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THE PRICE OF EXCLUSION:
Social and Economic Costs of Out of School Children in Colombia

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Results for Development Institute

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RESULTS FOR DEVELOPMENT

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Foreword

The third EAC publication in its economics of out of school series, again developed in partnership with R4D, addresses the socio-political, health and economic costs of out of school children (OOSC) in Colombia. This research has two strands of key findings—it confirms that an ongoing commitment to quality universal primary education (UPE) can result in strong improvements in development outcomes, both social and economic, and that there is a pressing need to address the dearth of useful data on OOSC.

This Colombian case study estimates an annual loss of 0.43% of GDP as a result of the expected forgone labor earnings of current OOSC. On a very positive note, however, it illustrates that UPE could lift as many as 1.4 million Colombians out of poverty. Further, it demonstrates that UPE would have significant impact and improve the lives of Colombians in regard to political participation and engagement, democratization, voting and the exercise of civil liberties; lower crime rates; resilience to and understanding of climate change; conflict mitigation and peace building; and improved livelihood opportunities, as well as health gains that have inter-generational effects.

Our selection of a single country for this research reflects the need for more data on OOSC—lack of data was the reason for limiting the study to one country.

The evidence is clear. The unfinished agenda of quality universal primary education is essential for a better and sustainable future.

Mary Joy Pigozzi
Director, EAC

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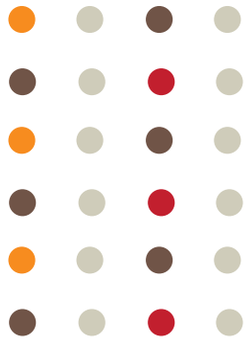


Overview

In the twenty-first century, significant progress toward universal primary enrollment has been recorded, as the global number of out of school children of primary school age who are not enrolled in primary or lower secondary education dropped by 45%, from 106 million in 1999 to 58 million in 2012 (UNESCO Institute for Statistics database and Bruneforth 2015). However, the majority of those gains were achieved between 1999 and 2004, and the global number of OOSC has stagnated at around 60 million children since 2007 (UNESCO Institute for Statistics/UNICEF 2015). Out of school children (OOSC) remain a pervasive global issue, making Educate A Child (EAC)'s mission to support the Education for All initiative and the Millennium Development Goal for education more urgent than ever.

Primary education is a human right, and there is a wealth of empirical evidence that education is also a socially efficient investment with large private benefits and public externalities, critical for achieving a variety of development objectives in addition to its intrinsic value. The positive returns to primary education complement the human rights rationale for expanding access to education, and the recent stagnation in the absolute number of OOSC makes this a critical time to re-energize global efforts to reach out of school youth by revisiting the impact of primary education on children, their futures, their families, and their communities.

To underscore the importance of providing quality education to the world's out of school children, we follow the comprehensive literature review in Burnett et al. (2013), which highlights the market and non-market benefits of primary education. Burnett et al. estimated the economic output expected to be lost as a result of OOSC for six countries; Thomas and Burnett (2013) extended the calculations to twenty countries. This paper extends the economic loss analysis to also consider forgone development in other spheres, including inequality, health, and political participation, by projecting the impact of achieving universal primary enrollment on key development indicators in Colombia.

Colombia has one of the lowest net primary school enrollment rates in South America. Surveying recent studies on the role of primary schooling in human development, we estimate the cost associated with OOSC in terms of economic, social, and health outcomes. Our analysis confirms that strong improvements in development outcomes could result from defending the universal right to primary education. Notably, up to 1.4 million people could be raised out of poverty by the improved livelihood prospects of students and their future families. We estimate more modest gains in health outcomes, since Colombia already performs relatively well on health indicators such as fertility and child mortality.

