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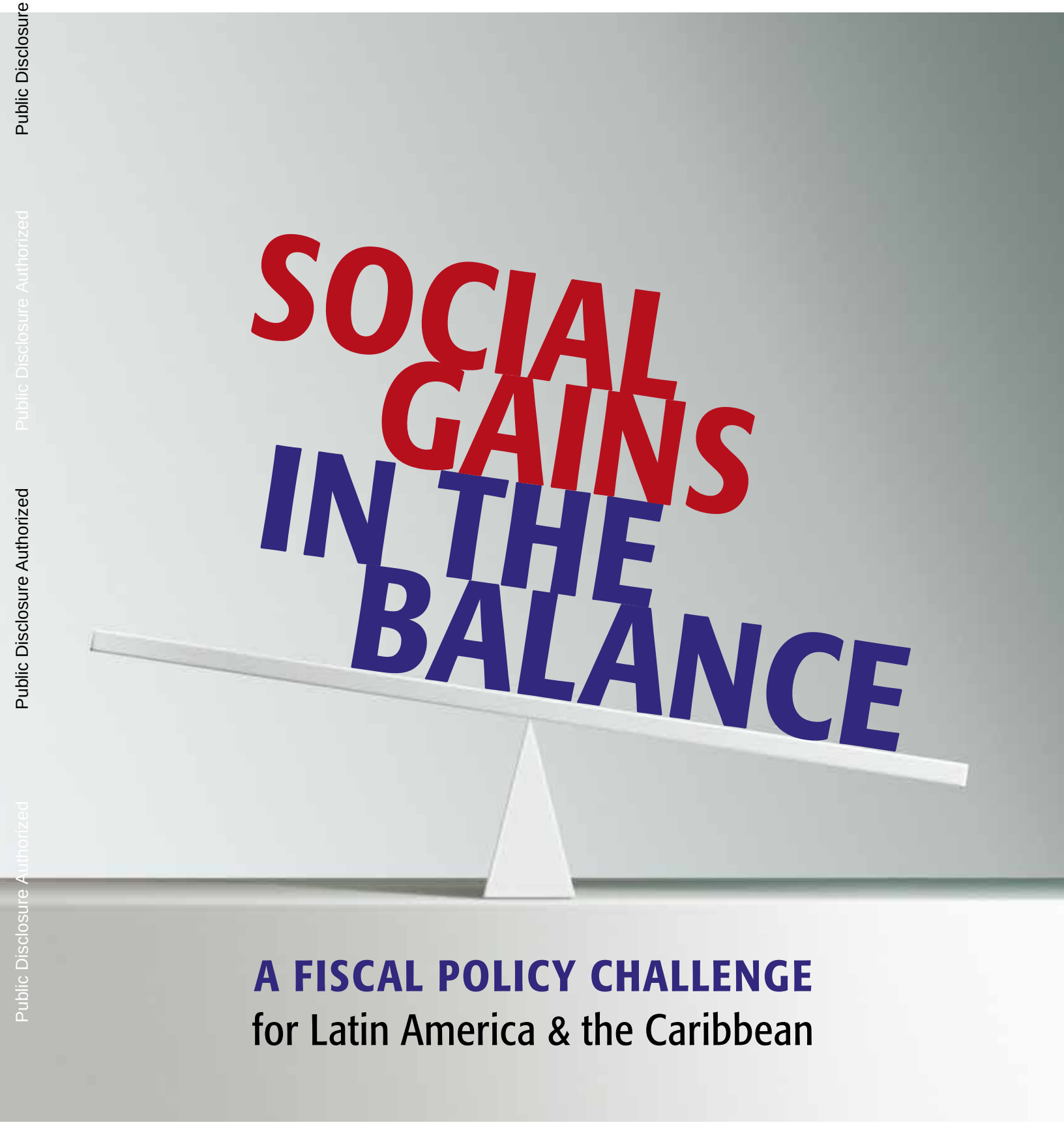

SOCIAL GAINS IN THE BALANCE

A FISCAL POLICY CHALLENGE
for Latin America & the Caribbean

World Bank LAC
opportunities for all

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Annexes

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The numbers presented in this brief are based on a regional data harmonization effort known as SEDLAC that increases cross-country comparability of selected findings from official household surveys. For that reason, the numbers discussed here may be different from official statistics reported by governments and national offices of statistics. Such differences should not be interpreted in any way as a claim of methodological superiority, as both sets of numbers serve the same important objectives: regional comparability and the best possible representation of the facts of individual countries. The welfare aggregate used in this study is income-based.

Executive summary

In 2012, the Latin America and the Caribbean (LAC) region continued its successful drive to reduce poverty and build the middle class. The proportion of the region's roughly 600 million people living in extreme poverty, defined in the region as life on less than $2.50 a day, was cut in half between 2003 and 2012 to 12.3 percent. Reflecting the upward mobility out of poverty, households vulnerable to falling back into poverty became the largest group in LAC in 2005, and represent almost 38 percent of the population. However, in the last two years, the share of vulnerable households has started to decline. The middle class, currently 34.3 percent of the population, is growing rapidly and is projected to replace the vulnerable as the largest economic group in LAC by 2016. The Southern Cone region (including Brazil) continued to be the most dynamic region and the main driver of poverty reduction in LAC, while poverty in Central America and Mexico proved more stubborn. About 68 percent of poverty reduction between 2003 and 2012 was driven by economic growth, with the remaining 32 percent arising from decline in inequality.

Poverty reduction was accompanied by strong income growth of the bottom 40 percent of the population, the World Bank's indicator of shared prosperity. Between 2003 and 2012, the real per capita income of the bottom 40 percent grew by more than five percent annually, while overall income in LAC rose by about 3.3 percent.

However, achieving future gains in poverty reduction and shared prosperity will likely encounter important challenges. The region suffered an economic slowdown from an annual GDP per capita growth rate of about 4.3 percent in 2010 to an estimated 1.3 percent in 2013 and is projected to grow at only 1.7 percent in 2014. Also, after falling steadily between 2001 and 2010, progress in reducing inequality in LAC has stagnated with the Gini coefficient remaining fairly constant at 0.52. This regional measure of inequality captures both within and between country income inequality trends.

Given the modest prospects for economic growth going forward and the potential for inequality to remain stagnant, the region's poverty reduction strategy needs to focus on implementing policies that restore growth and preserve macroeconomic stability, while reinforcing the ability of less advantaged groups to participate in and contribute to growth. This report assesses progress in two policy areas relevant for linking growth and equity and accelerating poverty reduction: (1) fiscal policy and its ability to redistribute the gains from growth, and (2) progress in creating a level playing field for all children in Latin America and the Caribbean to have equal access to basic goods and services that open the opportunity for them to lead lives of their choosing. As fiscal space becomes more constrained should growth remain at the projected modest levels, policies in these areas will need to become even more effective in promoting inclusive growth.

Despite the prevalence of conditional cash transfer programs and increased public social spending, the net effect of fiscal policy on inequality in Argentina, Bolivia, Brazil, Mexico, Peru and Uruguay has been modest, as calculated by the Commitment to Equity project, a joint initiative of Tulane University and the Inter-American Dialogue. The three countries that have achieved the highest impact on inequality through fiscal policy, Brazil, Mexico and Uruguay, have recorded a 0.03 net decline in Gini. While direct taxes (such as income tax) and transfers tend to reduce inequality in the region, the region's reliance on indirect taxation (such as value added taxes) undermines many of these gains. In the context of slowing regional growth, it becomes increasingly important to comprehensively understand the region's fiscal policies and use them efficiently with an eye towards generating further gains against inequality.

Overall, equality of access to basic childhood goods and services has improved in recent years. Yet access can be further improved, and serious issues remain concerning the quality of those goods and services, particularly in education and housing infrastructure. Moreover, access increases with parental education and income or assets, reflecting low intergenerational mobility in many countries in the region. As with poverty reduction, most of the progress in equality of access since 2000 has come in the Southern Cone and the Andean regions, while many of Central America's countries managed only small improvements. There are also severe differences at the subnational level and between urban and rural areas, highlighting the need to strengthen the capacity of local governments to deliver high quality basic services to all their citizens.

Put into a global perspective, LAC has made tremendous progress reducing poverty in the first decade of the 21st century, buoyed by strong performances in growth and inequality reduction. Extreme poverty as measured by the global standard of $1.25 per capita per day has fallen in LAC nearly as fast as in East Asia, which is well known for its dramatic declines. LAC's global extreme poverty rate in 2010, five percent, was half of the 2002 level, nearly the same as East Asia's rate of decline. Yet, LAC's persistently high levels of inequality continue to constrain progress against extreme poverty. The Europe Central Asia (ECA) region, with a slightly lower GDP per capita in 2010 and lower levels of inequality, has a global extreme poverty rate of less than one percent. A similar level of poverty in LAC would mean about 24 million fewer people enduring life below that level.

Because recent trends suggest that the decline in inequality may have halted, promoting more inclusive growth will be central. Recalibrating fiscal policy and providing better basic goods and services are two important instruments for inclusive growth. The findings of this brief, while highlighting significant gains especially in service delivery, underscore that these instruments in LAC are not fully achieving their potential in reducing inequality and delivering on the World Bank's twin goals of eradicating extreme poverty and promoting shared prosperity.

I. Despite falling growth rates, LAC continues to successfully reduce poverty and promote shared prosperity

For the Latin America and the Caribbean (LAC) region, 2012 brought new progress in the campaign to reduce poverty and build the middle class. LAC began the millennium with nearly 25.1 percent of its residents living in extreme poverty (defined in the region as life on less than $2.5 a day), but since 2003 the region has achieved steady and dramatic declines in poverty, cutting extreme poverty by half to 12.3 percent in 2012 (Figure 1).[1] Total poverty (defined as life on less than $4 a day) also decreased substantially, falling from 42 percent in 2000 to 25.3 percent in 2012. Reflecting these impressive gains, the share of households vulnerable to falling back into poverty (defined as those who have an income between $4-$10 a day) grew steadily between 2000 and 2010. There has also been a historic shift into the middle class.[2] This group, defined in the region as people with incomes between $10-$50 a day, grew to be larger than the poor and is projected to become the largest group in the region by 2016, surpassing the vulnerable population.[3]

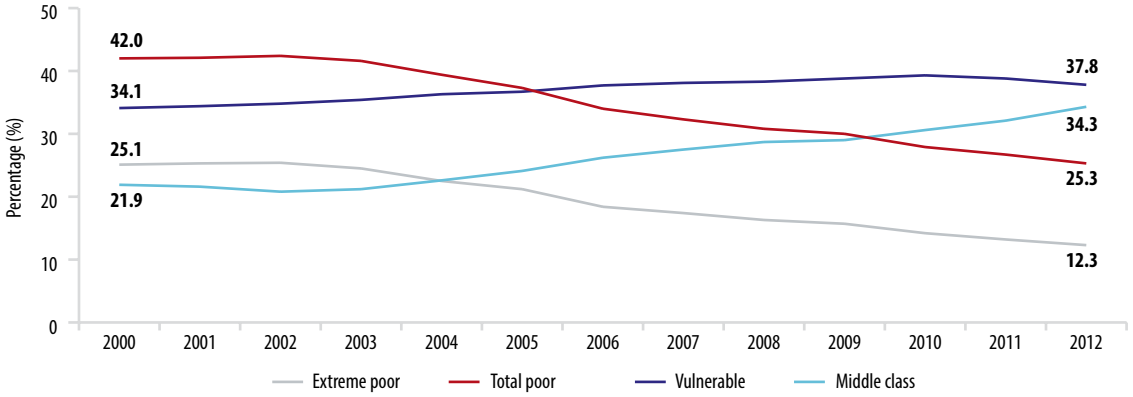
The Southern Cone region—Argentina, Brazil, Chile, Paraguay and Uruguay—continued to lead the region in poverty reduction in 2012, while the share of poor remained fairly constant in Central America and Mexico. In 2003, the Southern Cone was home to 48 percent of the region's poor (Figure 2), Central America (Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Nicaragua and Panama) and Mexico had

1 The basic World Bank indicator for measuring extreme poverty globally is the percentage of people living on less than $1.25 a day. But the level of economic development in the LAC region has led analysts to use poverty lines that are higher. A $2.50 a day extreme poverty line (an average of national extreme poverty lines) and a $4 a day total poverty line are more appropriate in view of prevailing costs of living in the LAC region. Regional poverty rates are population-weighted averages of country-specific poverty rates using international poverty lines. When country data were not available for a given year, poverty rates were estimated using existing household survey data from available years and macroeconomic information on private consumption growth rates from the Bank's World Development Indicators. This report uses household surveys from 17 countries in the region (see Annex 2).

2 The World Bank LAC regional flagship report (Ferreira et al. 2012) characterizes the middle class based on the concept of economic security and defines three economic classes: (1) the poor, those who have a per capita income below $4 a day; (2) the vulnerable, that is, people who are vulnerable to falling back into poverty, with $4 to $10 a day; and (3) the middle class, with $10 to $50 a day (all in 2005 purchasing power parity).

3 If changes in the proportions of the population in the vulnerable and the middle class in future years continue at the rates of the 2002-2012 period, the middle class will surpass the vulnerable group by 2016. But if the changes keep to the faster rates of 2011-2012, the middle class will overtake the vulnerable class by 2014.

Figure 1. Poverty rates across LAC fell dramatically between 2003 and 2012

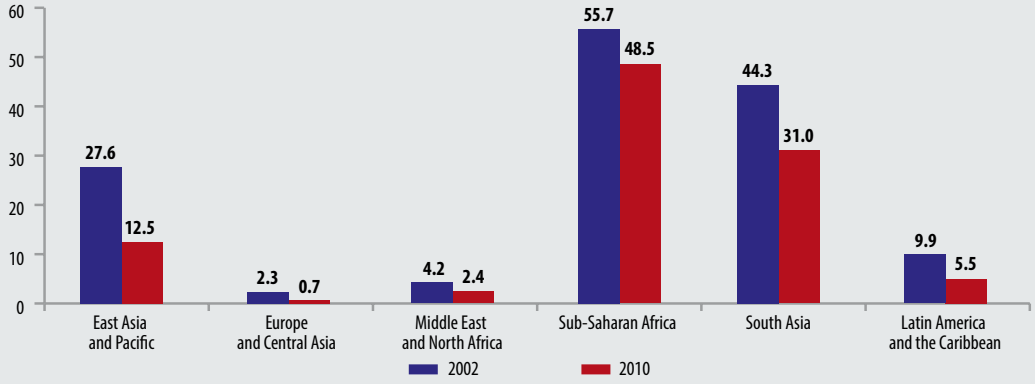


Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: Estimates of poverty, vulnerability and the middle class at the regional level are population-weighted averages of country-specific estimates. The rich, those living on more than $50 per capita a day (roughly two percent of the population), are not shown in the graph. In order to analyze the same set of countries every year, interpolation was applied when country data was not available for a given year. For methodological details, refer to Annex 1.

BOX 1. LAC's global poverty reduction is in the middle of the pack

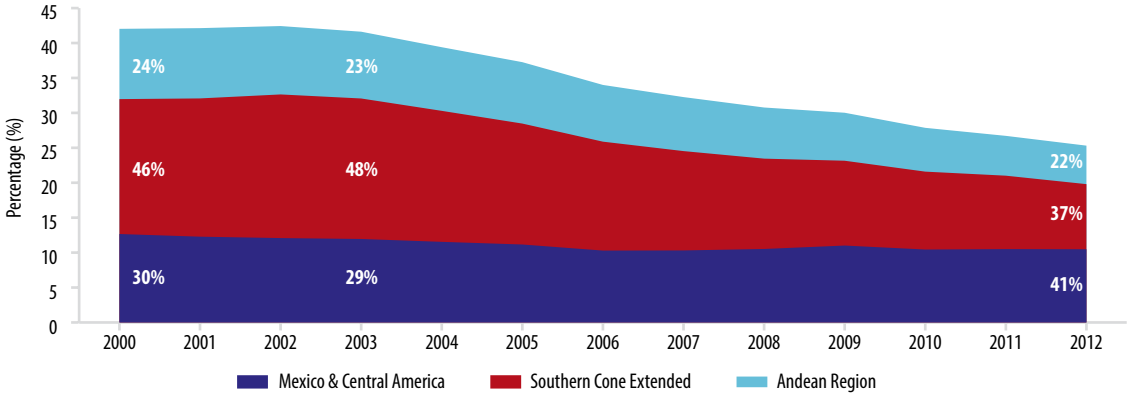
Between 2002 and 2010, extreme poverty, measured at $1.25 a day, fell by half in Latin America and the Caribbean from a rate of 9.9 percent to a rate of five percent. This fall is in line with that witnessed in East Asia and the Pacific – a region which experienced a 55 percent decline, and in the Middle East and North Africa where poverty fell by 43 percent. At the same time, Europe and Central Asia (ECA), with a slightly lower GDP per capita and lower levels of inequality, saw extreme poverty fall by 70 percent from an already low rate of 2.3 percent to less than one percent. If LAC had achieved ECA's level, it would have about 24 million fewer extreme poor people.

