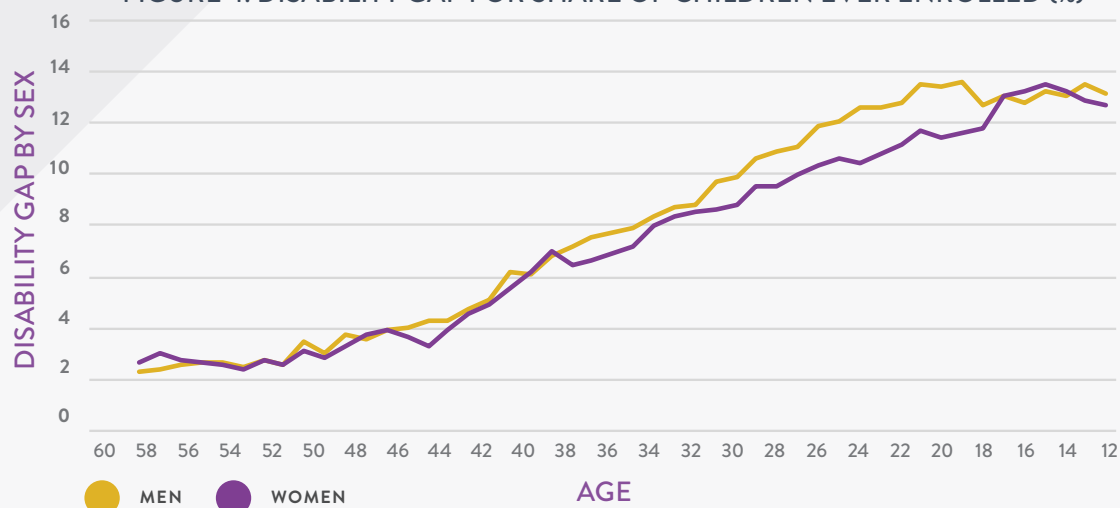


FIGURE 4: DISABILITY GAP FOR SHARE OF CHILDREN EVER ENROLLED (%)



SECONDARY EDUCATION COMPLETION

The analysis is repeated for secondary education completion in Figures 5 and 6. Once again, similar patterns emerge, albeit with lower completion rates than for primary education. Estimates are provided for individuals aged 20 and above to allow for a few additional years versus the typical age of on-time completion of 18 in most countries. For children without disabilities, completion rates at the secondary level increased by 20.6 percentage points for boys and 27.3 percentage points for girls over the 38 years separating the youngest and oldest groups. Girls made a lot

of progress but still lag slightly behind boys, probably in part due to the risks of child marriage and early childbearing in many countries, both of which lead girls to drop out of school at the secondary level. The gains for children with disabilities were once again smaller, at 10.6 points for boys and 20.8 points for girls. While girls with disabilities have caught up with boys with disabilities, gaps in secondary completion rates have widened between children with and without disabilities. They reached 14.5 points for boys and 10.4 points for girls aged 20 in the latest available census data. As for other indicators, children with disabilities did not benefit as much as other children from the large gains in educational attainment achieved by countries.



Large gains for boys and girls without disabilities were also achieved in secondary completion rates, but gains were once again smaller for those with disabilities. This has led to disability gaps in completion rates of 14.5 points for boys and 10.4 points for girls.

FIGURE 5: SECONDARY COMPLETION RATES BY AGE AND GROUP (%)