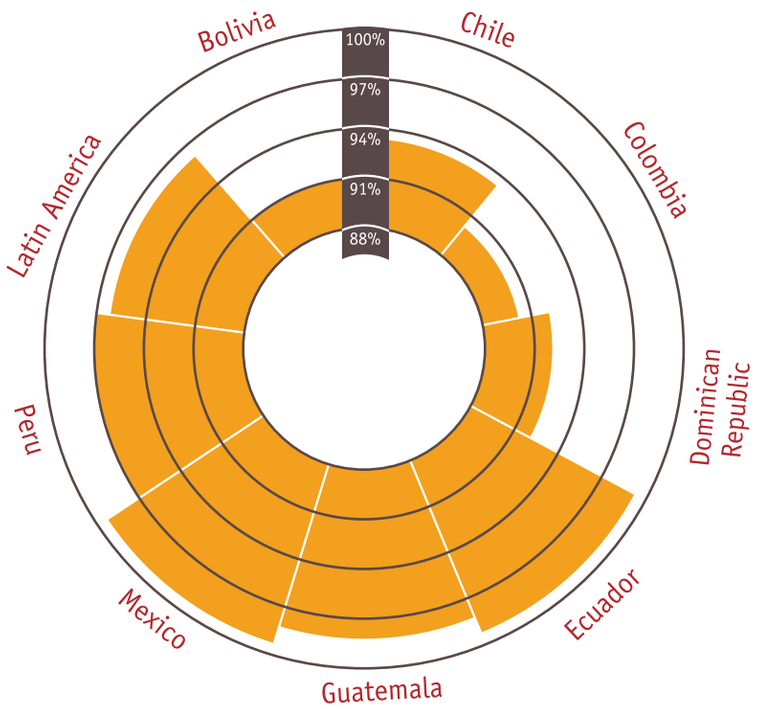
The estimates presented in this paper are based on limited data and only a few studies. They cannot be interpreted as causal effects because many estimates rely on cross-country correlations. Nevertheless, they are illustrative of the scale of socio-economic gains that could be expected from the achievement of universal primary education in Colombia. We conclude that while sharp focus on the country's education quality issues must be maintained, Colombia could reap significant dividends by ramping up a complementary, concerted effort to enroll its remaining out of school children. Colombia is not alone in facing this challenge and opportunity. The structure and magnitude of expected benefits would vary by country, but similar cases for prioritizing universal primary education could be made in the many countries where out of school populations persist.

Colombia is not currently an EAC priority country. There are countries in Sub-Saharan Africa and South Asia with much larger out of school populations (both in absolute and relative terms). Colombia was selected for this study on the basis of data availability. Thus, in addition to highlighting the costs of OOSC, this study underscores the need to continue to improve OOSC data collection, and to support organizations that collaborate with domestic authorities to understand and address the global out of school challenge, such as UNESCO Institute for Statistics and Educate A Child.

OOSC in Colombia

By any reasonable estimate, Colombia faces a significant out of school challenge. Colombia's primary education adjusted net enrolment rate (ANER - number of pupils of the school-age group for primary education, enrolled either in primary or secondary education, expressed as a percentage of the total population in that age group) is among the lowest in Latin America (Figure 1), well below the regional average of 96% and its neighbors such as Venezuela and Peru. According to the UNESCO Institute for Statistics (UIS) database, Colombia has the most OOSC of any upper middle income country (600,000, compared to 290,000 for Mexico). It also has the highest rate of OOSC in its income group (13.5% compared to 11.5% for Namibia). However, because it is based on an outdated United Nations Population Division estimate of Colombia's school-aged population, the 13.5% OOSC rate is likely to be an overestimate. We use a more conservative OOSC rate of 9% for calculations throughout this paper and, when possible, focus on the OOSC that are not expected to complete primary education.

Figure 1: Primary Education Adjusted Net Enrolment Rate

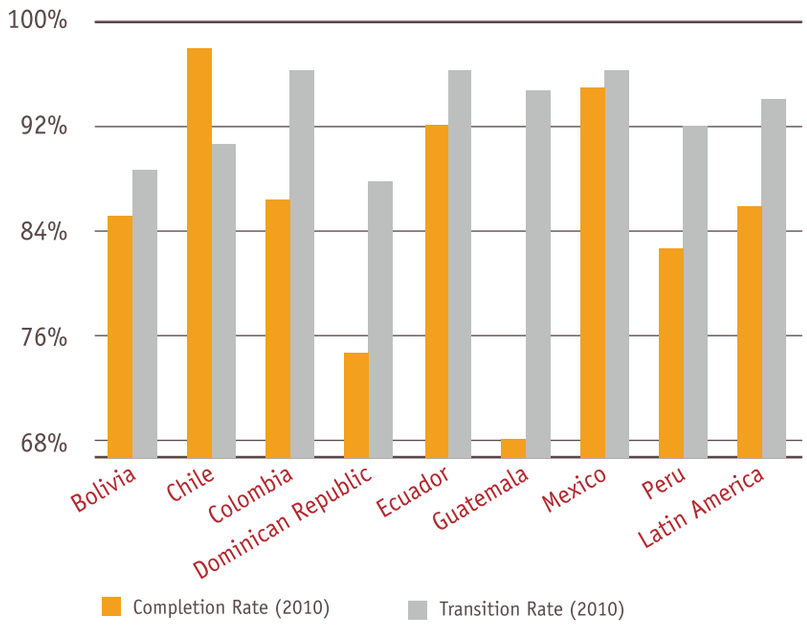


Source: Education For All Global Monitoring Report, UNESCO 2014

The typical pattern in Latin America is that about one-fifth of OOSC have already dropped out of school, roughly two-fifths expect to enroll in the future, and the remainder expects never to enroll (UNESCO Institute for Statistics 2014). Data specific to Colombia's OOSC are unavailable for recent years. However, a recent survey reveals that there is a slightly higher OOSC rate for boys than girls in Colombia, the out of school rate is twice as high in rural areas as in urban areas, and the major reason cited for children being out of school is lack of financial resources (UIS/UNICEF 2012).