Figure B1.1. Extreme poverty as measured by the global standard of $1.25 per capita has fallen by half in LAC



Source: SEDLAC (World Bank and CEDLAS) for the LAC poverty rates and the World Development Indicators for the other regions. Note that the LAC poverty rate includes Chile, a high-income country, while the poverty rates for all other regions exclude high-income countries.

Figure 2. The poor are increasingly concentrated in Central America and Mexico



Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: Estimates of poverty are population-weighted averages of country-specific estimates. In order to analyze the same set of countries every year, interpolation was applied when country data was not available for a given year. For methodological details, refer to Annex 1.

another 29 percent, with the remaining 23 percent living in the Andean region (Bolivia, Colombia, Ecuador and Peru). Over the past decade, the Southern Cone was the most dynamic region and the main driver of LAC's poverty reduction. Its share of the region's poor fell to 37 percent in 2012. The share in Central America and Mexico actually expanded over the decade, reaching 41 percent, while the Andean region achieved a modest decline in share to 22 percent. Decomposing the drivers of poverty reduction by sub-region underscores the importance of growth and redistribution in promoting the economic welfare of the less advantaged. The Southern cone had strong contributions from both growth and redistribution, while the Andean region had the highest rates of growth (but the lowest contributions from redistribution). In Central America and Mexico, growth and income redistribution played an equal role in poverty reduction, but the relative contribution of growth was the smallest of all three sub-regions (see Annex 4).

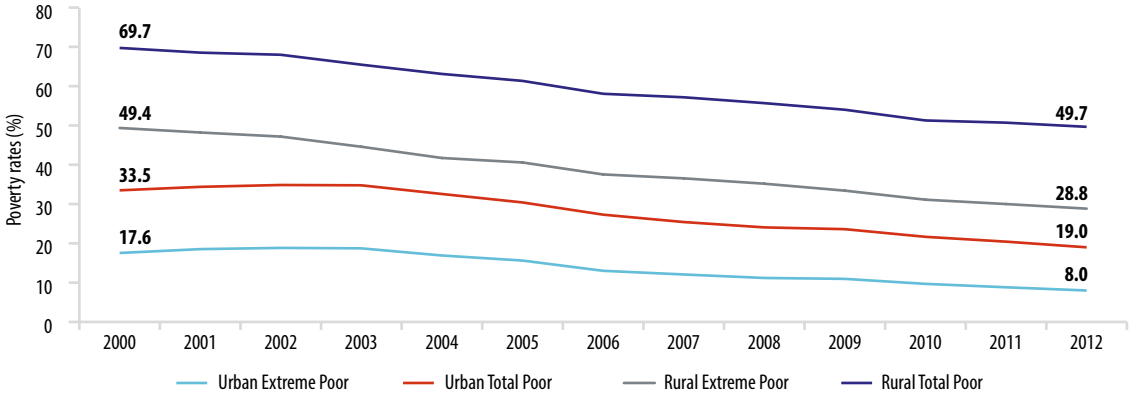
Falls in poverty have been widespread both in urban and rural areas—but they have been more pronounced among the urban population. Total poverty rates in rural LAC remain more than twice as high as in urban areas (Figure 3). In the case of extreme poverty, the differences are even sharper: the rural extreme poverty rate was 29 percent in 2012, compared to only 8 percent in urban areas, and between 2010 and 2012 rural extreme poverty rate fell by 4.8 percent compared to 10 percent in urban areas.

This reduction in poverty has been accompanied by strong income growth of the bottom 40 percent of the population, the World Bank's indicator for measuring shared prosperity. From 2003 to 2012, mean real per capita income grew by 3.3 percent in LAC as a whole, while for the bottom 40 percent of the income distribution the figure rose by five percent (Figure 4). At the country level, this trend was borne out in all countries but Colombia. In Guatemala, the income of the bottom 40 decreased, though at a lower rate than the average income for the overall population in the country.

The Shared Prosperity Convergence Index (SPCI),[4] which tracks progress in equity-adjusted growth, reflects a narrowing of the gap between LAC and top global performers. Between 2003 and 2012, the SPCI

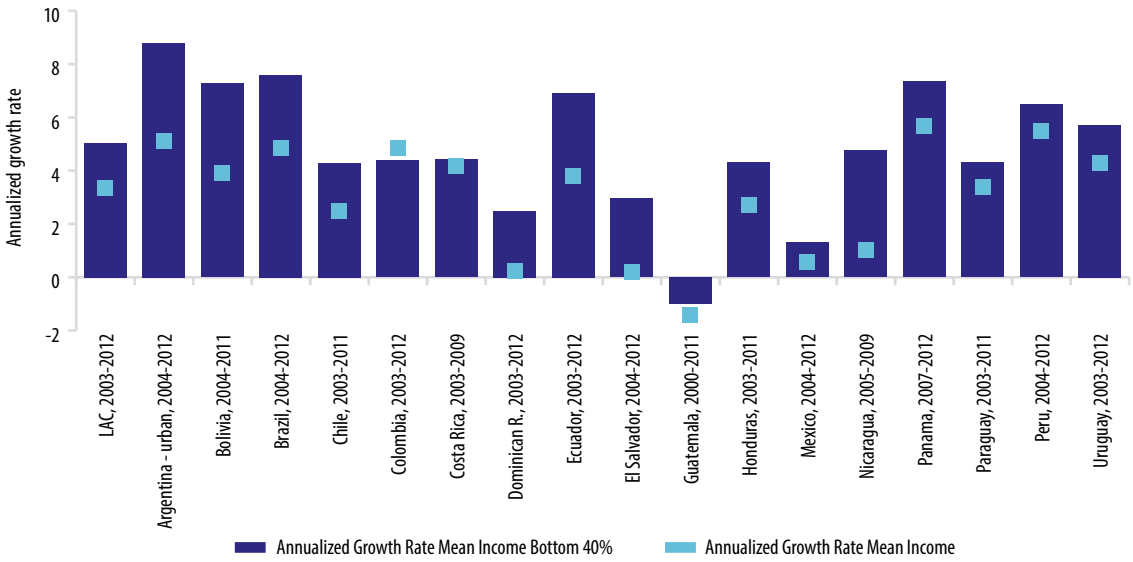
4 The SPCI measures the gap between the measure known as Sen's Welfare Index (GDP per capita adjusted by income inequality) for a given country and the average Sen's index of the top ten global performers in 2000. This index was first introduced in the previous Poverty and Labor Brief (World Bank 2013). Since then, GDP data adjustments have led to a slight modification of the benchmark countries. The benchmark used in this analysis is 65.9, derived from the population-weighted average of the index of Luxembourg, Qatar, Norway, Denmark, United States, Netherlands, Switzerland, Austria, Canada and Singapore. The Sen's Welfare Index, is calculated as the mean income (μ) times one minus the Gini coefficient (G), that is, S=μ (1-G). The Gini coefficient measures the country's income distribution. A Gini coefficient of zero signals perfect equality; a coefficient of one means perfect inequality. Since the Gini coefficient does not satisfy group decomposability, the regional Gini coefficient is computed based on pooled country-specific data previously collapsed into 4000 percentiles.

Figure 3. Poverty reduction has been higher in urban areas



Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: Estimates of poverty are population-weighted averages of country-specific estimates. In order to analyze the same set of countries every year, interpolation was applied when country data was not available for a given year. For methodological details, refer to Annex 1.

Figure 4. The income growth of the bottom 40 percent outpaced average growth in almost all countries in LAC

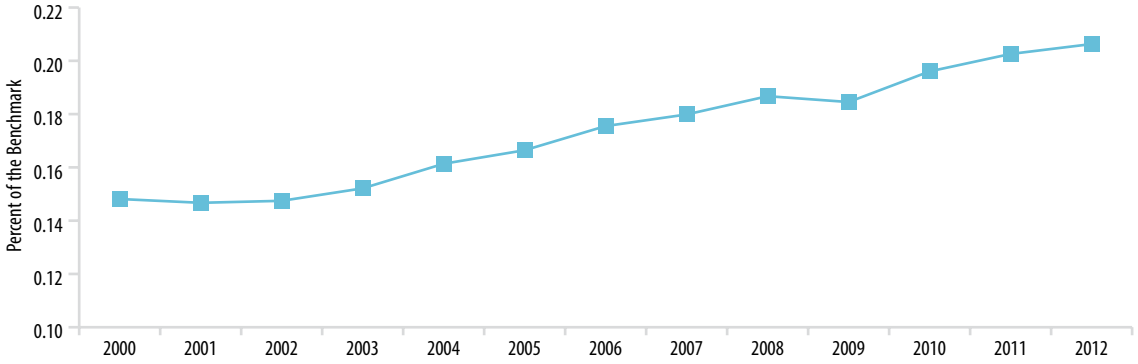


Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank) Note: Numbers for LAC are calculated using pooled data of countries.

increased from 15.2 percent to 20.1 percent of the average of the top ten global performers in terms of equity adjusted GPD per capita in 2000 (Figure 5). While the increase is good news, the fact that the SPCI remains at under a quarter of the 2000 benchmark underlines that the region needs to focus efforts to further improve economic growth and reduce income inequality.

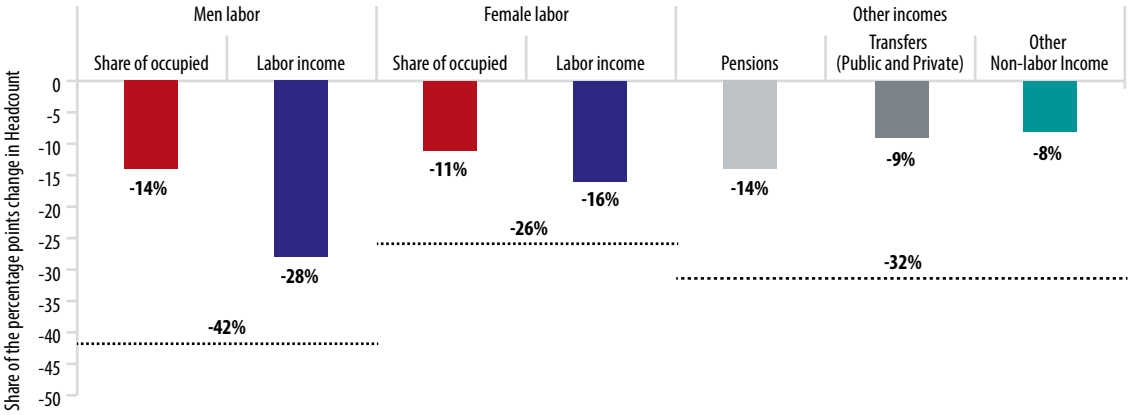
This decrease in poverty has been driven by increases in labor market earnings, with transfers and pensions also helping bring the rates down. Roughly 70 percent of the poverty reduction between the years 2003 and 2012 was directly attributable to improved labor earnings (Figure 6), while nine percent was contributed by transfers and 14 percent by pensions. Increases in labor earnings were primarily driven by men (42 percent of the poverty reduction), though women also played a significant role (26 percent).

Figure 5. Shared Prosperity Convergence Index shows a large gap between equity adjusted GDP in LAC and top global performers



Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank) and World Development Indicators (WDI). Note: Gini coefficients are calculated using pooled data of countries, while GDP per capita figures for LAC are population-weighted average of countries.

Figure 6. Labor income is the primary driver of poverty reduction



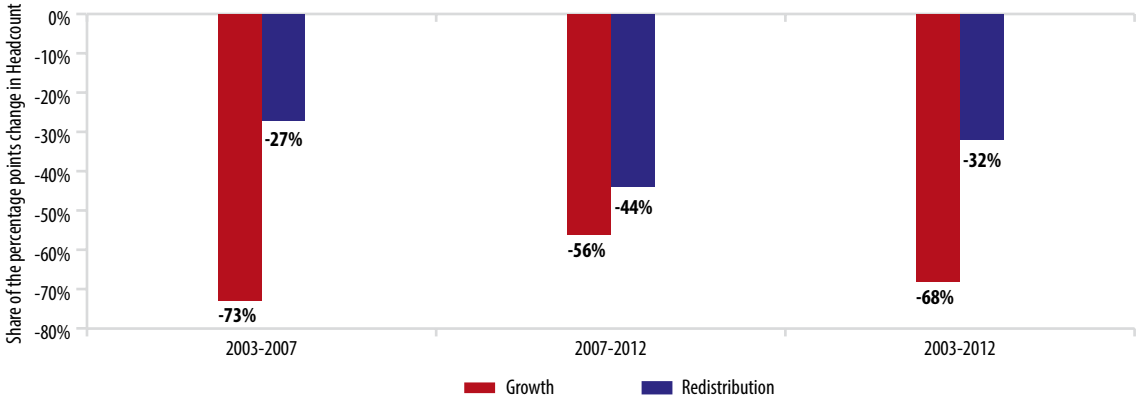
Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Estimates of poverty at the regional level are population-weighted averages of countries-specific poverty rates. The figure shows the Shapley Decomposition of poverty changes (see Barros et al. (2006) and Azevedo, Sanfelice and Cong Nguyen (2012) for more details) between 2003 and 2012 or the nearest year in cases in which 2003 or 2012 data are not available. Due to rounding, the proportions do not add up to 100 percent.

LAC's continued fall in poverty has been primarily driven by economic growth rather than income redistribution and this trend has persisted despite growth slowing down in recent years.[5] Between 2003 and 2007, about 73 percent of poverty reduction was due to expansion of the economy. This number decreased to about 56 percent between 2007 and 2012, as distribution played a more important role in reducing poverty during this period (Figure 7).

Despite the remarkable progress in poverty reduction in the region, LAC's inequality continues to be high. As of 2012, the Gini coefficient for the LAC region remained at 0.52, about the same as it was in 2011 and

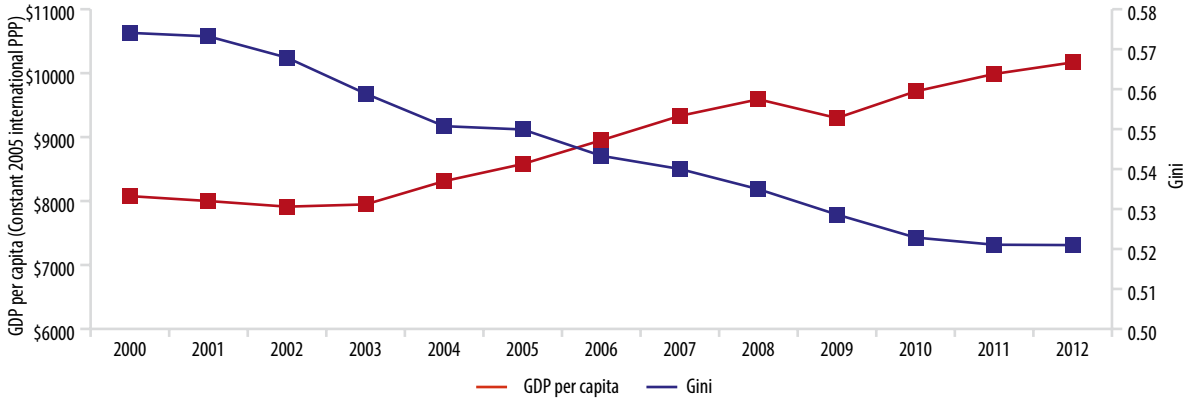
5 See de la Torre et al. (2013) and World Bank (2014).

Figure 7. While growth was the dominant source of poverty reduction, redistribution was an important accelerator



Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Estimates of poverty at the regional level are population-weighted averages of countries-specific poverty rates. The figure shows the Datt-Ravalion Decomposition (Datt and Ravallion 1992) of poverty changes.

Figure 8. Inequality decline has stagnated since 2010



Source: Authors' calculation using SEDLAC Data (CEDLAS and the World Bank) for Gini coefficient and World Development Indicators for GDP per capita. In order to analyze the same set of countries every year, interpolation was applied when country data was not available for a given year. Gini coefficients are calculated using pooled data of countries, while GDP per capita figures for LAC are population-weighted average of countries. For methodological details, see Annex 1.

2010 (Figure 8).[6] While poverty reduction has remained robust since 2003, reduction in inequality has shown less strength, stagnating in 2005, recovering somewhat over the next four years only to flatten out in 2010. This continued high level of inequality is not only suggestive of unequal opportunities in the region, but also weakens the impact of growth on poverty reduction. The apparent stagnation in inequality reduction shown in Figure 8 is also reflected in the income growth patterns in LAC since 2003 (see Box 2).