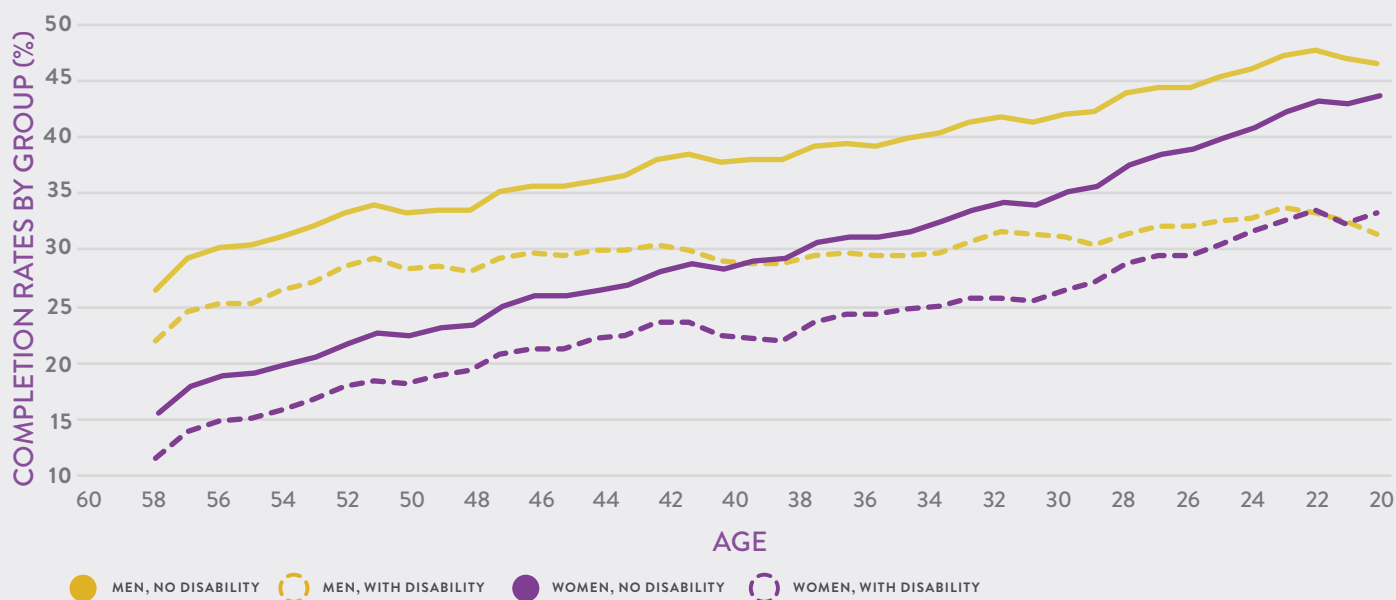
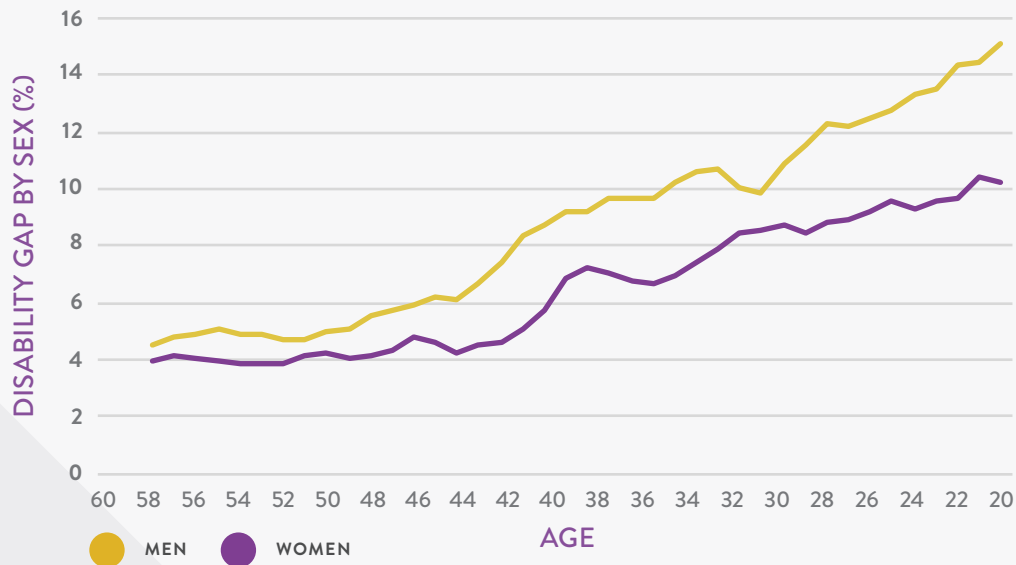


FIGURE 6: DISABILITY GAP FOR SECONDARY COMPLETION (%)



LITERACY

The last indicator considered for the analysis of trends over time is literacy, as declared subjectively by census respondents for their household members. Figures 7 and 8 provide the trends in literacy over time by age groups, considering individuals from 12 to 58 years of age. For children without disabilities, the likelihood of literacy increased by 14.9 points for boys and 31.2 points for girls over the 47 years separating the youngest and oldest age groups. As expected, girls caught up with boys. The gains for children with disabilities were small for boys at 1.3 points, while they reached 19.4 points for girls. As shown in Figure 8, the disability gaps grew over time substantially, reaching 16.2 points for boys and 15.5 points for girls.