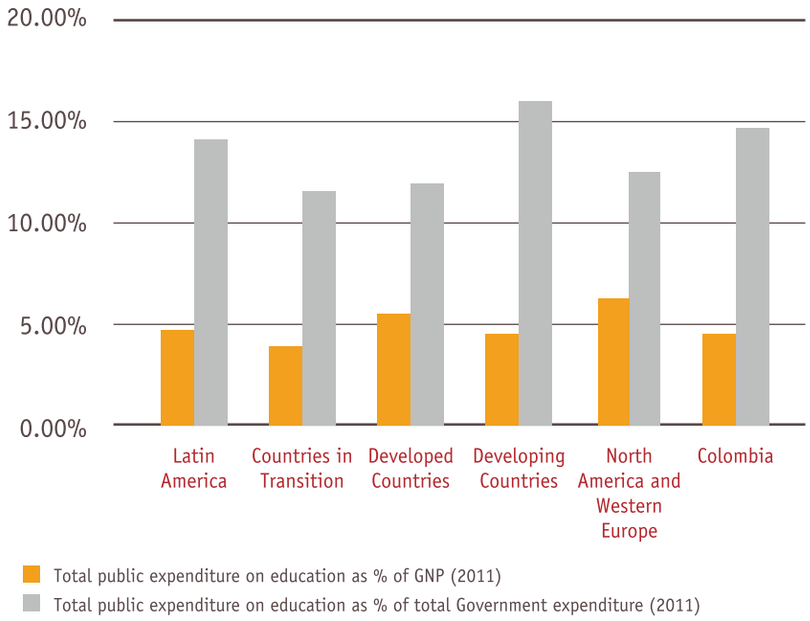
These alarming numbers signal that Colombia lags in enrolling its OOSC. As we discuss in the following sections, non-completion of primary education has far-reaching repercussions beyond children's personal development. OOSC impose developmental costs that are reflected in the economic, socio-political, and health indicators of the country. The high number of OOSC in Colombia is coupled with other reasonably strong education indicators for the country. Despite its low primary enrollment rate, Colombia has high completion and transition rates. The completion rate is the probability that a pupil will reach the last grade in primary school, and the transition rate is the probability that a pupil who has completed primary education will make the transition to secondary education. While these rates vary greatly within the Latin American region, Colombia's rates are slightly above the region's average (Figure 2). Colombia's public spending on education is equivalent to 4.7% of its GNP (Figure 3), just below the world average of 4.8% (though well below the 5.5% average for developed countries) (UNESCO 2013). Colombia's public spending as a percentage of total government spending is 14.9%, slightly above the Latin American average.

Figure 2: Primary Education Completion and Transition



Source: Education For All Global Monitoring Report, UNESCO 2014

Figure 3: Public Spending on Education



Source: Education For All Global Monitoring Report, UNESCO 2014

Free primary education was passed into law in 2010 and education spending as a fraction of total government expenditure rose steadily from 2007-2012. However, significant economic, socio-cultural and political barriers dampen the impact of recent reforms in Colombia. In most developing countries, private costs associated with schooling, such as school fees, transportation costs, and lost labor of parents and children, make education prohibitively expensive for the poorest families (Delprato 2012). As a post-conflict country where violence is still prevalent between state and non-state armed organizations, Colombia faces security challenges in school environments. According to Oyelere and Wharton (2013), there are 3 million internally displaced people in Colombia, a source of disruption which is not conducive to enrollment and retention in school. Gangs, crimes related to drug-trafficking, rural areas that are not entirely under the rule of law expose children to dangerous situations, contributing to absenteeism and dropout (UNESCO 2011).

Thus there are transitory and persistent barriers to achieving universal primary enrollment in Colombia that impose significant economic, health, and social costs on the country. In the following sections, we project the impact of universal primary enrollment on key development indicators to demonstrate some of the market and non-market benefits that Colombia forgoes due to children's exclusion from primary education. To make these projections, we apply results from recent empirical studies.

Economic Costs of OOSC

Colombia's real per capita GDP has grown by 4.8% per annum over the last decade, but income inequality remains high. Colombia's Gini coefficient was 0.56 in 2010, one of the highest in Latin America (World Bank database). Inequality has been exacerbated by labor market trends in the country. Although employment rates have risen strongly in recent years, many of the newly created jobs are low-productivity, and generate barely enough income to provide a minimal standard of living for the job-holder. Low labor productivity is prevalent in the informal economy, which accounts for 50-70% of Colombia's economic activity. The informality of economic activity is especially high in rural areas, where average levels of schooling are low (OECD 2010).