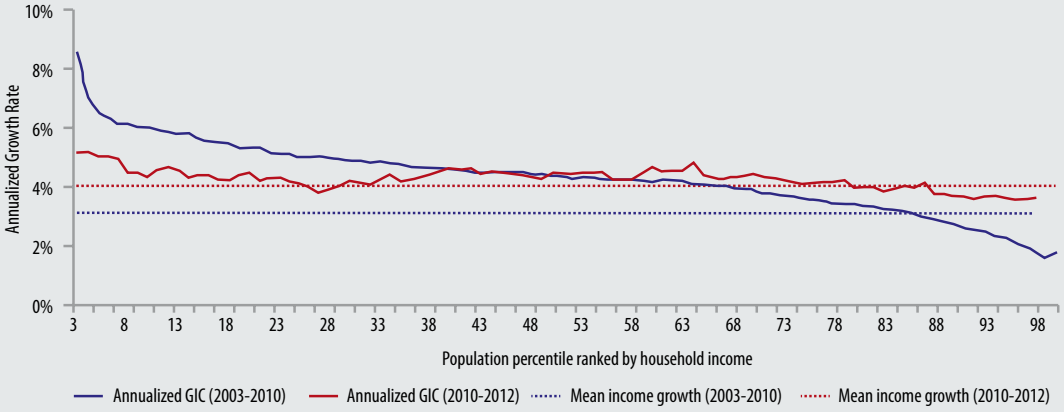
Given the recent slowdown in economic growth and the potential for inequality to stagnate, rapid progress in reducing poverty and promoting shared prosperity could become more elusive. LAC has witnessed a reduction of GDP per capita growth from 4.8 percent in 2010 to an estimated 1.3 percent in 2013 and a predicted 1.7 percent in 2014.[7] Assuming the same responsiveness of poverty to growth that characterized the last decade, total poverty is projected to be about 23.8 percent in 2014, down from 25.3 percent in 2012, and the

6 Since the Gini coefficient does not satisfy group decomposability, the regional Gini coefficient is computed based on pooled country-specific data previously collapsed into 4000 percentiles.
7 World Bank (2014).

BOX 2: Income growth in LAC became more evenly distributed since 2010

Figure B2.1 presents the Growth Incidence Curve (GIC) which refers to the annualized growth rate of per capita income for every percentile of the income distribution for two periods: 2003-2010 and 2010-2012. The horizontal dashed lines report the average growth in LAC for these two periods. The growth incidence curves are calculated using pooled data of countries. Between 2003 and 2010, a period of solid decline in inequality, income growth of the households at the bottom of the income distribution was significantly higher than those at the top. In contrast, the growth rate was much more equal across the income deciles between 2010 and 2012.

Figure B2.1. Low income households saw more modest gains in income after 2010



Source: Authors' calculations using SEDLAC data (World Bank and CEDLAS).

annual pace of poverty reduction will drop from an average of 1.8 percentage points per year that characterized the period 2003-2012 to 0.8 percentage points per year. Similarly, extreme poverty will drop to about 11.3 percent in 2014 from 12.3 percent in 2012, reflecting an annual percentage point decline of poverty equal of 0.5, compared to an average annual decline of 1.4 percentage points in the period 2003-2012.

While restoring higher rates of growth and preserving macroeconomic stability remain a core priority to maintain LAC's momentum, strengthening the links between that growth and inequality reduction is just as important. This report focuses on two of the key avenues to building up these links. It explores the impact of fiscal policy on redistribution and it reports back on recent progress and challenges in promoting equality of opportunities through better access to basic goods and services.

Section 2 of this brief highlights the role of fiscal policy in LAC, showing that while transfers and direct taxation in general reduce inequality in selected countries, governments' reliance on indirect taxes such

as value added taxes can be a significant burden on the bottom 40 percent.[8] This analysis relies on comparable country-specific studies undertaken by the Commitment for Equity (CEQ), a joint project of Tulane University and the Inter-American Dialogue. Among the most important findings of the CEQ studies is that measures of inequality are greatly reduced if in-kind transfers, particularly the provision of public education and health services, are monetized.

Section 3 of the brief charts the substantial progress that LAC has made in providing basic childhood opportunities associated with increased human capital accumulation, such as access to schooling. However, the Human Opportunity Index (HOI),[9] an indicator that measures how a child's access to basic opportunities such as education, water, electricity and sanitation is affected by his or her circumstances - such as place of residence or education of the household head- reveals that access to *good quality* opportunities is low and inequitable. The HOI shows a strong correlation between access and childhood circumstances outside of the individual's control, particularly on quality measures. This suggests that, without concerted efforts to improve school quality, particularly in more remote and poorer areas, children born into lower socioeconomic situations may not be able to develop the skills required to become competitive adults in the labor force. Promoting more egalitarian access to basic goods and services of quality early in life will likely both reduce inequality of outcomes in adulthood[10] and increase economic efficiency,[11] thereby strengthening the virtuous circle between growth and poverty reduction.

As the region's policy makers seek to accelerate both economic and social progress, the HOI and CEQ indicators are important tools that can help them identify areas in which more investment and better targeting can lead to the biggest returns.

8 Lustig, Pessino and Scott (2014).
9 Barros et al. (2009) developed the index, which has also been applied at the regional level in Molinas et al. (2012).
10 Barros et al. (2009).
11 Ferreira et al. (2012).

II. The effects of fiscal policy on inequality in LAC[12]

Over the last decade LAC has increasingly used fiscal policy to promote social goals. Between 2000 and 2011, social spending as a share of GDP rose from 11.7 to 14.5 percent, with public spending on education rising from 3.9 to five percent, capital expenditures from 3.5 to 4.5 percent, and health spending from three to nearly four percent across the 18 countries tracked by the Economic Commission for Latin America and the Caribbean.[13] Similarly, the number of countries in the region with conditional cash transfer programs expanded during this period to 18,[14] while non-contributory pensions programs also blossomed throughout the region. To support the higher spending, the region increased tax collection from 16 to 20 percent of GDP between 2000 and 2010.[15]

What has been the impact on inequality of these fiscal policies? The Commitment to Equity (CEQ) methodology quantifies the impacts, allowing for a cross-country comparison of the efficacy of taxation and government spending.[16] The CEQ project applies a consistent incidence analysis methodology across six countries— Argentina, Bolivia, Brazil, Mexico, Peru and Uruguay—allowing for a direct comparison of the success of governments in the region in using fiscal policy to reduce inequality. Because the CEQ studies report Gini coefficients based on different types of fiscal policy, it is possible to differentiate between the effect of direct taxes, direct transfers and indirect taxes and subsidies. The approach is a static assessment and does not capture behavioral responses. On the expenditure side, it focuses on transfers, health and education (leaving out infrastructure) and does not take into account the quality of public services and the externalities of public expenditures (see Box 3).

12 Most of the analysis and indicators in section II were produced under the Commitment to Equity (CEQ) project, a joint initiative of Tulane University and the Inter-American Dialogue (www.commitmentoequity.org/). For more information about the Commitment to Equity methodology, see Lustig and Higgins (2012). The references for each country's analysis are as follow: Argentina: Lustig and Pessino (2014), Bolivia: Paz Arauco et al. (2014), Brazil: Higgins and Pereira (2014), Mexico: Scott (2014), Peru: Jaramillo (2014), Uruguay: Bucheli et al. (2014). The analysis is based on 2009 data in every country except for Mexico, which is 2010. See annex 6 for more details on the CEQ methodology.
13 Economic Commission for Latin America and the Caribbean (2014).
14 Cecchini and Madariga (2011), World Bank (2013a).
15 OECD/Economic Commission for Latin America and the Caribbean/Inter-American Center of Tax Administration (2012).
16 Lustig and Higgins (2012). Note that the CEQ study of Argentina (Lustig and Pessino 2014) excludes all tax-side analysis due to data limitations, and hence is not strictly comparable to the other studies.

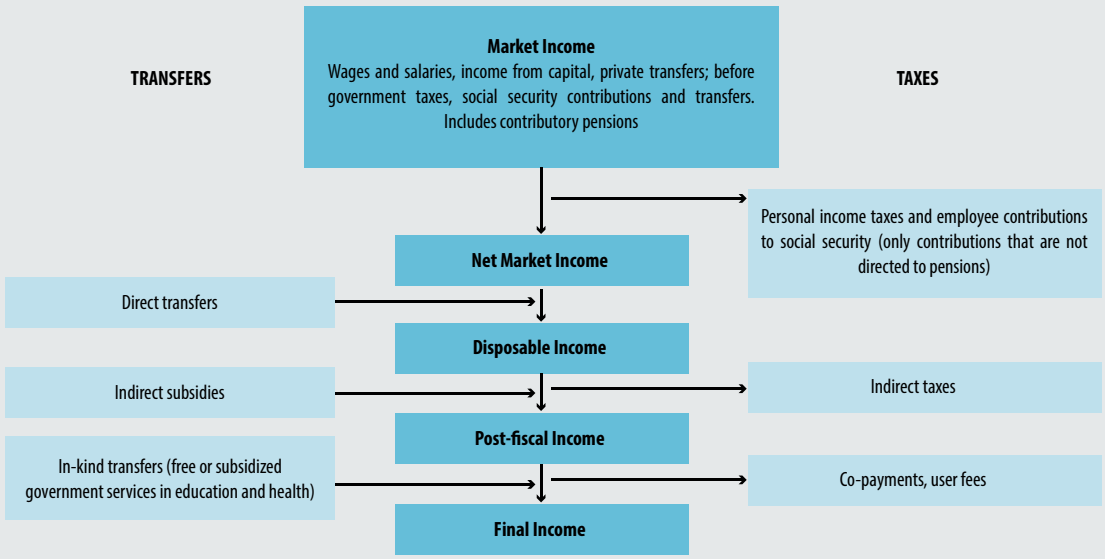
BOX 3: The Commitment to Equity methodology[17]

The Commitment to Equity (CEQ) project is a collaborative effort of Tulane University's Department of Economics and Center for Inter-American Policy & Research and the Inter-American Dialogue. The project carries out fiscal impact analysis for select countries following a consistent methodology. It utilizes data from household surveys and national accounts to examine the impact of fiscal policy on household income inequality.

This methodology measures fiscal impact using five income concepts, each capturing the effect of specific types of taxation, subsidies and transfers. First, Market Income is the income received by each household before taxes and transfers. Second, Net Market Income is market income after direct income and payroll taxes. Third, Disposable Income adds the impact of direct transfers to net market income. This is the income definition typically used to measure inequality in other studies and analyses. Fourth, the CEQ methodology also considers Post-Fiscal Income, which incorporates the effect of indirect subsidies and taxes on disposable income. Lastly, Final Income adds the estimated fiscal cost per unit of in-kind public transfers (public schooling and public health provision) minus the portion paid by the household to household income. The chart below details these various income definitions.

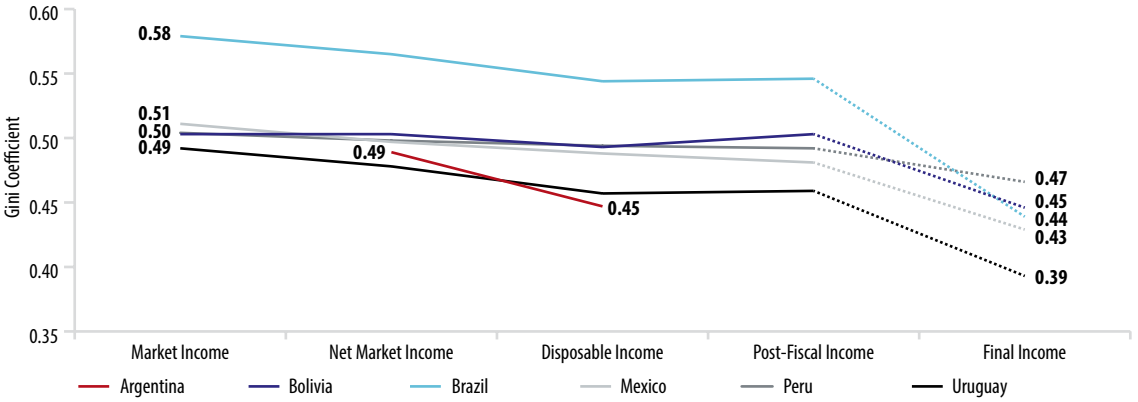
Care should be taken in drawing policy implications from this analysis since the indirect effects of taxation and spending policies are not fully captured. As in other static incidence analyses, the impacts measured do not capture behavioral responses, long-term impact and externalities. For example, investment in tertiary education may have a direct impact only on middle-class youth who are able to attend university but this investment can generate positive externalities for society at large in the long run through increases in national productivity and innovation. In addition, the CEQ does not account for public spending and investment in infrastructure, for example, roads, water projects and electricity, which can have significant impact on overall economic and labor market opportunities.

Definition of income concepts in the CEQ



17 For a complete overview of the methodology, see Lustig and Higgins (2012).

Figure 9. In-kind transfers drive the redistributional impact of fiscal policy



Source: Lustig and Pessino (2014), Paz Arauco et al. (2014), Higgins and Pereira (2014), Scott (2014), Jaramillo (2014), Bucheli et al. (2014). ©The CEQ Compendium of Indicators presented here is the property of the Tulane Educational Fund and the Inter-American Dialogue. Note: The figure shows the Gini coefficients calculated using each of the five CEQ income definitions (see Box 3) using 2009 data in every country except for Mexico, which is 2010. Dashed lines represent the change in Gini coefficient attributed to in-kind transfers, which unlike the other income definitions in CEQ are based on a non-cash transfer.

The overall redistributive impact of fiscal policy is modest in the six countries.[18,19] Uruguay, Mexico and Brazil achieved a 0.03 drop in Gini through the combination of direct taxes, direct transfers and indirect taxes and subsidies, while in Peru and Bolivia the redistributive impacts were negligible (Figure 9). Direct taxes and transfers generated reductions in income inequality, while indirect taxes and subsidies either had minimal effect on inequality or undermined some of these gains. This is seen, for example, in Brazil and Bolivia, where the post-fiscal income Gini is higher than the disposable income Gini.

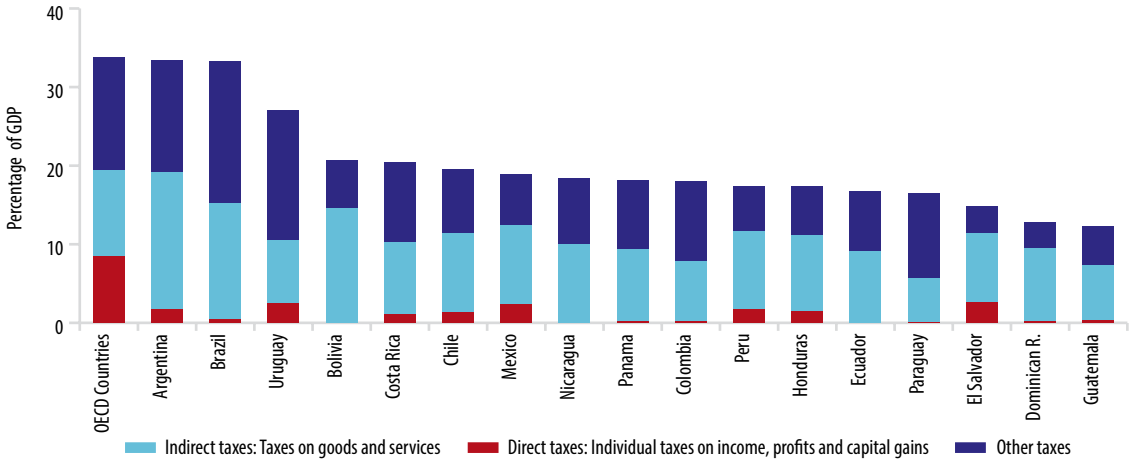
Of the fiscal tools used in LAC, it is in-kind government transfers for public schooling and health that have the largest impact on inequality.[20] In the five countries that underwent full analysis, an average of 63 percent of the reduction in inequality due to fiscal policy was achieved through in-kind government transfers. Brazil had a 10.7 percentage point decline in inequality just through the provision of public goods and services—the most significant source of that country's 14 percentage point decline in inequality achieved through fiscal policy. At the other extreme was Peru, which only achieved a 3.8 percent reduction in inequality through fiscal policy—but two-thirds of that was through the provision of services. These results suggest that in-kind transfers are very progressive. But the figures do not reflect the quality of the services and could reflect low use of the services by higher-income households that opt for higher-quality private providers.[21]

Direct and indirect taxes: low tax revenue and high reliance on indirect taxes

In Latin America, overall tax collection as a proportion of GDP ranges from a high of 33 percent in Argentina and Brazil to a low of 12 percent in Guatemala.[22] This range is below the average 34 percent in OECD countries. In addition, the composition of taxes differs from the OECD norm. While only 32.5 percent of taxes collected in the OECD in 2010 were indirect taxes, they were the majority collected in almost all LAC countries. OECD countries in turn are much more reliant than LAC countries on direct taxes (mainly income taxes). The

18 Full analysis was conducted for all countries but Argentina, for which key data was not available. Its figures reported here are based on partial analysis.
19 Lustig, Pessino and Scott (2014).
20 Lustig, Pessino and Scott (2014).
21 For example, Ferreira et al. (2012) find that the middle class is substantially more likely to attend private schools in LAC.
22 Based on the 2010 Tax Data base from OECD Stats.