The last indicator considered for the analysis of trends over time is literacy. In part as a result of differentiated trends in educational attainment by disability status, the disability gaps for literacy also grew over time substantially, reaching 16.2 points for boys and 15.5 points for girls.

FIGURE 7: LITERACY RATES BY AGE AND GROUP (%)

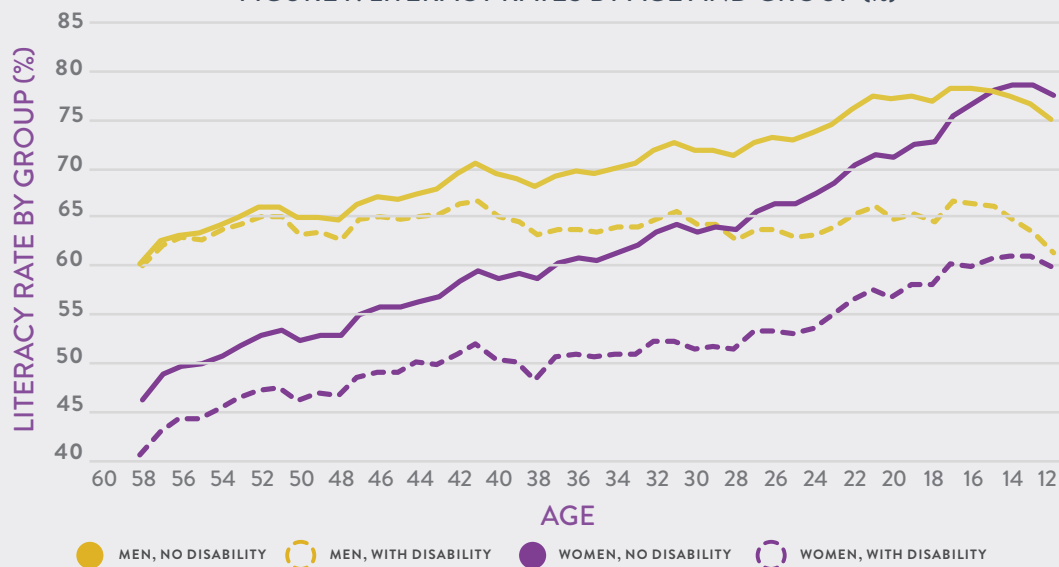
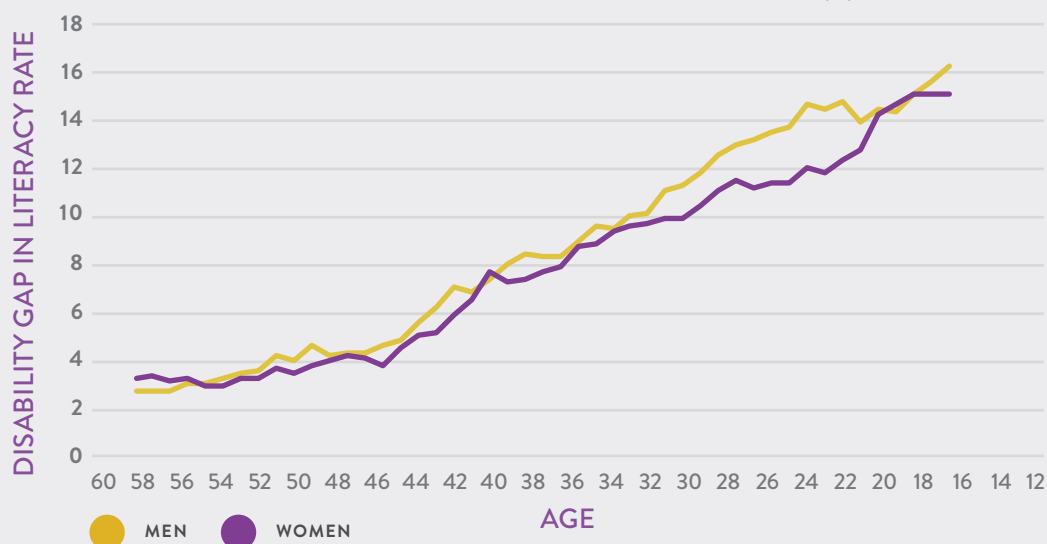