Earnings

According to human capital theory (reviewed in Thomas and Burnett 2015), investing in education increases an individual's labor productivity. In a well-functioning market, this leads to access to better jobs, higher potential earnings, and opportunities for social mobility (Patrinos 2007). Psacharopoulos and Patrinos (2004) analyze the wealth of evidence that has emerged from studying the wage returns to education in a variety of labor markets. Their review finds a 10% increase in earnings for an extra year of education. A survey by Card (1999) similarly finds a 6-10% return to an additional year of education. However, the marginal return to a year of education varies by geography, level of education, demographic group, and over time. Psacharopoulos and Patrinos (2004) find a premium to female education (10% return to a year of female schooling, 9% for male schooling). They also show that the return to education tends to be highest in low-income countries and that, up until the 1990s, primary education provided the highest returns in developing countries, with the marginal benefit from education diminishing with years of schooling.

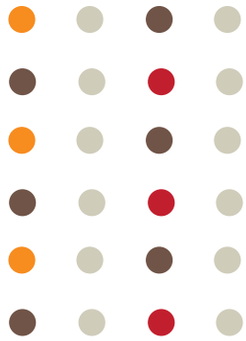
However, more recent evidence from the 1990s and 2000s (summarized by Colclough et al. 2009) suggests that there has been a shift in the relative returns of different education levels, with post-primary returns rising above primary school returns in developing countries. Behrman et al. (2003) show that, for a sample of 18 Latin American countries, returns to tertiary education increased greatly throughout the 1990s, while returns to primary and secondary education fell. That trend could be ascribed to skill-biased technological change increasing the demand for workers with higher education (lowering the relative wages of low-skilled workers), expansion of primary education saturating labor markets with workers with basic education (increasing the premium for workers with post-primary education), quality of primary education declining (reducing the productivity gains associated with primary school completion), or some combination of these possibilities.

This trend of declining relative returns at the primary level neither detracts from the economic importance of investing in primary education nor undermines the losses associated with out of school children. Despite the modest recent decline in private returns to basic education, the average wage return to primary education remains high (Mertaugh et al. 2009). Furthermore, the effects of recent global initiatives to improve education quality will eventually impact labor productivity, so more time is needed to collect data showing the updated relationship between schooling and income. Finally, basic education is a necessary gateway to secondary and higher education and the substantial returns associated with them. Secondary and higher education completion suffer in Colombia, despite a 96% rate of transition from primary to secondary school, due to the high number of OOSC who cannot participate in primary education. This results in large losses of potential income for future workers.

Indeed, a labor market study of over 2,000 workers in Bogota, Colombia found that mean earnings increase significantly with education attainment (Psacharopoulos and Velez 1992), and Montenegro and Patrinos (2014) show that the private return to education in Colombia is 6.0% at the primary level and 5.3% at the secondary level. These studies examine private economic returns to education using formal sector wage data, which could be problematic since over half of Colombia's workforce is employed in the informal economy. However, there is emerging evidence from other countries that education increases informal sector productivity (e.g., De Brauw and Rozelle 2006 for China, Nguetse Tegoum 2009 for Cameroon, Arbex et al. 2010 for Brazil, and Yamasaki 2012 for South Africa). Assuming that productivity increases regardless of whether youth find employment in the household, informal or formal economy and using the methodology discussed in the Appendix (which makes restrictive, simplifying assumptions about the labor market), we project an annual loss of 0.43% of GDP, beginning when Colombia's OOSC join the labor force in approximately ten years.

Poverty

Colombia has a high rate of poverty - 33% using the national poverty line (World Bank database). Education attainment and risk of poverty are negatively correlated at the household level. Bird and Higgins (2011) discuss how primary education breaks the intergenerational transmission of poverty by transferring human capital assets from one generation to the next. They note that when individuals become educated, they acquire human capital, which allows them to derive benefits from other assets and to exit poverty. Acquisition of education also insulates individuals from economic shocks (such as disruptions in employment), crisis, and conflict. Thus, in addition to increasing levels of income and reducing wage gaps in Colombia, universal primary education would have direct positive implications for poverty.



At the macroeconomic level, education, poverty reduction, and economic growth are interconnected - economies that have grown the fastest have also reduced poverty the most, while slow-growing countries have experienced the largest increases of poverty (Lopez et al. 2010). In a simulation exercise for Colombia, Zuluaga (2010) finds that an 18% reduction in the poverty headcount ratio (accounting only for income poverty) could be achieved by universal secondary education in the country. Assuming that the ratio of poverty reduction from universal primary education to poverty reduction from universal secondary education is equal to the ratio of primary school wage premium to secondary school wage premium (0.6), we interpolate and estimate an 11% reduction in poverty, bringing the headcount ratio down from 0.33 to 0.29, raising 1.4 million people out of poverty.