Figure 10. Indirect taxes, many of them regressive, are LAC's most significant source of tax revenue



Source: OECD Stats: 2010 Tax Data Base. Note: Other includes corporate taxes, social security contributions, payroll taxes, property taxes and other sources.

composition of tax collection in LAC has important implications for progressivity, as direct taxes, mainly on income, tend to be the most progressive, with consumption taxes being among the most regressive. One of the reasons for the relatively small direct tax revenue in LAC may be the weak enforcement mechanisms and the resulting significant size of the informal labor sectors. Informal labor markets reduce income tax revenues, thus increasing government reliance on consumption taxes.

Direct taxation reduces inequality in the five CEQ countries for which tax data are available, especially Peru, while indirect taxation is regressive in Bolivia, Brazil and Uruguay (Figure 11).[23] Since the bulk of taxes in LAC are collected through indirect taxes (Figure 10), the overall progressivity of the region's tax collection (shown in light blue bars in Figure 11) is much lower than the progressivity of the direct tax systems in place. The Kakwani coefficient is used to measure the effect of taxation on inequality, although the assumptions used to determine the incidence of the various taxes also have a strong impact on these results.[24]

The regressive impact of the tax structure is particularly hard on the poorest (Figure 12).[25] The share of taxes by each decile relative to its share of income shows that the lower decile pays a higher share of taxes than it receives in market income, particularly in Bolivia, Brazil and Uruguay. For example, the share of total tax revenue collected from those in the bottom decile in Bolivia is more than triple their share of the country's income.[26] A similar issue exists in Brazil and Uruguay, though to a smaller extent. In these two countries, people in the bottom decile also contributed more towards total tax revenue than their share of market income—1.3 times their

23 Lustig, Pessino and Scott (2014).
24 The CEQ studies of the two countries in which indirect taxation is not found to be regressive, Mexico and Peru, assumed rural households did not pay indirect taxes. The incidence of indirect taxes is calculated differently in each of the country studies, using different assumptions on tax evasion (see Lustig, Pessino and Scott 2014) for a more detailed treatment of the assumptions used in each country study). While in the Uruguay and Brazil studies, there is no adjustment for consumption tax evasion (Bucheli et al. 2014, Higgins and Pereira 2014), the other studies allow for some evasion. For example, in the Peru study, people who live in villages with less than 100 households and make all their spending with street vendors, "farmers markets," or other informal conditions are assumed to not be taxed (Jaramillo 2014). The Bolivia and Mexico studies also allow for differential tax evasion rates (based on place of purchase, for example) when calculating effective tax rates and the Mexican study further assumes that rural households do not pay any value added taxes (Paz Arauco et al. 2014, Scott 2014).
25 Lustig, Pessino and Scott (2014).
26 That is, while Bolivia's bottom decile holds only 0.7 percent of the nation's market income, it pays 2.3 percent of all taxes collected from individuals.

BOX 4: Measuring progressivity of fiscal policy[27]

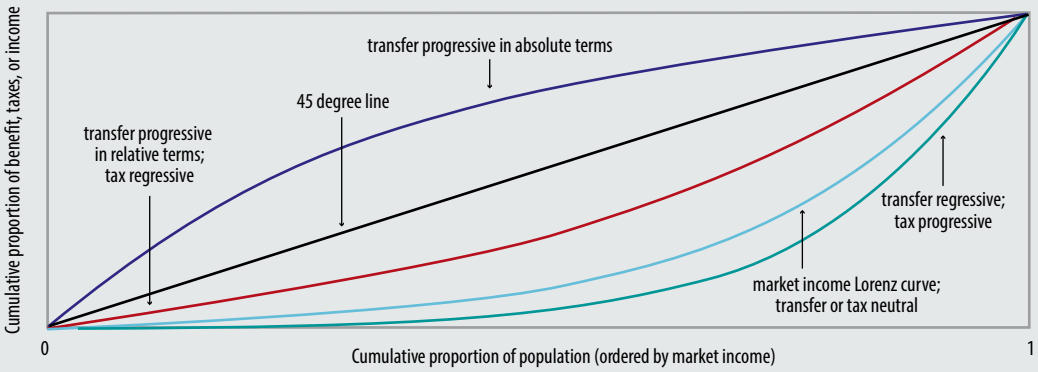
A progressive fiscal policy is one that results in a less unequal income distribution than market income. Similarly, a regressive tax or transfer results in a more unequal income distribution than market income. The figure below depicts graphically the mathematical definitions of progressivity and regressivity, using the Lorenz curve (the cumulative distribution of income, taxes, or transfers ordered by household per capita market income) and the line of absolute equality (the 45 degree line) as important threshold values.

For each income definition used in the CEQ studies, the Gini index is calculated to measure income inequality. The Gini index measures the area between the Lorenz curve and the line of absolute equality, expressed as a proportion of the maximum area under the line. Thus, a Gini index of zero represents perfect equality, while an index equal to one signals perfect inequality. The CEQ studies calculate concentration coefficients to measure the progressivity of each type of transfer. These are calculated using the same methodology as the Gini index but relying on the proportion of the total transfers (rather than income) received along the income distribution.

Transfers that benefit the lower income deciles relatively more than the higher deciles are considered progressive. These transfers can be split into two groups, (1) those that are absolutely progressive, benefiting the less well-off more than higher income groups, and (2) those that are relatively progressive, where the transfer spending is distributed more equally than market income, but still benefits higher-income individuals more than the less well-off. This is reflected in a negative concentration coefficient for absolutely progressive and a positive concentration coefficient that remains lower than the market income Gini coefficient for relatively progressive transfers. A transfer is neutral if it is distributed in the same way as income (the concentration coefficient is equal to the market income Gini), while it is regressive if the top income deciles receive a higher share of spending than they do of market income (the concentration coefficient is greater than the market Gini).

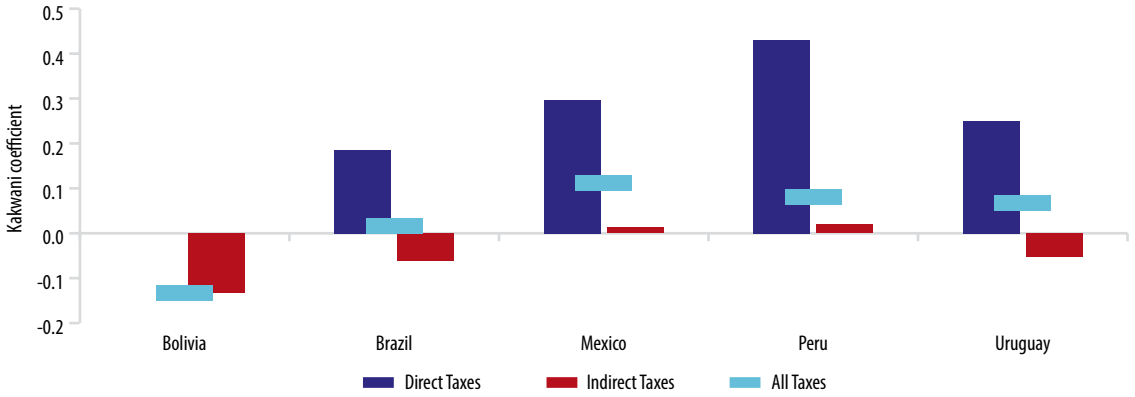
Progressivity of taxes in the CEQ studies is measured using the Kakwani coefficient, which is calculated by subtracting the tax's concentration coefficient from the market income Gini. Taxes that are progressive have positive Kakwani coefficients while those that are regressive have negative coefficients. A perfectly neutral tax, such as a flat tax, would have a Kakwani coefficient of zero.

Definitions of progressivity and regressivity for taxes and transfers



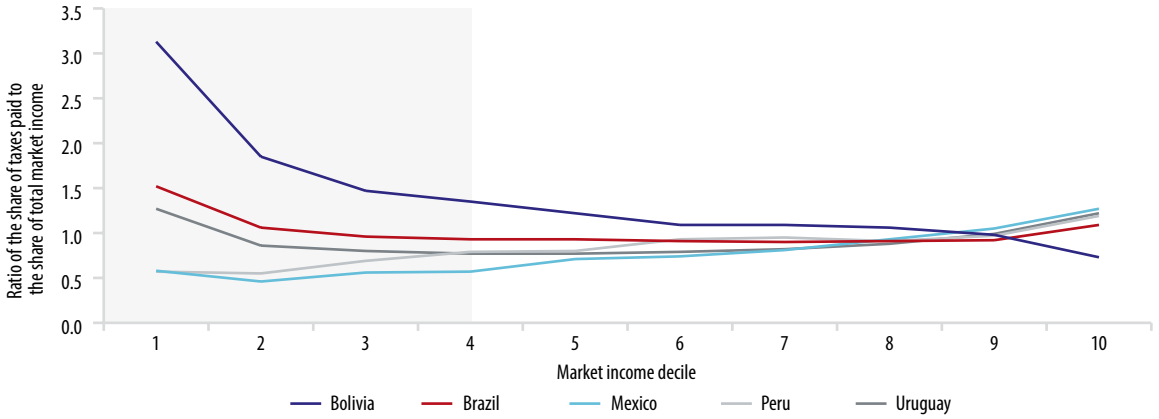
27 Lustig and Higgins (2012).

Figure 11. Indirect taxes reduce the progressivity of LAC's tax systems



Source: Lustig and Pessino (2014), Paz Arauco et al. (2014), Higgins and Pereira (2014), Scott (2014), Jaramillo (2014), Bucheli et al. (2014). ©The CEQ Compendium of Indicators presented here is the property of the Tulane Educational Fund and the Inter-American Dialogue. Note: The figure reports the Kakwani index, a measure of progressivity in taxation calculated as the tax concentration coefficient minus the market income Gini coefficient (see Box 3 for income definitions and Box 4 for a discussion on the Kakwani index).

Figure 12. The bottom 10 percent pay a high share of their income in taxes in Bolivia, Brazil and Uruguay



Source: Lustig and Pessino (2014), Paz Arauco et al. (2014), Higgins and Pereira (2014), Scott (2014), Jaramillo (2014), Bucheli et al.(2014). ©The CEQ Compendium of Indicators presented here is the property of the Tulane Educational Fund and the Inter-American Dialogue. Note: The figure reports the ratio of the share of taxes paid to the share of total market income held by each income decile.

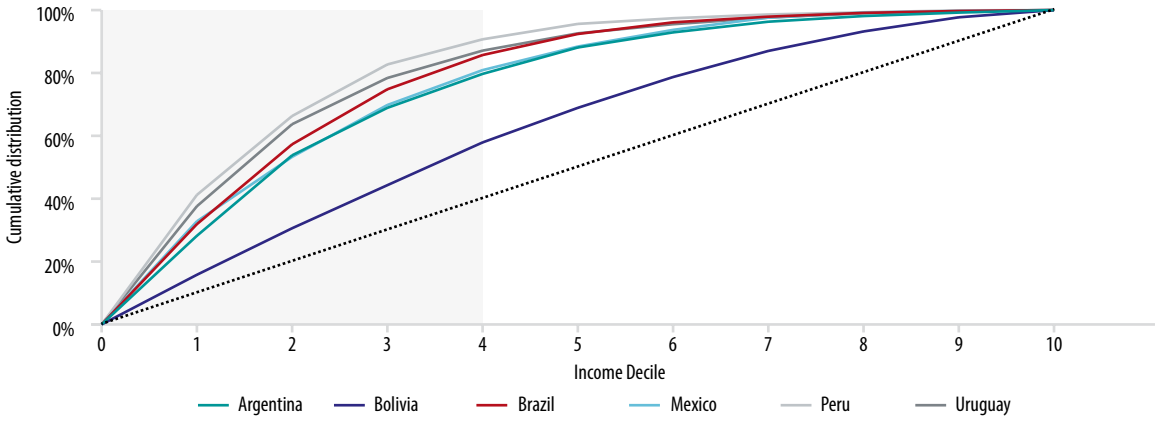
share in Uruguay and 1.5 times in Brazil.[28] Interestingly, only individuals at the bottom and top of the income distribution in these two countries pay a higher share of taxes than they collect in market income. In Mexico and Peru, on the other hand, only the top income decile pays a higher proportion of taxes relative to its income, while the bottom 90 percent pays a smaller share. As noted above, these results may be sensitive to the assumptions made in the CEQ studies regarding formal markets in each country.

Direct and indirect transfers: investments in opportunities and human capital

Direct cash transfers, including CCTs, represent between 0.4 and 3.7 percent of GDP in the six countries included in this study.[29] Direct transfers include conditional and non-conditional cash transfers and non-contributory pensions. While non-contributory pensions are targeted towards the elderly, conditional cash transfers

28 It should be noted that both of these studies assume no evasion of indirect taxes, while the studies for the other countries factor in some degree of tax evasion (see footnote 24).
29 Lustig, Pessino and Scott (2014).

Figure 13. CCT expenditure is relatively well targeted, with the majority going towards the bottom 40 percent



Source: Lustig and Pessino (2014), Paz Arauco et al. (2014), Higgins and Pereira (2014), Scott (2014), Jaramillo (2014), Bucheli et al. (2014). ©The CEQ Compendium of Indicators presented here is the property of the Tulane Educational Fund and the Inter-American Dialogue. Note: The figure reports the cumulative distribution of CCT expenditures by income decile.

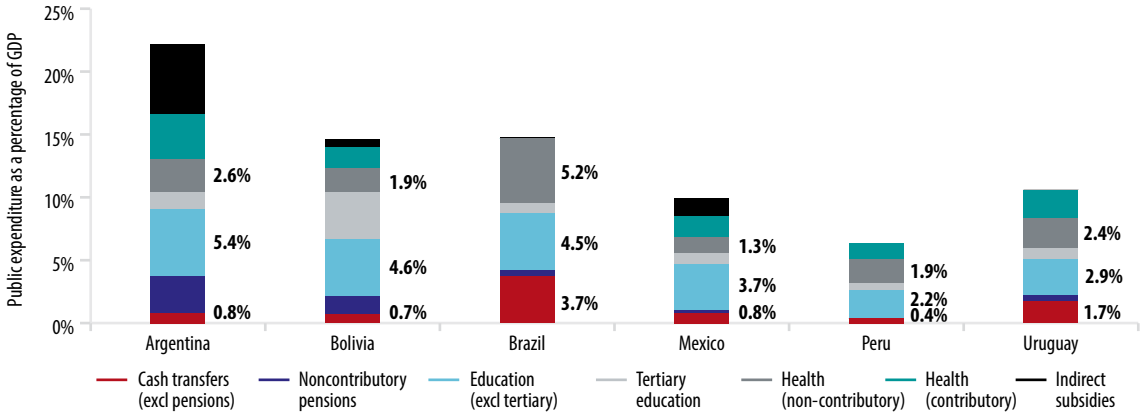
are usually aimed at low-income families. According to the CEQ results, between 80 and 90 percent of expenditure on CCTs in Argentina, Brazil, Mexico, Peru and Uruguay is allocated to the bottom 40 percent of the income distribution (Figure 13).[30] However, in Bolivia the allocation of CCTs is significantly less progressive—only 60 percent of CCT expenditure is directed at the bottom 40 percent. This is because Bolivia's program does not include poverty as an eligibility requirement.[31] As a result, while Bolivia's CCT is still absolutely progressive, it is much less progressive than the other countries' CCT programs,[32] achieving less reduction in inequality than Brazil, Mexico, Peru and Uruguay through their respective CCTs (see Annex 7).

A significant portion of social spending is for publicly provided services, particularly in education and health.[33] Combined, education and non-contributory health spending account for more than 10 percent of GDP in Brazil and Bolivia and just 4.7 percent in Peru (Figure 14). Bolivia is an outlier in two respects when it comes to education: it outspends the other countries but much of this money goes toward tertiary education. Similarly, spending on health in the region varies widely—while Brazil spends 5.2 percent of GDP on health, all of it non-contributory, Mexico and Peru spend less than 2 percent on non-contributory health spending (and only 3.1 percent on health when contributory spending is included).