FIGURE 8: DISABILITY GAP FOR LITERACY (%)



SUMMARY AND MARGINAL IMPACTS

The data presented in the previous sections suggest large and growing gaps in educational attainment and literacy between children with and without disabilities over time. Table 1 summarizes the key estimates for the youngest appropriate age cohorts for each of the four indicators. The disability gaps are large, but this does not necessarily mean that they are due to disabilities as opposed to other characteristics that could be correlated with having one or more disabilities.

Are the current gaps the result of exclusion associated with disabilities, or do they result from other characteristics of children that could be correlated with disabilities? To assess the likely impact of exclusion related to disability on educational attainment and literacy, regression analysis is needed to control for other factors that may affect education outcomes. The term “impact” is used for simplicity (see Box 2 on what is meant by “impact”).

The analysis of marginal impacts considers the same four education outcomes, but with slightly different age groups

Table 1: Disability Gaps for the Most Recent Appropriate Age Cohorts (%)

	Ever Enrolled (11 years old)		Primary Completed (16 years old)		Secondary Completed (20 years old)		Literacy (12 years old)	
	Men	Women	Men	Women	Men	Women	Men	Women
No disability	85.33	84.64	64.69	63.57	46.93	42.88	75.16	75.09
Disability	72.18	71.94	47.09	48.13	32.47	32.44	58.94	60.04
Disability gap	13.15	12.70	17.60	15.44	14.46	10.43	16.22	15.05

Source: Authors' estimation using census data for 19 countries.

mostly for sample size reasons: (1) whether a child ever enrolled in school (the sample for the regression analysis consists of children ages 6 to 11 to account for conditions at the time of the implementation of the censuses); (2) whether a child completes primary education (sample of children 15 to 18 years old); (3) whether a child completes secondary education (sample of youth ages 19-22); and (4) whether a child is considered by the parents as literate (sample of children ages 15-18). For each regression, the sample of children included is a bit older than the normal threshold to complete a level of schooling or be literate to account for children who may start school late or repeat grades.

While census data have limits in terms of the variables that can be used as controls, a number of important variables known to affect educational outcomes are available in the data. The regression analysis includes the following variables (with minor differences between countries) as controls: the sex of the child, whether the child has a birth certificate, whether the child has a disability and the type of disability observed (in addition, an interaction effect is included to assess if a disability has a differential impact for boys or girls), whether the child is an orphan on the side of the mother, the father, or both; whether the child resides in an urban or rural area, the geographic area

in which the child resides, the mother tongue of the child, the quintile of wealth of the households to which the child belongs, the religion of the child, the size of the household in which the child resides, the sex of the household head, a number of characteristics for the household head (age according to 10 years intervals, education level, and type of work), the same characteristics for the spouse of the household head, and the leave-out-mean of the dependent variable. This leave-out-mean variable is computed among all other children in the area where a child lives and is meant to capture local conditions that affect education outcomes for children in the more disaggregated area where a child lives.

Table 2 are almost always statistically significant as well as large. Across the 19 countries, the average reductions at the margin for children with disabilities in the probabilities of ever enrolling in school, completing primary schooling, completing secondary schooling, and being literate are estimated at 11.9 points, 16.8 points, 13.9 points, and 16.4 points, respectively, in comparison to children with no disability. These estimates are of a similar order of magnitude to the statistical measures mentioned in the previous section, suggesting that most of the differences between children with and without disabilities are indeed associated with the

BOX 2: WHAT DO WE MEAN BY “IMPACTS” OF EXCLUSION RELATED TO DISABILITIES?