This estimate incorporates no treatment of gendered impacts of education. While there is not a significant gender gap in primary school enrollment in Colombia, it is crucial that efforts to reach out of school children target girls, because there are additional, intergenerational benefits associated with their education. Since educated mothers are more likely to provide quality care and send their children to school, female education plays a central role in breaking the cycle of poverty and inequalities (UNICEF 2007). This key aspect of female education is further discussed in the section on health costs below.

Health Costs of OOSC

Although Colombia has made significant progress toward its health MDGs since 1990, it has one of the highest maternal mortality rates in its region (92 per 100,000, compared to 74 for Latin America and the Caribbean). The infant mortality rate is 15 per 1,000. Although this is low relative to its Latin American neighbors (only Argentina, Uruguay and Chile have lower rates), it is still well short of its goal to reach 10 deaths per 1,000 by 2015.

Educated individuals tend to be healthier (Feinstein et al. 2006). At school, individuals benefit from health-related information, adopt behaviors that are beneficial to health, and become literate, which enables them to acquire health knowledge. This linkage is especially important for girls' education (Lloyd 2009), since girls typically become the primary caregivers in their households. Educated females are more receptive to modern medical treatment and medicine. In addition, they are more likely to participate in the labor force, and likely to have higher incomes in wage employment, which provides them with means to better care for their families.

Fertility rates are a key factor in maternal and child health, with high fertility rates associated with high mortality for both mothers and their children. The mechanisms through which education and fertility are linked have been widely researched. Education affects child health, partner choice, marriage age, female employment, and the costs of educating children, and family planning, all of which are associated with lower fertility rates (UNESCO 2006). Slower population growth in turn allows developing countries to reap a demographic dividend - lower dependency ratios, higher saving rates, and increased labor force participation among women, all of which contribute to economic well-being. Research shows a strong negative correlation between schooling and fertility rates, and a strong positive correlation between schooling and birth intervals, even after controlling for various socioeconomic and behavioral factors (UNESCO 2003).

Colombia's fertility rate (2.1) is below the global average (2.3) (World Bank database). At the macro level, each additional year of schooling for girls reduces national fertility rates by 5 to 10% - Brazilian and Peruvian women with no education have about six children on average, while those with a secondary education typically have three children (UN Millennium Project 2005). According to UNDP 2014, the expected number of years of schooling in Colombia is 13.2 years per child (13.5 for females, 12.9 for males). Assuming that the 9% of girls that are currently out of school complete 5 years of primary education, universal primary education would increase expected schooling for females from 13.5 years to 14.0 years, and lower Colombia's fertility rate by 2.5%, from 2.1 to 2.05. However, this estimation is not robust, since it is unlikely that the impact cited by the UN Millennium Project study applies in countries like Colombia, where the fertility rates are already low.

Thus the impact of universal primary education on fertility is likely to be limited in Colombia. However, there are other channels through which OOSC reduction could have a significant positive effect on maternal and child health. The global child mortality rate has fallen by 35% since 1990, from 97 to 63 deaths per 1,000 births (United Nations 2014). Maternal education is strongly associated with children's odds of survival. Education is also positively linked with the likelihood of accessing prenatal health services (Majgaarden and Mingat 2012). Female education is associated with reductions in malnutrition, although the precise mechanisms linking education and nutrition are not fully understood (Abuya et al. 2012). In Brazil, the expansion of primary schooling, accompanied by improvements in maternal and child health services, is credited with observed reductions in child malnutrition (UNESCO 2012). On average, a 10 percentage point increase in girls' primary enrollment decreases infant mortality by about 4 deaths per 1,000 births (UNICEF 1999). Based on that study, we estimate that achieving universal primary education would reduce Colombia's infant mortality rate from 15 to 11 per 1,000, bringing the country very close to achieving its MDG for infant health.

Universal primary education would concurrently contribute strongly to maternal health in Colombia, and help to bring down its relatively high rate of maternal mortality. Many delivery-related injuries and deaths could be avoided if pregnant women received care from health professionals before, during, and after their pregnancy (UNICEF 2012). Women who complete primary education are more likely to seek prenatal care, assisted childbirth, and postnatal care, which are beneficial to the mother and her newborn child (UNAIDS/UNFPA/UNIFEM 2004), because educated mothers are both more knowledgeable about such services and more able to pay for them. Education and maternal survival are thus also directly related, and the OOSC challenge in Colombia imposes significant health costs in the country.