Overall, public health spending is allocated across the entire population, with the exception of Argentina and Brazil where it is more pro-poor.[34] Argentina's health spending is especially directed towards lower-income individuals, with the bottom 40 percent of the income distribution receiving more than two thirds of all government health transfers (Figure 15).[35] On the other hand, Peru devotes only a quarter of its public health expenditures to the bottom 40 percent.[36]

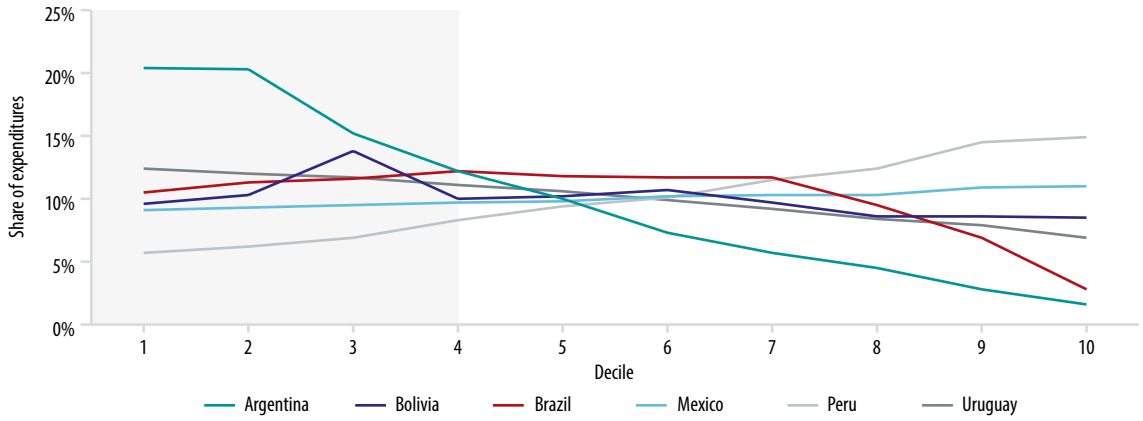
30 Figure 13 highlights the share of CCT expenditure received by the bottom 40 percent, though the programs are not specifically targeted to that income group. The flagship CCT programs included in the analyses were (1) in Argentina: Asignación Universal por Hijo, Jefes y Jefas de Hogar Desocupados, Programa Familias para la Inclusión Social, and Programa Nacional de Becas Estudiantiles; (2) in Bolivia: Bono Juancito Pinto and Bono Juana Azurduy; (3) in Brazil: Bolsa Família; (4) in Mexico: Oportunidades; (5) in Peru: Juntos; and (6) in Uruguay: AFAM - Asignaciones Familiares (Plan de Equidad).
31 The CCT programs included in the CEQ study of Bolivia are targeted to all public school children up to their eighth year of schooling (Bono Juancito Pinto), and mothers (including pregnant women) and children up to 2 years old without access to health insurance (Bono Juana Azurduy) (Paz Arauco et al. 2014).
32 See Box 4 for a discussion of absolute and relative progressivity.
33 Lustig, Pessino and Scott (2014).
34 Lustig, Pessino and Scott (2014).
35 Lustig and Pessino (2014).
36 Jaramillo (2014).

Figure 14. Public schooling and health care account for the bulk of social spending in LAC



Source: Lustig and Pessino (2014), Paz Arauco et al. (2014), Higgins and Pereira (2014), Scott (2014), Jaramillo (2014), Bucheli et al. (2014). ©The CEQ Compendium of Indicators presented here is the property of the Tulane Educational Fund and the Inter-American Dialogue. Note: The figure reports public expenditure as a percentage of GDP as reported in official public accounts.

Figure 15. Incidence of health spending varies dramatically across countries



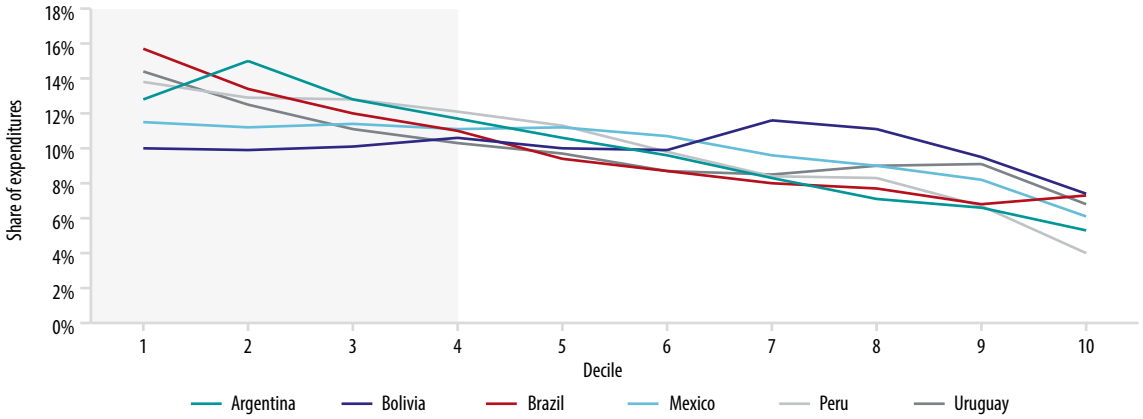
Source: Lustig and Pessino (2014), Paz Arauco et al.(2014), Higgins and Pereira (2014), Scott (2014), Jaramillo (2014), Bucheli et al.(2014). ©The CEQ Compendium of Indicators presented here is the property of the Tulane Educational Fund and the Inter-American Dialogue. Note: The figure reports the concentration of public health spending by income decile.

Five of the six countries in the CEQ analysis spent higher proportions of education expenditure in the lower income deciles, although this may reflect the fact that higher income families opt out of public education to send their children to private schools, believing the quality to be higher (Figure 16).[37] The exception is Bolivia, where education spending peaks in the sixth to eighth decile, perhaps reflecting the country's bent towards tertiary educational expenditures.[38]

While overall government schooling expenditures are progressive, expenditures on pre-school and primary schools are the most progressive (Figure 17).[39] The progressivity of primary and secondary schooling is in part due to higher rates of private school attendance among children from higher-income

37 Lustig, Pessino and Scott (2014).
38 Paz Arauco et al. (2014).
39 Lustig, Pessino and Scott (2014).

Figure 16. Except in Bolivia, education spending is higher for low-income students



Source: Lustig and Pessino (2014), Paz Arauco et al.(2014), Higgins and Pereira (2014), Scott (2014), Jaramillo (2014), Bucheli et al. (2014). ©The CEQ Compendium of Indicators presented here is the property of the Tulane Educational Fund and the Inter-American Dialogue. Note: The figure reports the concentration of education spending along the income distribution by income decile.

Figure 17. Spending on education is progressive, particularly in pre-school and primary schooling

Source: Lustig and Pessino (2014), Paz Arauco et al. (2014), Higgins and Pereira (2014), Scott (2014), Jaramillo (2014), Bucheli et al. (2014). ©The CEQ Compendium of Indicators presented here is the property of the Tulane Educational Fund and the Inter-American Dialogue. Note: The figure reports the concentration coefficients of education spending for each of the countries analyzed by CEQ and the market income Gini coefficient as a point of reference. Note that concentration coefficients greater than zero and less than the Gini coefficient are relatively progressive (see Box 4).

households.[40] Tertiary education is only progressive in relative terms—that is, it is progressive relative to the market income Gini coefficient but not relative to equal expenditure between the deciles (see Box 4 for a definition of progressivity).

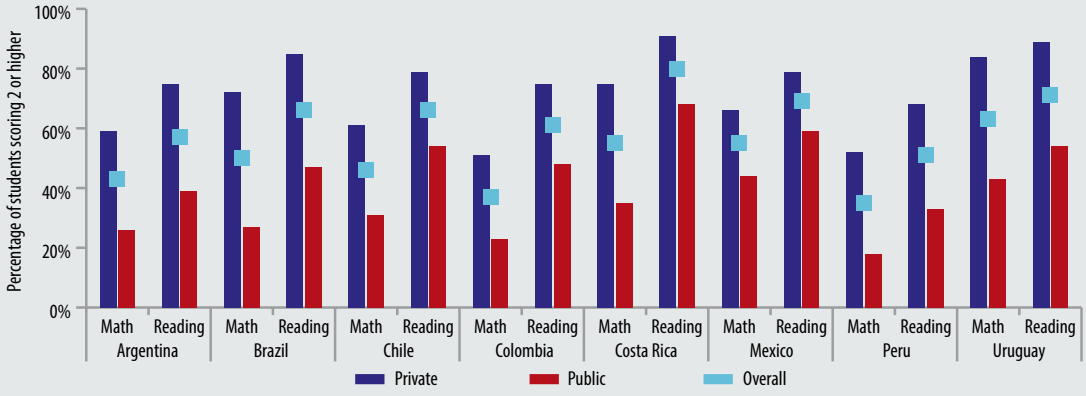
The low enrollment in tertiary education for low-income students reflects, among many factors, the lower quality of primary and secondary education received by these students. As shown in Box 5, there is substantial variation between test scores for students in private and public schools across LAC. Children from wealthier households are more likely to attend private schools with better educational outcomes while less advantaged children are more dependent on the quality of public education. This inequity is further explored in Section 3 of this report using the Human Opportunity Index (HOI). As shown in that section, parental edu-

40 Ferreira et al. (2012).

BOX 5: Differences between private and public schooling in LAC

International test scores from the OECD's Programme for International Student Assessment (PISA) show significant differences in the passage rate of students attending LAC's private schools and those enrolled in public schools. In Peru, for example, only 18 percent of public school students were able to achieve a score of 2 or higher in the mathematics test, a score achieved by 75 percent of their private-school counterparts. Though conditions such as peer effects, socioeconomic status and student selection can play a role in educational achievement, the striking gaps in international test scores confirm there are significant differences in the educational quality of public and private schooling.

Figure B5.1. Students of private schools in LAC outperform their public school peers on international tests



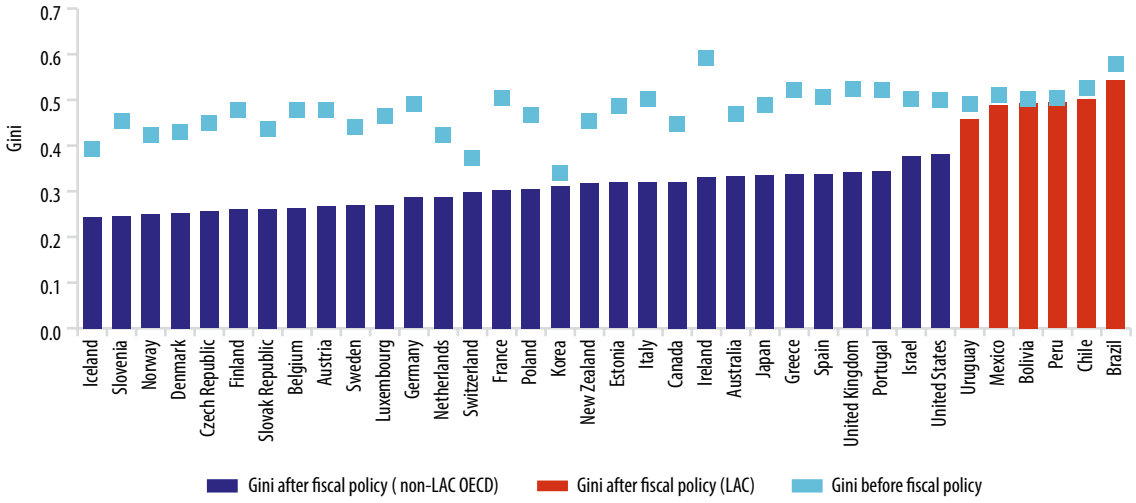
Source: Authors' calculations using PISA 2012 Data (OECD).

cation and occupation are the most important factors determining whether a child has access to important childhood opportunities, and access to better-quality education is lower and more unequal in LAC than in non-LAC OECD countries.

In conclusion, while LAC is one of the most unequal regions in the world, its fiscal policy is playing only a muted role in alleviating this situation in both an absolute and relative sense, compared to developed countries. Non-LAC OECD countries and select LAC countries have similar or slightly lower levels of inequality in market income (household income before taxes and government transfers), with a Gini generally between 0.4 and 0.5 (Figure 18).[41] However, there is a significant difference in the impact of fiscal policy on inequality in the two sets of countries. The Gini on disposable income (household income after direct taxes and transfers) in the non-LAC OECD countries is in general around 0.3 or less, while it hovers around 0.5 in the LAC countries, very close to the market income Gini. Latin America's low tax revenue and high reliance on indirect taxation is an important reason for the differences in income inequality compared to developed countries.[42] These results suggest that fiscal policy remains a largely unexploited instrument to promote greater poverty reduction and shared prosperity in LAC.

41 Goni, Lopez and Serven (2011). This analysis compares the effects of fiscal policy on income inequality in a select group of LAC countries and Western Europe.
42 Goni, Lopez and Serven (2011).

Figure 18. LAC's fiscal policies do not achieve the level of inequality reduction seen in the OECD



Source: Gini coefficients for non-LAC countries and Chile are from OECD Stats and report tax data from 2010 for all countries except Hungary, Ireland, Japan, New Zealand, Switzerland, and Turkey, which report 2009 figures, and Chile, which is based on 2011 figures. Gini coefficients for LAC are from Paz Arauco et al (2014), Higgins and Pereira (2014), Scott (2014), Jamarillo (2014), Bucheli et al (2014) and reflect 2009 data, except for the case of Mexico, which is based on 2010 data. Note that the OECD and CEQ methodologies differ and may not be directly comparable, though a comparison of overlap countries reveals that the resulting Gini coefficients are similar across the two methodologies. ©The CEQ Compendium of Indicators presented here is the property of the Tulane Educational Fund and the Inter-American Dialogue.

III. Even though countries have made progress in providing goods and services, access to some opportunities remains low and largely unequal in LAC

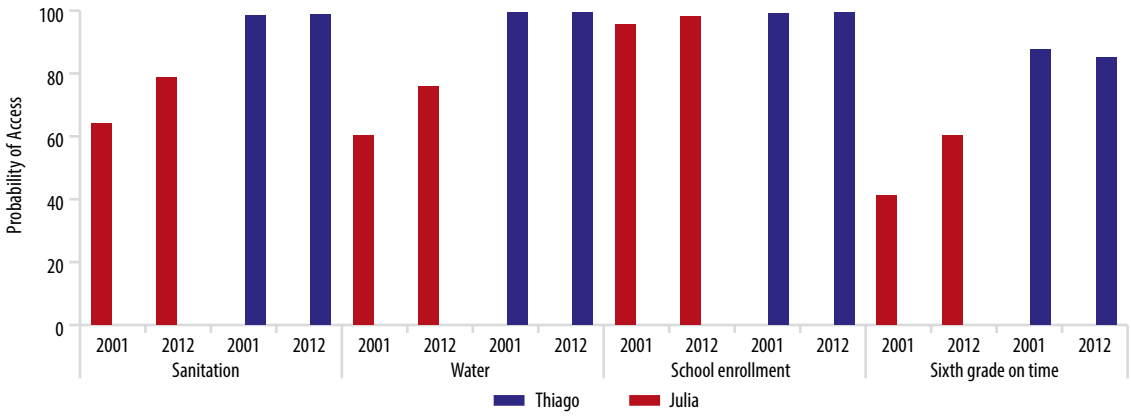
Imagine Julia, a six-year-old girl living in rural Brazil. She has three siblings, her single mother has no education and her household belongs to the second quintile of the income distribution. The probability of Julia having access to running water and sanitation was around 77 percent in 2012 (Figure 19). Julia is likely to finish sixth grade on time, (she has a 60 percent chance) which is an important determinant of her ability to move through secondary school in a timely fashion and obtain better job opportunities upon graduation. Compared to her seventeen year old sister, Ana Maria, Julia has more opportunities considered important for a productive life of her choosing. The likelihood that Ana Maria had access to water and sanitation when she was growing up was sixty percent, and more than likely she did not finish sixth grade on time, as she had only a 40 percent chance.

While Julia's opportunities are better than her sister's, in comparison with Thiago, a six-year-old boy living in an urban area of Brazil with only two siblings and both parents (both of whom have a secondary education) significant disadvantages remain for her. Thiago's household belongs to the forth quintile of the income distribution and he has a nearly 100 percent chance of having access to running water and sanitation, and an 84 percent likelihood of finishing sixth grade on time –which is about 24 percent higher than Julia's chances. Interestingly, Thiago's older brother, Pedro, had an even better likelihood of going to secondary school on time than Thiago, and more than double Ana Maria's chances. These trends underscore the important progress made in narrowing opportunity gaps in Brazil, while also highlighting the persistence of these gaps and the growing challenge of delivering quality education to all children.

Allowing children to have equal opportunities to access basic education, health and housing infrastructure is central to creating an equitable society free of poverty, and to helping today's children reach their full productive potential as adults. One study shows that in Brazil, Colombia, Ecuador, Guatemala, Mexico, Panama and Peru between one-fifth and one-third of individual earning inequality is explained by inequality of childhood opportunity.[43] These disparities can also have macroeconomic implications. Basic childhood op-

43 Barros et al. (2009). In order to measure how outcome inequality stems from inequality of opportunity, the authors break down

Figure 19. Different chances for success confront Julia and Thiago from the start



Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Access to water and sanitation was calculated using non-harmonized versions of the household surveys (see Box 6 for definitions).

portunities, such as access to quality education, nutrition, sanitation and running water, are essential for the development of human capital—an essential ingredient for innovation and sustainable growth on a national scale.