The aim of this section is to estimate the impact of exclusion associated with a disability on education outcomes for children with disabilities in comparison to children without a disability but with otherwise similar characteristics. The term “impact” is used for simplicity, but one must be careful about not necessarily inferring causality. Estimates of impacts are obtained through regression analysis to control for other variables that may affect education outcomes. What is measured are statistical associations, and not necessarily impacts as could be observed for example with randomized control trials. Since a disability cannot be randomized, we must rely on regression analysis to estimate likely impacts, but there is always a risk of bias in the measures of the impacts on outcomes of exclusion associated with a disability.

disability status of the children as opposed to other variables that could be correlated with that status. Although this is not discussed here, as noted in other briefs in this series, there are differences in the impacts associated with different types of disabilities. For example, children with cognitive, psychosocial or multiple disabilities often fare worse than children with physical disabilities.

To provide perspective, it is useful to compare the marginal impacts on education outcomes of exclusion related to disabilities with the impact of other factors affecting those outcomes. In many countries, girls continue to have lower educational outcomes than boys, but the magnitude of the gender gaps is much smaller than for disability gaps, as already suggested by the analysis in previous sections. Being an orphan is also associated with a lower likelihood of completing various levels of schooling as well as being literate, but with smaller effects than exclusion related to disability. There are also wealth effects at work, with children from better off households more likely to do well. When comparing children from the lowest quintile of wealth to those from the top quintile of wealth, marginal effects can be large, but again, socio-economic differences tend to have smaller effects at the margin than exclusion related to disability. Finally, there are also marginal effects on education outcomes associated with the education level of the household head and the location of the household, but these impacts are smaller again than those associated with disability even if differences between urban and rural areas can be substantial.

Across the 19 countries, the average reductions at the margin for children with disabilities in the probabilities of ever enrolling in school, completing primary schooling, completing secondary schooling, and being literate are estimated at 11.9 points, 16.8 points, 13.9 points, and 16.4 points respectively.

The marginal effects on education outcomes of exclusion related to disability are often larger than the effect of other child or household characteristics. For example, the marginal effect of a disability is often larger than that of the quintile of wealth of the households in which a child resides.





CONCLUSION

This note has provided a simple analysis of education outcomes for children with and without disabilities using census data for 19 countries. Children with disabilities have been shown to be at a substantial disadvantage for ever enrolling in school, completing primary or secondary education, or being literate. The gaps between children with and without disabilities have been increasing over time. In essence, children with disabilities are being left behind by global efforts to improve education opportunities for all children. The Sustainable Development Goals call for building and upgrading education facilities that are child, disability and gender sensitive and also provide safe, inclusive and effective learning environments.

While progress continues to be achieved to reduce gender and wealth gaps in education, progress is much too slow for children with disabilities. Ensuring that children with disabilities have opportunities to go to school and learn should be a top priority to end the persistent crisis of so many of these children remaining out-of-school or dropping out prematurely, with often dramatic consequences for their prospects later in life.



Recommended citation for this note:

Male, C., and Q. Wodon (2017). Disability Gaps in Educational Attainment and Literacy, *The Price of Exclusion: Disability and Education Notes Series*, Washington, DC: The World Bank.

The authors are with the World Bank Group. This series of notes was launched by the Education Global Practice at the World Bank in collaboration with the Global Practice Social, Urban, Rural, and Resilience which houses the World Bank's disability team. Comments on this note from Hanna Katriina Alasuutari and Charlotte Vuyiswa McClain-Nhlapo are gratefully acknowledged. The series is part of a broader work program that benefitted from the support of the Global Partnership for Education. The findings, interpretations, and conclusions expressed in this note are entirely those of the authors and should not be attributed in any manner to the World Bank, its affiliated organizations or to members of its Board of Executive Directors or the countries they represent. The World Bank does not guarantee the accuracy of the data included in this work. Information and illustrations contained in this report may be freely reproduced, published or otherwise used for noncommercial purposes without permission from the World Bank. However, the World Bank requests that the original study be cited as the source.

© 2017 The World Bank, Washington, DC 20433.





THE PRICE OF EXCLUSION: DISABILITY AND EDUCATION
**DISABILITY GAPS IN EDUCATIONAL
ATTAINMENT AND LITERACY**



GLOBAL PARTNERSHIP
for EDUCATION



THE WORLD BANK
IBRD • IDA | WORLD BANK GROUP