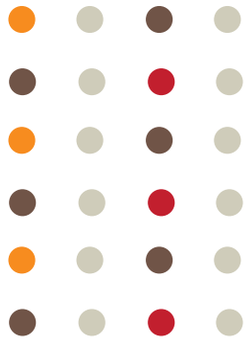
Social and Political Costs of OOSC

Colombia is a constitutional democracy. In recent years, elections in Colombia have been considered free and fair by international monitoring agencies. However, Colombia has a long history of armed conflict between the government and armed organizations such as the Revolutionary Armed Forces of Colombia (FARC) and the National Liberation Army (ELN). The internal conflict, which has persisted for half a century, has caused the death of tens of thousands of Colombians and the displacement of millions from their homes (The Economist, June 2014). Minority groups, especially those of Afro-Colombian descent, are more likely to suffer the consequences of violence than the majority white mestizo population. Despite the violence that has plagued the country for decades, newly elected government officials have committed to peace talks with the militias. Despite its democratic structure and an increasingly stable political scene, voter turnout in parliamentary elections averages 44% in Colombia, among the lowest rates of civic engagement in Latin America and in the world (Election Guide 2014).

Empowerment through education is associated with political participation and engagement of citizens, which in turn contributes to the quality of public policies and services, and to democratization. Research shows that there is a positive, significant relationship between several primary education indicators and democracy-related measures, such as democratization, representative forms of government, political rights, and civil liberties (Mertaugh et al. 2009). A large international and comparative study on voter participation rates since 1945 concludes that "while the capacity to read and write does not necessarily equate to an ability to make coherent and informed political decisions" turnout rates do increase with literacy (Pintor et al. 2001). A panel study of over 100 countries from 1960 to 1995 revealed that "the propensity for democracy rises with per capita GDP, primary schooling, and a smaller gap between male and female primary attainment" (Barro 1999). Regression analysis from this study suggests that the effect of years of primary schooling is positive on both electoral participation and the exercise of civil liberties.

Given this wealth of evidence on the role of education in building democracy and Colombia's low voter turnout rate, increasing access to primary education would likely significantly increase civic engagement. To project the impact of universal primary enrolment on Colombia's democracy, we estimate the long-term effect of universal primary school completion on political participation, measured by voter turnout in future general elections. According to UNESCO (2005), individuals who have completed primary education are 1.5 times more likely to vote than those who have not. The population of Colombia is 48 million. Of the 33 million registered voters, only 47% went to the polls in 2014 for the presidential election. With an annual population growth rate of 1.3% and assuming the number of registered voters for the next elections in 2018 will grow at the same rate, the number of registered voters in 2022 will increase to 36.5 million. If the today's OOSC complete primary school, they will be 1.5 times more likely to vote in that year's elections and enrolling them in primary school will increase their estimated propensity to vote in presidential elections from roughly 31% to the national average of 47%. This raises the expected

number of voters by 96,000 and increases the turnout rate by 0.6% compared to the counterfactual of no reduction in OOSC. This is a small but significant improvement for a growing democracy.



In addition to political challenges, Colombia faces a high degree of social instability. In part due to on-going violence between guerrilla groups and the government, the homicide rate in Colombia is among the highest in the world, averaging 32 homicides per 100,000 people, with a high of 86 per 100,000 in Cali in 2012 (colombiareports.co, August 2014). Drug trafficking is a major source of violence in Colombia, where cocaine production and illegal distribution are carried out by violent armed cartels. Despite recent efforts to increase security and control urban crime rates, street crime in Colombia is also prevalent, with over 19,000 street robberies and car-jackings in 2012 alone (OSAC Crime and Safety Report 2014).

According to the economic theory of crime (summarized in Soares 2004), education plays an instrumental role in reducing violence and crime. Investment in human capital reduces the likelihood that individuals will engage in criminal activities because, as we discussed in the Economic Cost section, education increases the returns to non-criminal activities. Furthermore, school participation limits children's interactions with criminals, making them less likely to engage in criminal activity. Estimates of the causal impact of education on crime is scarce even for developed countries, but Machin et al. (2011) identify the direction of causality from education to crime reduction using a dataset from Great Britain, and Lochner and Moretti (2004) come to the same conclusion for the United States.