This section uses an inequality adjusted coverage rate known as the Human Opportunity Index (HOI) to assess how access to opportunities has evolved in the last decade in Latin America. [44] The HOI measures how individual circumstances (for example, place of residence, gender and education of the household head) can affect a child's access to basic goods and services such as education, water, electricity and sanitation. Coverage is penalized for the degree of inequality, hence requiring two elements for computation: (1) the coverage rate, which is the proportion of children with access to a given opportunity, and (2) the dissimilarity D-index, which measures inequality of access across circumstances.[45] An increase in the HOI can be related either to an increase in the coverage or to a more equal distribution of that opportunity across circumstances. The HOI is generally computed based on children aged 16 and under in order to remove the effects of individual effort and choices and to focus on opportunities essential to early development. The index is expressed on a scale of 1 to 100, with higher figures reflecting good levels of equity and lower figures reflecting poor and/or inequitable access.

This section of the report focuses on opportunities grouped into three main dimensions: (1) education, (2) housing and (3) information technology and communication (ITC). Education and housing were selected because they are generally considered to be basic vital services, tend to be included in the region's multi-dimensional poverty indices and have been analyzed in previous studies. Given the importance of the quality of education, the analysis not only examines access but also the equity of outcomes related to educational quality. In addition, as information technology and communication are included as they are increasingly recognized as important for connecting children to global knowledge and facilitating integration into the market economy.[46,47] Box 6 presents a more detailed explanation of the set of opportunities selected in this study.

income inequality into (1) a part attributed to circumstances that are beyond an individual's control and (2) a part that refers to effort, talent and luck. The smaller the fraction of income inequality that is explained by factors over which a person has no control, the greater is a country's equality of opportunity. Circumstances considered are: gender, race or ethnicity, birthplace, the educational attainment of the mother, the educational attainment of the father, and the main occupation of the father.

44 Barros et al. (2009) developed the index, which is an adaptation of the welfare function suggested by Sen (1976).

45 See Annex 8 for a more detailed explanation of the HOI and the dissimilarity D-index.

46 See, for example, Beuermann, McKelvey and Vakis (2012).

47 Most of the indicators in this section were computed implementing the methodology used in two previous regional reports on HOI (Barros et al. 2009 and Molinas et al. 2012) and might deviate from other country-specific reports such as Escobal et al. (2012) for Peru and World Bank (2011) for Bolivia.

BOX 6: Opportunities selected for the HOI computation[48]

While there are many opportunities that affect the life of a child, data on all of these opportunities are not readily available in many countries. Due to this limitation, the Human Opportunities Index (HOI) focuses on eight opportunities grouped into three dimensions. Access to these opportunities is essential for children to be successful in adulthood. All indicators (except for those based on PISA scores) are computed using household surveys (see Annexes 1 and 2 for a description of these datasets).

Dimension 1: Education:

Having access to an education provides many opportunities in later years. However, it is important to consider not just whether a child attends school, but whether the education he or she receives is of good quality so as to provide the child with the necessary skills.

a. School Enrollment: This opportunity looks at the rate of school attendance for children between the ages of 10 and 14. The indicator measures whether or not children have equitable access to education.
b. Completion of sixth grade on time: To capture the quality of education, completion of sixth grade on time is measured. While this does not fully capture quality, it indicates that children attended schools of good quality that allow them avoid grade repetition. However, there might exist comparability issues between countries due to automatic grade promotions, a limitation that is likely to be overcome by the school enrolment (and the PISA score below) indicator.
c. PISA scores: HOI for test scores capture equitable access to education of good quality. Test scores in reading, mathematics and science are obtained from the OECD's Programme for International Student Assessment (PISA).[49] It entails circumstances, sampling methodology and countries (Argentina, Brazil, Chile, Colombia, Mexico, Panama, Peru, and Uruguay) that vary from those used in the rest of the indicators that go into other HOI scores. Therefore, results using PISA data are not strictly comparable with results that arise from household surveys. Specifically, the HOI for PISA presented in this report is based on the equity across circumstances with which students from each country are able to achieve a score of 2, considered basic ability to use the subject matter in real-world situations. This HOI allows for a more direct comparison of school quality between countries.

Dimension 2: Housing (children 16 and younger):

d. Electricity: Access to electricity raises the quality of life of a child dramatically by improving health and general wellbeing and by increasing access to other opportunities, such as allowing night-time study and access to the Internet.
e. Water: Access to running water drastically improves childhood health by improving hygiene and reducing the need for children to fetch water for the home, a potentially time-consuming and arduous activity.
f. Sanitation: Access to a sanitation system greatly improves hygiene and reduces incidence of communicable diseases.

Given data limitations, the simplest form of all of these opportunities is utilized to ensure comparability among countries. We consider that a household has access to electricity if it reports having access, regardless of the source of this electricity. We consider that a household has access to sanitation if it has a flush toilet inside the property that is connected to any kind of waste-removal system. Finally, we consider that a household has access to water only if it has running water inside the dwelling.

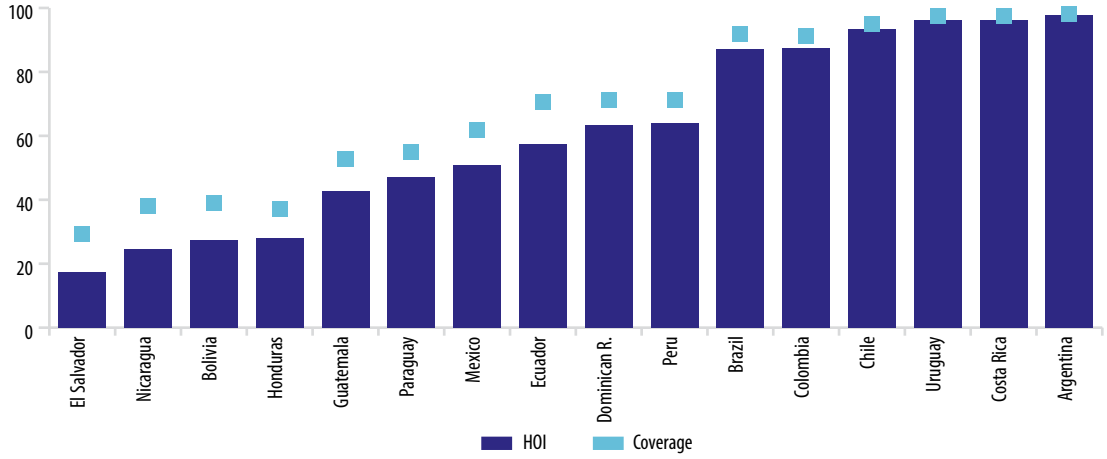
Dimension 3: Information and Communication Technologies (children 16 and younger):

Although not considered in past regional reports on the HOI, access to telephone service and the Internet are now considered fundamental in many societies because they allow access to other services and participation in the productive system.[50] Therefore, in this report, HOI are calculated for access to the Internet in the home and access to a cellphone in the household.

For a more detailed explanation of these opportunities and circumstances, see Molinas et al. (2012).

48 This box largely relies on Molinas et al. (2012).
49 See OECD (2013).
50 Escobal et al. (2012).

Figure 20. Access to water remains low and unequal in Andean and Central American countries



Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: The figure shows the HOI for LAC countries in 2012, or the nearest year in cases in which 2012 data are unavailable. For methodological details on the HOI, see Annex 8. Access to water was calculated using non-harmonized versions of the household surveys (see Box 6 for definitions).

As with opportunities, the set of circumstances used in this report is selected based on the availability of comparable data and the use of similar indicators in previous studies. Circumstances include household head's education and gender; child's gender; child's number of siblings; place of residence; per capita income; and number of parents in the household.

Though essential for the development of children into highly productive adults, access to proper education, housing, and technology/connectivity remains unequal and far from universal in some cases.

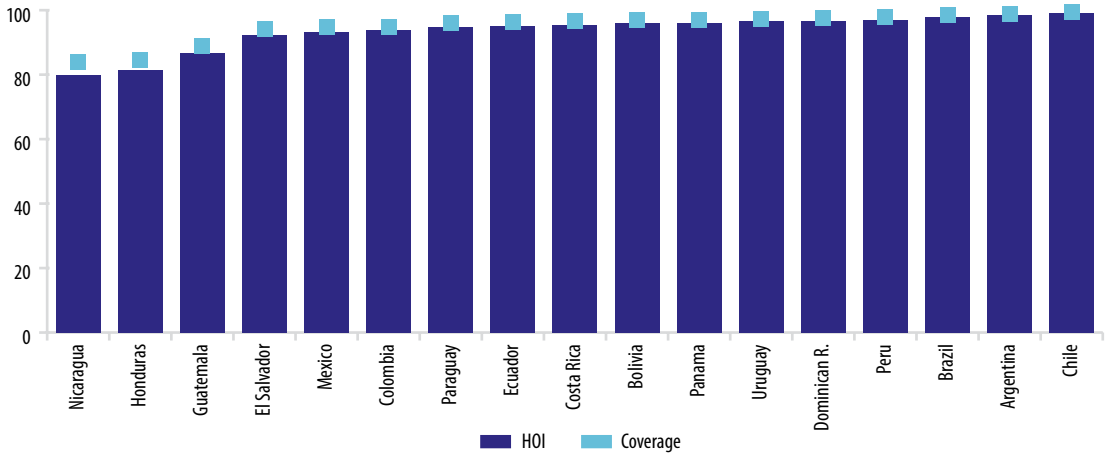
- **The HOIs for access to water and adequate sanitation vary significantly across countries in LAC and are less than 30 percent in some countries (Figure 20 and Annex 8).** The HOI for running water ranged from 17 percent in El Salvador to 98 percent in Argentina, while access to sanitation ranged from 17 percent in El Salvador to 99 percent in Uruguay. The low figures are of particular concern given that water and sanitation influence health and other important childhood opportunities such as not missing school days due to preventable illnesses. But on the positive side, access to electricity was closer to universal; and only three countries had an HOI lower than 80 percent (Annex 8).

- **Connectivity access has been expanding very rapidly suggesting that information and communication access is highly valued and relatively easy to obtain.** The HOI for cellphone access ranges from 47 percent in Nicaragua to 98 percent in Chile (Annex 8), with most countries with data having an HOI around 70 or better. Ten years ago, with the exception of Costa Rica, cell phone access tended to be less than 21 percent and in many countries it was below ten. Access to the Internet, on the other hand, is in its infancy in the region, with an HOI lower than 40 percent in all countries for which information is available.

- **The HOI of school attendance (ages 10-14) is high for almost all the countries under analysis, suggesting that children of all circumstance groups are generally attending school.** The HOI of school attendance ranges from 80 percent in Nicaragua to 99 percent in Chile. For this particular opportunity, the coverage rate (the light blue squares in Figure 21) is marginally above the HOI index (the blue bars), denoting a low penalty due to inequality in the distribution of opportunities across circumstances.[51]

51 The vertical distance between the light blue squares and the darker bars represents the penalty for inequality in access across different circumstances (see Annex 8 for a detailed explanation of the penalty for inequality).

Figure 21. There is near universal school enrollment in LAC (10-14 year olds)



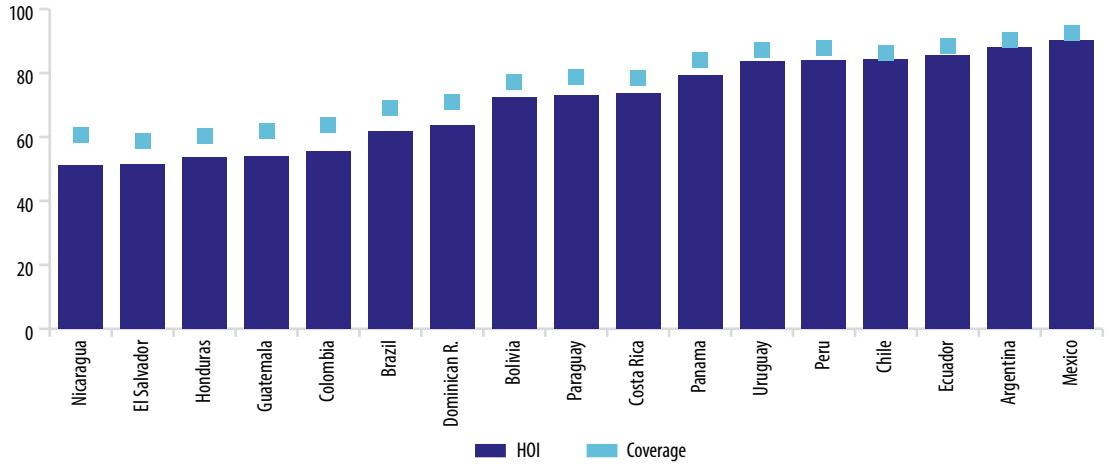
Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: The figure shows the HOI for LAC countries in 2012, or the nearest year in cases in which 2012 data are unavailable. For methodological details on the HOI, see Annex 8.

- **While the HOI for educational access is high, gaps in reaching sixth grade on time highlight important quality concerns regarding equity in the quality of these opportunities.** The HOI for finishing sixth grade on time exceeds 90 percent only in Mexico, while it is lower than 60 percent in El Salvador, Colombia, Guatemala, Honduras and Nicaragua (Figure 22). However, some of the variability across countries may reflect differences in policies regarding academic standards and grade retention rather than differences in the quality of instruction. The HOI scores for sixth grade on time are both relatively low and also show a relatively sizeable inequality penalty – gap between coverage and HOI – as reaching sixth grade on time is influenced by a child's circumstances at birth more than is the case of school attendance. The inequality penalty is particularly large where coverage rates are low, as is the case for the Central American countries, as well as Colombia, Brazil and the Dominican Republic.

The HOI reveals challenges in providing quality education for all students in LAC and especially for children from disadvantaged circumstances. LAC's lack of access to good-quality education stands out when analyzing standardized test results from OECD's Programme for International Student Assessment (PISA), a more direct measure of school quality than sixth grade on time. Comparing PISA scores of selected LAC countries with non-LAC OECD countries in 2012 portrays large differences between the two groups, particularly for math and science scores (Figure 23).[52] For example, LAC's HOI for passing rates in mathematics ranged from 18 percent to 42 percent in 2012, while the same HOI for selected OECD countries was higher than 73 percent. Furthermore, LAC countries had a relatively high gap between the coverage rates and the HOI compared to non-LAC OECD countries, implying a bigger penalty for inequality in access across circumstances in LAC. The poor quality of education in Latin America has important growth implications for the region. Recent research provides compelling evidence that LAC's low levels of human capital attributable to low-quality schooling may explain more than half of the growth gap between LAC and the rest of the world.[53]

52 The opportunity for tests scores is based on whether a student gets a score consistent to proficiency level 2, the minimum level required in real life contexts (Molinas et al. 2012).
53 Hanushek and Woessmann (2012).

Figure 22. Finishing sixth grade on time remains low and relatively unequal



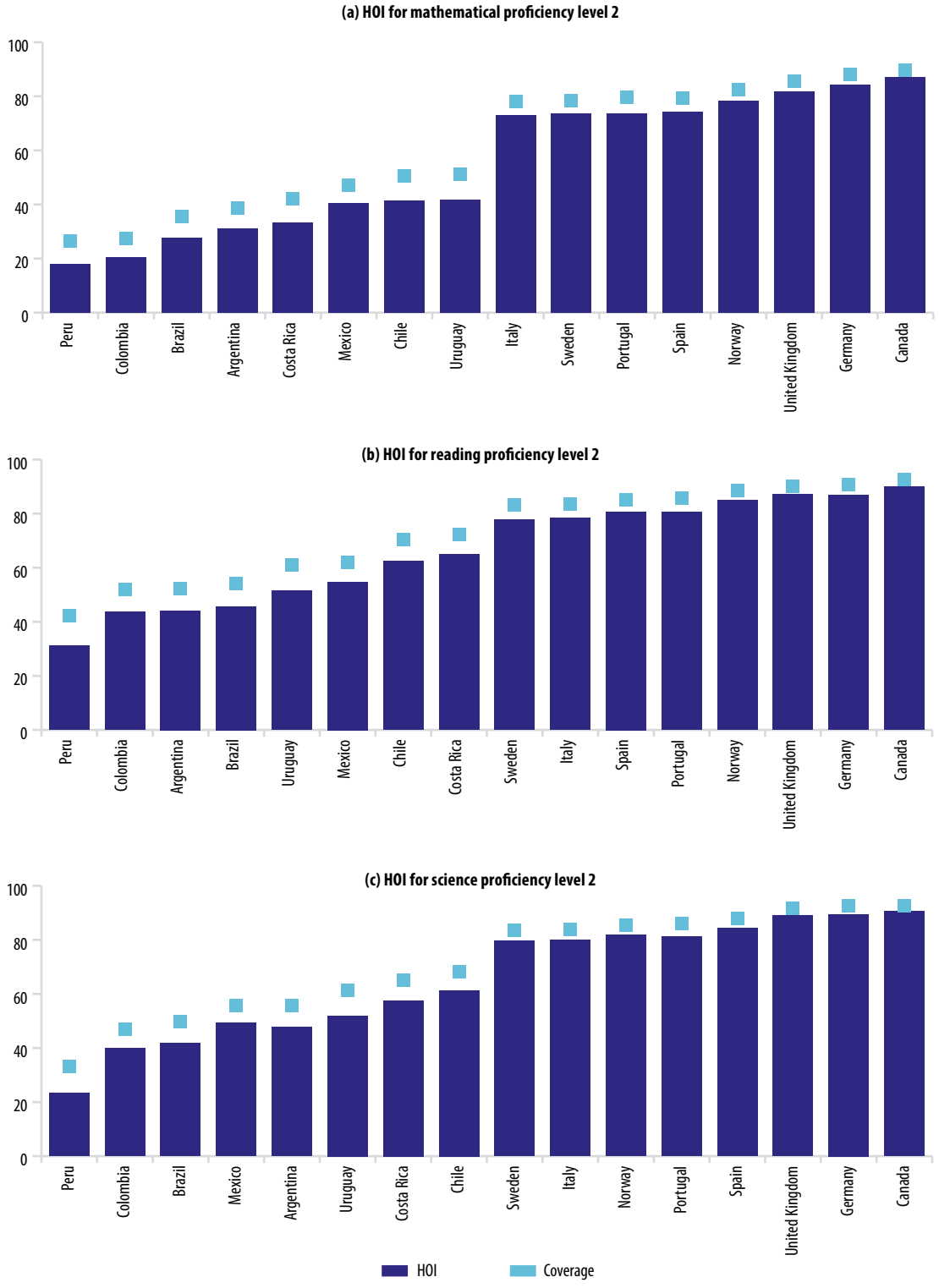
Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: The figure shows the HOI for LAC countries in 2012, or the nearest year in cases in which 2012 data are unavailable. For methodological details on the HOI, see Annex 8.