Soares tests the relationship between crime rates and development using cross-country panel data on thefts, burglaries, and contact crimes after controlling for international differences in crime-reporting systems (which are more developed in advanced economies). He finds that gross primary school enrollment rates are negatively correlated with thefts and contact crimes. Other variables in his model - income, urbanization, police presence, and religion - do not have statistically significant effects on crime, leaving primary education as a strong determinant of lawfulness. He estimates that a 1% increase in the primary school gross enrollment rate is associated with a 3.2% reduction in theft rates, a 0.2% reduction in burglary rates, and a 3.2% reduction in contact crimes (which include robbery and assault). It is important to note, however, that the effect of education on decreasing crime rates is associated exclusively with within country variations. In order to bridge the primary education gap, Colombia needs an 8 percent increase in its gross primary enrollment rate. Thus achieving universal primary education would reduce thefts per 100,000 from 48.7 to 36.2 and reduce assaults per 100,000 from 63.4 to 47.2. This is a large but plausible reduction, in light of studies from developed countries that report large reductions in crime associated with an additional year of average schooling (Machin et al. 2011, Lochner and Moretti 2004). An investment in enrolling out of school children would likely have a stabilizing effect on security, and would reduce crime threats in Colombia.

Primary Education and Virtuous Cycles in Development

Some forgone benefits associated with OOSC are difficult to quantify. Since education is a societal product, it represents what a society values. Primary education is a vehicle for transmitting a society's intrinsic values to children, and for cultural preservation. Primary education can also transform values, outlooks, and behaviors to promote positive changes within a society (UNESCO 2005). Following this, research has explored the relationship between education and social cohesion. Heyneman (2003) suggests that educational systems could contribute to social cohesion by teaching the rules supporting a given sociocultural structure, enabling children to form social connections, providing equal opportunities to children, and combining the interests of many under one banner.

The costs of not educating children also have ripple effects across generations. A mother's education level plays a key role in determining her child's school attainment. A UN Millennium Project study (2005) of Egypt, Ghana, India, Kenya, Malaysia, Mexico, Pakistan, and Peru found this effect to be particularly strong for daughters. In Colombia's neighboring Peru, maternal educational levels were found to determine daughters' enrollment with 40% greater strength than paternal educational levels. The UN Millennium Project report (2005) explains that maternal education may impact their children's enrollment through several mechanisms. First, since education is related to earning capacity, labor force participation, and ability to manage economic resources, educated mothers are likely more able to provide resources necessary to send children to school. Second, educated mothers are more able to help their children with homework and engage in thought-provoking discussions, contributing to improvements in school outcomes. Third, educated mothers can better communicate the importance of education to their children. In Latin America, children of employed mothers are more likely to enroll in school and complete higher levels of education than those with unemployed mothers, and on average, a mother's labor market participation increases children's schooling by two to three years.

The growing threat of climate change and extreme weather exacerbates another source of loss associated with OOSC - the resilience to climate change and promotion of sustainable development that is associated with education (Blankespoor 2010). Although this is a new field of study, research establishes a link between education and reduced vulnerability to climate shocks. This could be due to better disaster preparedness through safe construction practices, or better ability to gauge potential climate risks. In a cross-country study using data from 1980 to 2010, Muttarak and Pothisin (2012) find that countries with high proportions of educated women registered fewer fatalities due to natural disasters. They also point to the cases of Rio de Janeiro and San Salvador, where households living in low-risk areas tend to have higher levels of education compared with those who live in high-risk areas. In their multilevel analysis of disaster preparedness following earthquakes in Thailand, the authors find that the chances of being better prepared for disaster increase with education.

Finally, and especially relevant to Colombia, there are the effects of primary education on post-conflict reconstruction and peace-building. While conflict-afflicted or fragile countries account for 18% of the world's primary school age population, their proportion of OOSC is much larger, at nearly 50% (UNESCO 2011). In times of conflict, primary schools have tremendous short-term benefits and positive impacts for children and their families. Schools can provide a safe haven and assistance in dealing with psychosocial trauma caused by conflicts and help students develop coping strategies. The benefits of primary education immediately following the end of a war are also significant. School-building and education reconstruction projects help conflict-affected populations feel that life is returning to normalcy. Schools also reaffirm the presence and legitimacy of the state, fostering confidence in the future (UNESCO and UNICEF 2011). As Colombia emerges from decades of internal conflict, making a push to enroll its OOSC and achieve primary education could be critical to ensuring stability and prosperity.

Conclusion

Primary education is both an inalienable human right and a powerful instrument for improving the prospects of individuals, their families, their communities, and entire nations. In this paper, we demonstrate that due to the exclusion of over half a million children from primary education, Colombia incurs large losses that are particularly costly for social and economic development (with more moderate losses in the health sector).

The enrollment of OOSC in Colombia would promote economic growth through the market and non-market benefits of primary education reviewed in this paper. It is beyond the scope of this paper to project the total impact of universal primary enrollment on Colombia's development, but based on a cross-country relationship between GDP per capita and national education attainment estimated by Barro and Lee (2010), a back-of-the-envelope estimate is that achievement of universal primary education would increase Colombia's GDP by 2.1% per year (by increasing the expected average years of schooling from 13.2 to 13.4). This is equivalent to half of Colombia's GDP growth in 2013.

An upper-middle income country like Colombia can thus reap huge benefits from making a strong push for universal primary education (see Table 1 below). For achieving this goal, policy priorities identified by the UNESCO Institute for Statistics (2014) include fee abolition, increasing education expenditure, social cash transfers, increasing attention to ethnic and linguistic minorities, overcoming conflict, and improving the quality of education.

Estimated impact	Estimate based on
0.43 % increase in per capita labor earnings when today's OOSC enter the workforce	Montenegro and Patrinos (2014)
11% reduction in the poverty headcount ratio	Zuluaga (2010)
2.5% reduction in the fertility rate	UN Millennium Project (2005)
27% reduction in the infant mortality rate	UNICEF (1999)
0.6% increase in voter turnout	UNESCO (2005)
25% reduction in crime rates (thefts and assaults)	Soares (2004)
2.1% increase in GDP per capita	Barro and Lee (2010)

The final recommendation is particularly relevant to Colombia. In addition to achieving universal access to primary school, improving the quality of education is crucial for attaining high levels of economic growth and human development. Indeed, studies show that "expansion in school attainment has not guaranteed improved economic conditions," and stress the importance of quality education (Hanushek and Woessmann 2007). The measured impact of cognitive skills on outcomes suggests strong economic returns within developing countries. Moreover, taking actions to improve the quality of education will also have positive effects on school attainment, because higher cognitive skills are directly related to lower repetition rates and higher completion and transition rates (Hanushek and Woessmann 2008). Increasing the quality of education also increases demand for education, encouraging enrollment and attendance.

The OECD's Programme for International Student Assistance (PISA) evaluates education systems worldwide by testing 15 year-olds in key subjects, such as reading and mathematics (OECD). Results of the 2012 PISA show that in mathematics, reading, and science, Colombian students perform well below the OECD average, placing Colombia among the four lowest-performing participant countries. About 50% of Colombian students are below the PISA minimum requirement for functional literacy, compared to 20% in OECD countries (many of which are neighboring Latin American countries). Moreover, the Colombian system has failed to produce students with high competencies, as it sits well below the average OECD performance (OECD 2010). Even after adjusting rates to account for students' socio-economic background, Colombia's test results are poor.

Despite Colombia's poor performance, efforts to improve the quality of education have resulted in better PISA results in recent years, a signal that the Colombian government is committed to improving its education system. Continued effort to address both access and quality will be critical in promoting social and economic progress in Colombia and averting the economic, health, social, and political losses associated with out of school children.

As data on the world's out of school children improves, the price of exclusion in other countries facing access and quality challenges similar to Colombia's becomes clearer. The persistence of large out of school populations is not only a concern from a human rights perspective. It is an urgent issue that will be staggeringly costly for the economies and societies that out of school children grow up in unless sustained and strengthened efforts reverse current trends.

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Appendix

The estimation methodology employed in this paper is from Burnett et al. (2013). To calculate the earnings loss associated with OOSC (Equation 1), the per capita economic benefits (measured by wage premia) from primary education is multiplied by the prevalence of primary school non-completion in the school-aged population. However, raw OOSC rates alone do not reveal how many school-aged children in a cohort will eventually complete primary education under the status quo. UNESCO Institute for Statistics breaks down OOSC into the three categories (dropped out, likely to enroll in the future, and expected never to enroll). Those figures can be used to derive the percentage of children projected to not complete primary school.

We assume that all late-starters eventually complete primary school, and that no drop-outs or those unlikely to start will ever complete primary school. The percentage of non-completing OOSC is the overall percentage of OOSC minus the percentage that is likely to start late. These simplifying assumptions belie the complex behavior of OOSC (many of whom enter and leave school multiple times due to idiosyncratic factors like family illness), but they make the analysis possible in the absence of more detailed data.

The percentage of school-aged children that is predicted to not complete primary education is then multiplied by the wage premium to primary education.

Equation 1: Earnings Loss from forgone primary education =

[% non-completing OOSC] x [wage premium to primary education]

The next step of the analysis is designed to account for the value of primary education as a gateway to secondary education (Equation 2). This estimates the additional increase in aggregate income that primary-enrolled OOSC would be expected to generate due to the access they gain to secondary education. This is calculated by multiplying the wage premium to secondary education by the rate of continuation from primary to secondary school and the rate of secondary school completion. The probability-weighted loss from forgone secondary education is then added to the GDP loss from forgone primary education.

Equation 2: Probability-weighted GDP loss from forgone secondary education =

[% non-completing OOSC] x [wage premium to secondary education] x [rate of continuation from primary to secondary school] x [rate of secondary school completion]