Circumstances at birth not only affect access to services but also the quality of services. A simple measure of access to basic goods and services does not capture differences in the quality of access, as service outages may affect some groups more than others. To address this issue, the HOIs in Figure 24 are calculated using two definitions of access to an opportunity: any access (having access to water or electricity in general, regardless of service quality) and consistent access (having water or electricity without more than seven days' outage during the past month). Data limitations make it impossible to measure access to housing conditions of good quality in all countries in LAC, but data are available for Guatemala. The figure shows that the two measures are very similar when considering electricity in Guatemala: most homes that have electricity have it daily. However, concerning water, there is a difference of 11 percentage points: while 43 percent of households have running water, only about 32 percent have it consistently.

Access to quality education is heavily influenced by parental educational and asset levels, suggesting that important barriers remain for inter-generational mobility in LAC. Parents' education, occupation and assets are the circumstances that explain most of the inequality of access to education of good quality.[54,55] The D-index provides insight on how an opportunity, in this case test scores, would need to be re-allocated across children to ensure no association between performance and their circumstances at birth. Figure 25 shows that a child's circumstances has a strong influence on test scores, as between about 15 to 30 percent of the passing scores in mathematics would need to be re-allocated to ensure no association with circumstances. Peru shows the highest inequality and Mexico the least. Unpacking the D-indices of inequality shows that roughly three-quarters of the differences in test scores in mathematics relate to parental circumstances (their education, occupation and asset levels) with the rest reflecting their gender and place of residence. Inequality in access to quality schooling based on parental education and occupation is linked to low intergenerational mobility and highlight the need to break this trap with expanded investments in quality education.

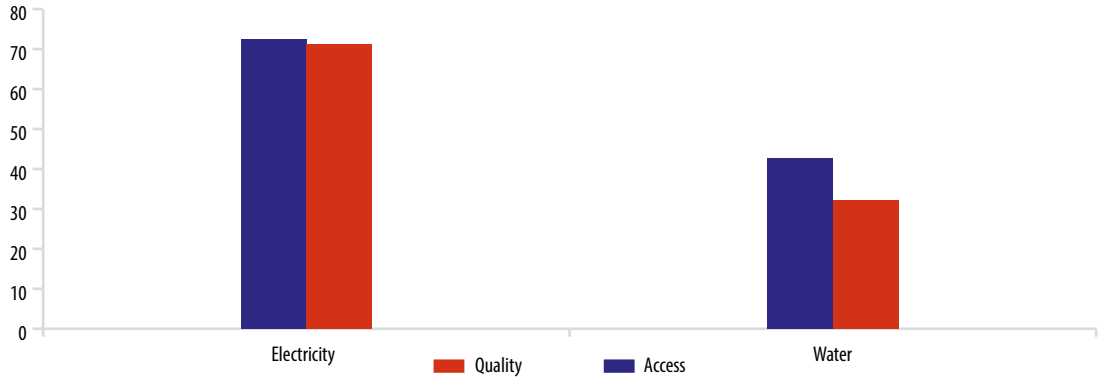
54 In order to construct this profile, we follow the methodology suggested by Hoyos and Narayan (2012), which is based on the decomposition proposed by Shorrocks (1999). The D-indexes for school enrollment and electricity are not decomposed as they are relatively low compared with the D-index of the other five opportunities.
55 Ferreira et al. (2012).

Figure 23. Quality of education is significantly lower and more unequal in LAC countries compared to more developed economies



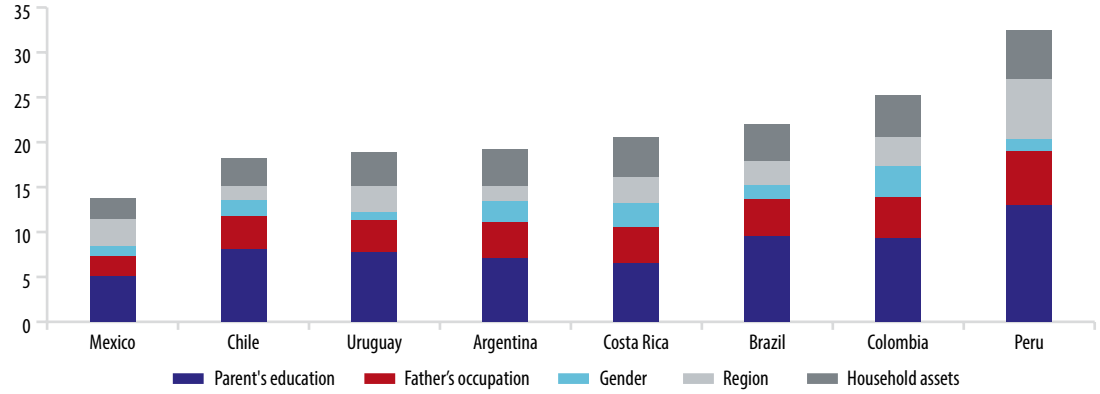
Source: Authors' calculations using PISA 2012 Data (OECD). Note: For methodological details on the HOI, see Annex 8.

Figure 24. Service outages may affect some groups more than others in Guatemala



Source: Calculations using SEDLAC (CEDLAS and World Bank). Note: The figure shows the HOI for Guatemala in 2011. For methodological details on the HOI, see Annex 8. The definition of access to water deviates from the one used in SEDLAC (see Box 6 for the definition of this variable). This graph measures HOI in two ways: "Access" refers to having access to either water or electricity at least one day in the past month, while "Quality" means that the household had water or electricity without more than seven days' outage over the past month.

Figure 25. A child's chances of doing well in school are dependent upon parental outcomes (D-Index decomposition of scores for mathematical proficiency level 2)



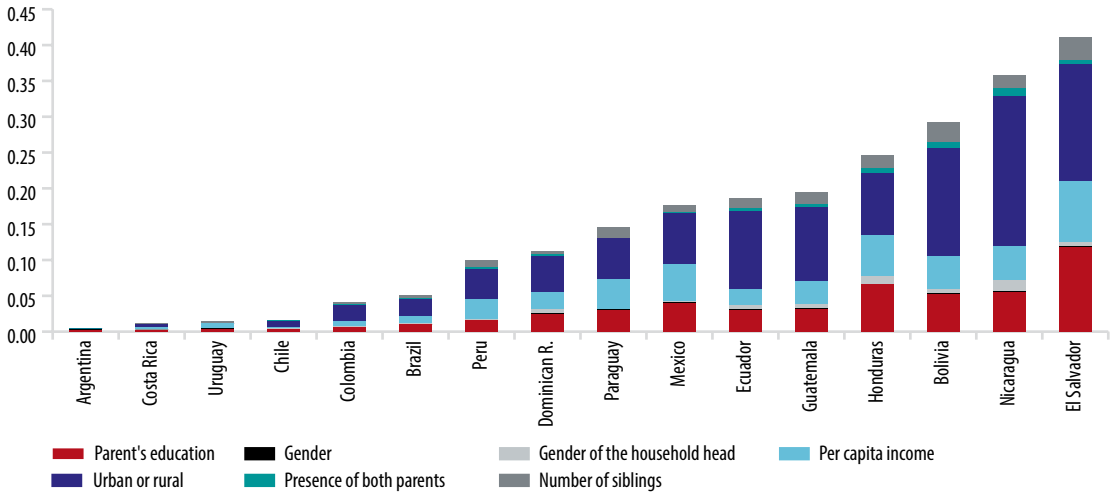
Source: PISA 2012 Data (OECD). Note: The figure shows the D-Index decomposition for LAC countries in 2012. For methodological details on the HOI estimation, see Annex 8.

Opportunities to live in a home with access to water appear heavily correlated with residence in a rural or urban area. Children living in a rural household have a much lower likelihood of having access to water, especially in Central American countries (except Costa Rica), the Andean countries and Paraguay, the Dominican Republic and Mexico. However, parental education and per capita income were also important determinants of a child living in a home with water. Rural-urban disparities in basic infrastructure, such as access to running water (Figure 26) and proper sanitation (Annex 9), highlight a need to target infrastructure programs in rural regions and to strengthen the capacity of local governments in these areas to deliver quality services.

Evolution of opportunities in LAC since 2000

Between 2000 and 2012, many LAC countries made significant progress in expanding access to basic goods and services. There has been some improvement in access to critical opportunities for children in LAC

Figure 26. Place of residence, parental education and per capita income affect a child's chances of living in a home with access to running water



Source: Calculations using SEDLAC data (CEDLAS and the World Bank). Note: The figure shows the D-Index decomposition for LAC countries in 2012, or the nearest year in cases in which 2012 data are unavailable. For methodological details on HOI measurement, see Annex 8. The definition of access to water deviates from the one used in SEDLAC (see Box 6 for the definition of these variables).

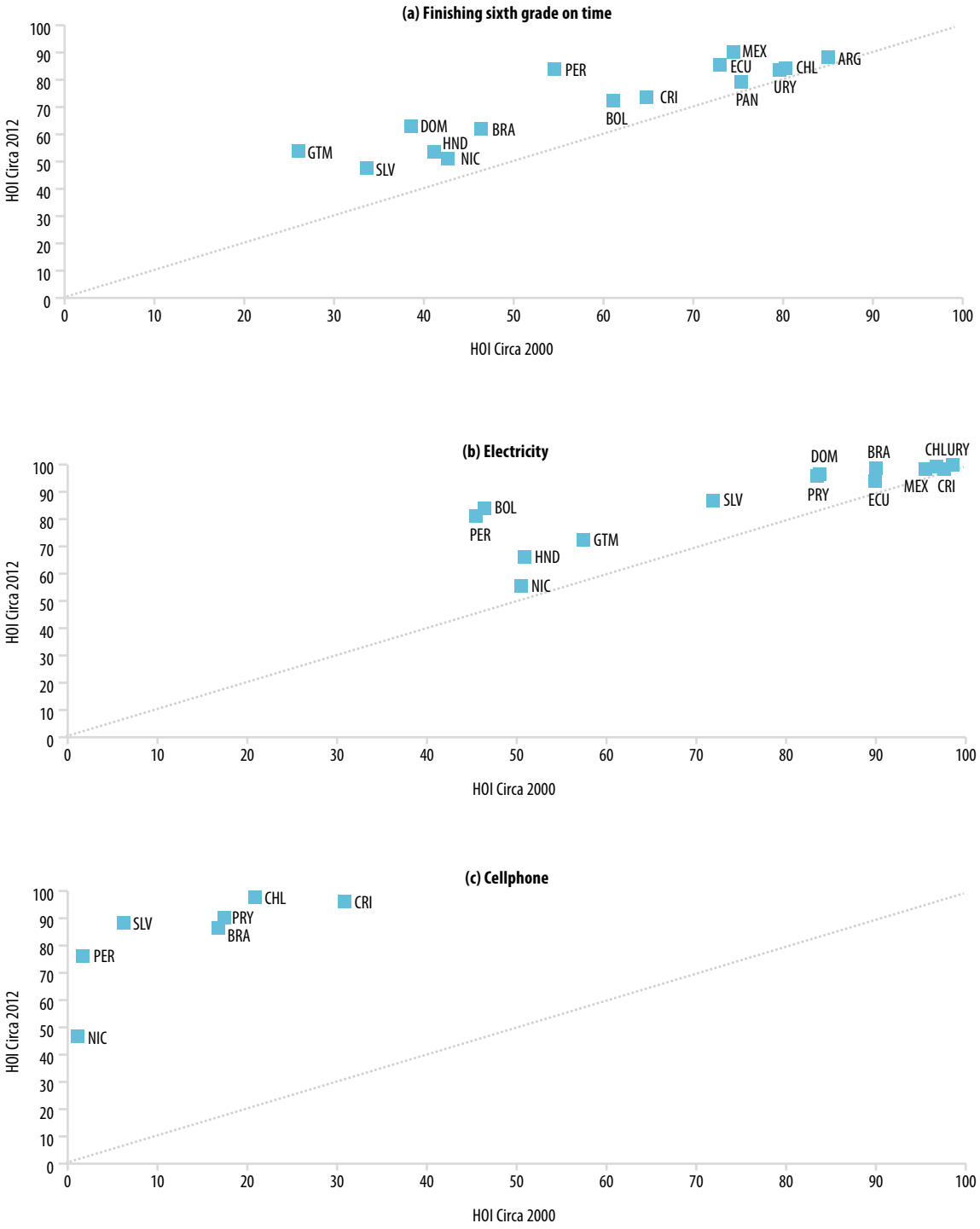
in last 12 years, most notably in completing sixth grade on time and especially access to electricity (Figures 27a and 27b). In general, countries with low initial levels of opportunities had the highest growth rates. Cellphone access was the most dynamic opportunity; its HOI increased dramatically in almost every country in LAC over the period, starting from a low level (less than 31 percent) in almost every country in the region for which information was available (Figure 27c).

Achieving equity in many childhood opportunities requires many years of public investment in social and physical infrastructure. For example, it took more than 30 years for Brazil to increase its HOI of school enrollment from 72 in 1981 to 98 in 2012 (Figure 28). At the same time, the HOI for finishing sixth grade on time increased by almost 46 points since 2003, but at about 62 remains far lower than the HOI for school enrollment.

Governments face increasing marginal costs as they approach universal access. Figure 28 shows declining growth in school enrollment and access to electricity in Brazil as the HOI nears 100 for each opportunity. This might be due to the fact that providing access to the hardest-to-reach and most disadvantaged segments of society often requires higher levels of resources given the higher fiscal costs to reach this group. Yet, due to the high correlation between parents' socioeconomic outcome and that of their children, it is exactly this group that most needs increased access to opportunities to escape intergenerational poverty traps.

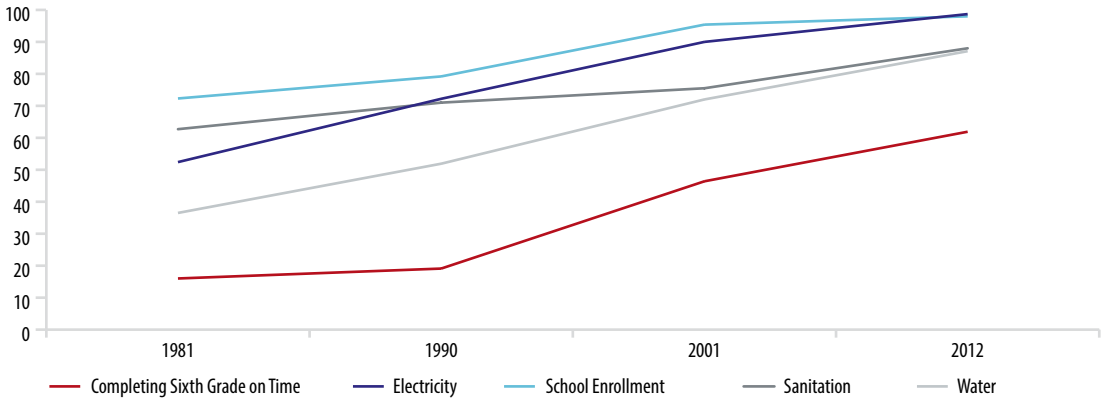
There are important differences within countries in ensuring equal chances for all children. In Brazil, for example, the poorest state of Maranhão has an HOI of access to running water of 59 percent (Figure 29). In contrast, the HOI for Rio Grande do Sul is 99 percent, which is higher than the national average and even higher than the HOI of Argentina, the best-performing country in LAC concerning access to running water. However, even while marked differences still exist across states in Brazil, there was notable increase in access to running water between 2000 and 2012.

Figure 27. Despite progress, marked disparities in access to opportunities still exist across LAC countries



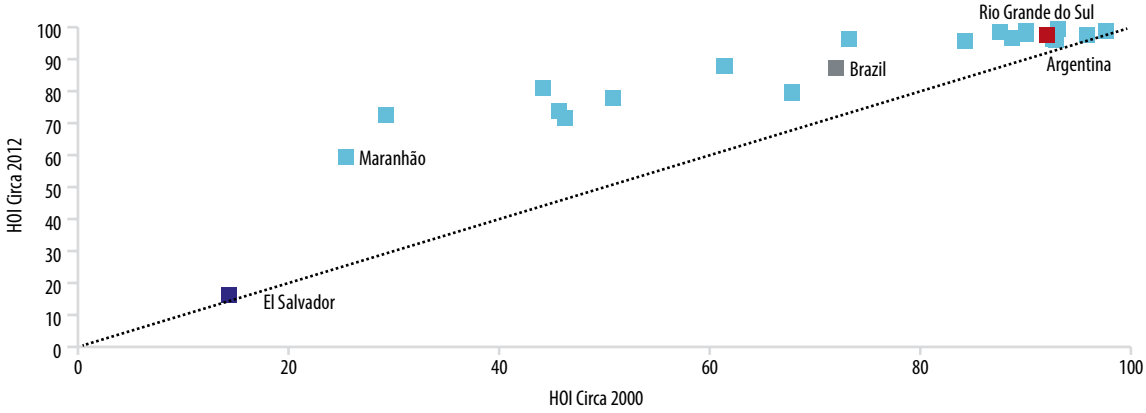
Source: Calculations using SEDLAC data (CEDLAS and the World Bank). Note: The figure shows the HOI for LAC countries in 2000 and 2012, or the nearest year in cases in which 2000 or 2012 data are not available. For methodological details, refer to Annex 8.

Figure 28. Long-run evolution of selected opportunities in Brazil, 1981 to 2012



Source: Calculations using SEDLAC data (CEDLAS and World Bank). Note: For methodological details on the HOI, see Annex 8. The definition of access to water and sanitation deviates from the one used in SEDLAC (see Box 6 for the definition of these variables).

Figure 29. Large differences in access to running water remain across states in Brazil



Source: Calculations using SEDLAC data (CEDLAS and the World Bank). Note: For methodological details on the HOI, see Annex 8. The definition of access to water deviates from the one used in SEDLAC (see Box 6 for the definition of these variables).

If countries in LAC maintain same performance in expanding access to basic opportunities of the last 12 years, many will likely reach universality by 2030, and some will achieve it even sooner. Six out of 16 countries have increased the HOI for finishing sixth grade on time at a faster rate than required to achieve universality by 2030 (Annex 10), assuming constant growth rates in the HOI which may be optimistic given increasing marginal costs as universality is approached. The situation is better for water—with nine out of 15—and sanitation—with 10 out of 15. However, prospects for many countries in Central America are less promising because they would need to grow at a much faster rate to achieve the goal. This is particularly worrisome as these are countries that have exceptionally low HOI levels and highly unequal opportunities for their children today.

Conclusion

LAC has performed well in recent years in mitigating poverty. Extreme poverty ($2.50 per capita a day) was cut in half between 2003 and 2012, while the middle class has continued growing and has surpassed the group living in poverty at $4 a day. In addition, strong income growth of the bottom 40 percent of the population –the World Bank's indicator for Shared Prosperity- has outpaced overall income growth in the region. However, modest economic growth prospects and a recent stagnation in the reduction of income inequality pose challenges for the continuation of these recent trends. GDP per capita is projected to grow at 1.7 percent for 2013-2015, compared to 2.5 during 2003-2012, while inequality halted its downward trend in 2011 and 2012. Assuming that poverty will continue to respond to growth as it did in the past decade, the annual rate of poverty reduction could decrease from about 1.8 percentage points between 2003 and 2012 to 0.8 percentage points for the next two years (2013-2014).

As global tailwinds recede and inequality declines wobble, the region needs to give greater attention to restoring higher rates of growth and ensuring its inclusiveness. This will require not only policies that promote growth, but also policies that enhance equity and accelerate poverty reduction and upward mobility through greater equality of opportunities. Greater growth combined with greater equity can also help the region to retain a stronger economic performance over the long run.[56]

The CEQ studies presented in this report suggest that fiscal policy remains an underutilized instrument to promote a more equitable LAC. The low levels of tax revenue in some countries combined with a high reliance on sales and value added taxes limit the potential for fiscal policy to support a more equal distribution of income and to adequately fund delivery of basic services.

56 Ravallion (2004), World Bank (2006), and Commission on Growth and Development (2008).

Reflecting the increased investments in service delivery, the equity adjusted coverage rates (HOI) document important gains in expanding basic education, housing and connectivity opportunities. However, they also reveal important quality issues and a strong role of family circumstances in determining a child's opportunity to have a quality education and access to basic services. In the long run, more equitable access to basic childhood opportunities may facilitate growth and faster poverty reduction in LAC by increasing human capital and innovation.

If the region is to maintain the economic and social momentum that characterized the last decade and helped it withstand the 2009 financial crisis, business as usual may not suffice. At a time when the region's growing middle class is demanding more and better quality services, and some of the region's deep rooted inequalities are becoming more trenchant both to citizens and policy makers – it is the opportune moment to put into place a more dynamic fiscal policy and effort to improve, not only access, but also the quality of access to basic services for children of all backgrounds.

Annex 1. Harmonized databases in LAC and estimation of regional poverty and inequality numbers

To track trends in poverty, inequality and unemployment across the region, it is important to have timely, reliable, transparent and comparable statistics. Since 1996, the Poverty and Gender Unit (LCSPP) of the Latin America and Caribbean Region (LAC) of the World Bank has been investing in statistics, providing targeted support to governments in the region to help improve the quality of statistics.

An important capstone of this effort is the partnership with the Center for Distributional Labor and Social Studies (CEDLAS) in the University of La Plata, Argentina, to support the Socio-Economic Database for LAC (SEDLAC http://sedlac.econo.unlp.edu.ar/eng/). This project allows for timely access to high-quality, harmonized databases of socio-economic and labor market statistics, covering more than 300 surveys.

This brief uses the harmonized SEDLAC data to provide the most accurate and comparable assessment of poverty and labor market trends in the region. The estimation of LAC poverty rates is based on microdata of 17 countries for which some database is available for the 2000s. These countries are Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Peru, Paraguay and Uruguay.

Regional poverty rates are population-weighted averages of country-specific poverty rates using international poverty lines. Whenever possible, annual household surveys from 2000 to 2012 have been used to estimate annual poverty rates. However, many countries do not conduct such surveys. To overcome this limitation, regional poverty rates have been estimated by generating artificial surveys using macroeconomic information on private consumption growth rates from the World Bank's World Development Indicators.

Because it does not satisfy group decomposability, the regional Gini coefficient cannot be computed as a population-weighted average of country-specific Gini coefficients. Instead, the regional Gini coefficient is computed based on pooled country-specific data previously collapsed into 4000 percentiles.

Annex 2. Household surveys used from SEDLAC harmonization for the HOI analysis

Table A.1. Household surveys used from SEDLAC harmonization for the HOI analysis

Country	Name of survey	Acronym	Circa 2000	Circa 2012	Coverage
Argentina	Encuesta Permanente de Hogares- Continua	EPH-C	2004	2012	Urban-31 Cities
Bolivia	Encuesta Continua de Hogares- MECOVI	ECH	2002	2012	National
Brazil	Pesquisa Nacional por Amostra de Domicilios	PNAD	2001	2012	National
Chile	Encuesta de Caracterización Socioeconómica Nacional	CASEN	2000	2011	National
Colombia	Gran Encuesta Integrada de Hogares	GEIH		2012	National
Costa Rica	Encuesta Nacional de Hogares	ENAHO	2004	2012	National
Dominican R.	Encuesta Nacional de Fuerza de Trabajo	ENFT	2000	2012	National
Ecuador	Encuesta de Empleo, Desempleo, y Subempleo	ENEMDU	2003	2012	National
El Salvador	Encuesta de Hogares de Propósitos Mútiples	EHPM	2000	2012	National
Guatemala	Encuesta Nacional de Condiciones de Vida	ENCOVI	2000	2011	National
Honduras	Encuesta Permanente de Hogares de Propósitos Mútiples	EPHPM	2001	2011	National
Mexico	Encuesta Nacional de Ingresos y Gastos de los Hogares	ENIGH	2000	2012	National
Nicaragua	Encuesta Nacional de Hogares Sobre Medición de Niveles de Vida	EMNV	2001	2009	National
Panama	Encuesta de Hogares	EH	2000	2012	National
Paraguay	Encuesta Permanente de Hogares	EPH	2001	2011	National
Peru	Encuesta Nacional de Hogares	ENAHO	2000	2012	National
Uruguay	Encuesta Continua de Hogares	ECH	2000	2012	Urban- Montevideo and Interior >5000 inhabitants

Annex 3. Poverty rates and Gini coefficients by country, 2007-2012

Table A.2. Extreme ($2.50 a day) and total poverty ($4 a day) by country, 2007-2012

	Extreme poverty						Total poverty					
	2007	2008	2009	2010	2011	2012	2007	2008	2009	2010	2011	2012
Argentina	8.8	8.2	8.0	6.1	4.6	4.7	19.5	17.3	16.3	14.1	11.6	10.8
Bolivia	30.8	22.8	20.6		16.2	17.0	47.8	40.4	35.0		29.2	29.5
Brazil	18.1	15.6	14.9		12.6	10.4	31.8	29.1	27.4		24.5	21.5
Chile			4.1		2.9				11.6		9.9	
Colombia		25.0	22.3	19.7	17.0	17.5		42.3	40.1	36.8	33.1	32.9
Costa Rica				4.5	5.1	4.7				12.7	13.0	12.2
Dominican Republic	17.9	18.4	16.4	16.1	14.0	14.6	36.4	37.9	34.7	35.1	33.3	33.3
Ecuador	19.8	19.3	18.9	15.9	13.6	12.9	38.1	36.8	37.1	33.4	29.5	27.8
El Salvador	15.2	20.2	19.0	19.7	16.5	14.7	35.7	41.0	39.2	39.3	37.8	34.8
Guatemala					41.1						63.1	
Honduras	37.0	34.0	31.3	34.0	37.4		56.0	52.1	50.0	53.3	56.4	
Mexico		13.2		12.5		11.4		27.9		28.0		27.6
Nicaragua			29.3						52.3			
Panama	18.3	16.7	12.3	13.2	11.6	11.8	32.2	28.8	25.3	24.0	21.2	20.9
Paraguay	19.7	17.3	18.1	16.3	14.4		38.7	35.7	33.0	30.7	27.7	
Peru	21.8	18.0	15.4	13.4	12.7	11.6	38.1	34.2	30.8	27.7	25.8	23.3
Uruguay	6.2	4.1	3.5	2.8	2.6	2.6	18.4	13.8	11.9	10.7	8.6	8.3

Source: Author's calculations using SEDLAC data (CEDLAS and the World Bank).

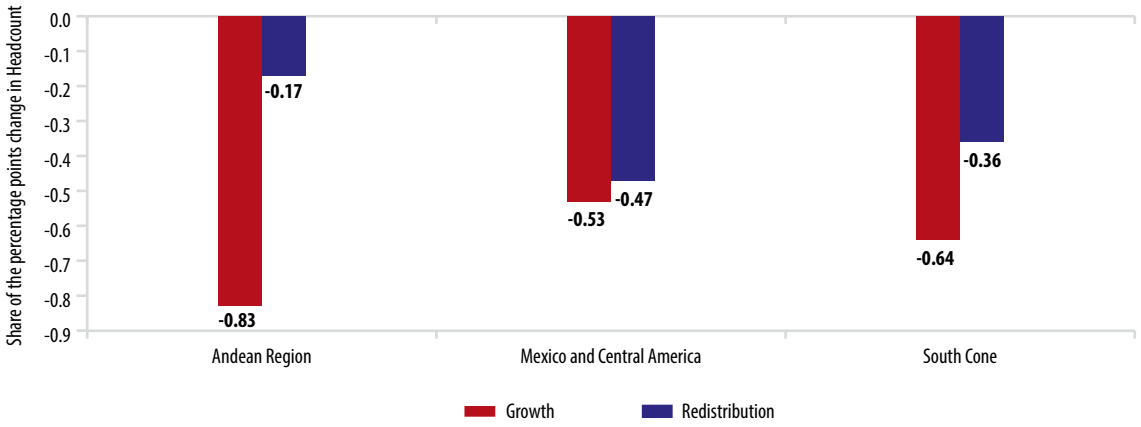
Table A.3. Gini coefficients by country, 2007-2012

	2007	2008	2009	2010	2011	2012
Argentina	0.474	0.463	0.452	0.445	0.436	0.425
Bolivia	0.554	0.514	0.497		0.463	0.466
Brazil	0.559	0.550	0.545		0.536	0.531
Chile			0.520		0.508	
Colombia		0.558	0.555	0.551	0.537	0.535
Costa Rica				0.481	0.486	0.486
Dominican Republic	0.487	0.490	0.489	0.472	0.474	0.457
Ecuador	0.543	0.506	0.493	0.493	0.462	0.466
El Salvador	0.452	0.466	0.459	0.445	0.424	0.418
Guatemala					0.538	
Honduras	0.562	0.557	0.516	0.534	0.574	
Mexico		0.506		0.478		0.494
Nicaragua			0.458			
Panama	0.533	0.527	0.520	0.519	0.518	0.519
Paraguay	0.521	0.510	0.497	0.518	0.526	
Peru	0.497	0.471	0.463	0.451	0.457	0.453
Uruguay	0.479	0.465	0.465	0.455	0.437	0.415

Source: Author's calculations using SEDLAC data (CEDLAS and the World Bank).

Annex 4. Datt-Ravallion decomposition of changes in total poverty by subregions

Figure A.1. Growth was the dominant source of poverty reduction in the Andean Region and the Southern Cone



Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: Estimates of poverty at the subregional level are population-weighted averages of country-specific poverty rates. The figure shows the Datt-Ravalion decomposition (Datt and Ravallion 1992) of poverty changes by subregions.

Annex 5. Profiles of the bottom 40 percent and the top 60 percent

Table A.4. Average characteristics of the bottom 40 percent in 2012

	Bottom 40	Top 60	Total
Household			
Per capita daily household income ($)	3.3	19.8	14.5
Live in urban area (%)	66.3	87.6	80.8
Age of household head	45.3	50.1	48.5
Years of education of household head	5.8	8.9	7.9
Household size	4.1	3.0	3.4
Labor force			
Female labor participation rate (25-65) (%)	45.5	63.7	57.2
Employee (%)	46.8	68.3	61.8
Unpaid Worker (%)	11.6	3.3	5.8
Unemployed (%)	10.1	4.1	5.9
Self-employed (%)	27.7	19.1	21.7
Employer (%)	3.8	5.2	4.8
Employment sector			
Public sector (%)	4.1	13.9	11.2
Private sector (%)	95.9	86.1	88.8
Primary sector (%)	33.5	8.7	15.9
Domestic services (%)	6.8	4.8	5.4
Retail (%)	23.0	26.3	25.4
Services (%)	12.1	31.3	25.8
Utilities (%)	4.7	7.0	6.3
Construction (%)	8.4	7.7	7.9
Manufacturing (%)	11.5	14.0	13.3

Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: The table shows the profile of the bottom 40 percent for LAC countries in 2012, or the nearest year in cases in which 2012 data are unavailable

Annex 6. Commitment to Equity

The Commitment to Equity (CEQ) project is a collaboration between Tulane University's Center for Inter-American Policy and Research (CIPR) and Department of Economics and the Inter-American Dialogue. Directed by Nora Lustig and Peter Hakim, CEQ seeks to analyze the impact of government fiscal policy on poverty and inequality in various countries around the globe. While this report includes data on only six countries from LAC, CEQ is currently conducting research on Argentina, Bolivia, Brazil, Chile, Colombia, Costa Rica, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Paraguay, Peru, the United States, Uruguay and Venezuela.

Using data from household surveys and national accounts,[57] CEQ tracks the impact of fiscal policy on poverty and inequality by imputing or calculating the effect of government intervention on household incomes.[58] This is tracked across five unique income concepts that capture the different types of government intervention. These income concepts are Market Income, Net Market Income, Disposable Income, Post-Fiscal Income and Final Income (see Box 3 for the definitions of each income concept).

While the results follow similar methodologies, different political and economic realities as well as data availability create some differences in the results. The level to which indirect taxes affect income is dependent on the level of informality in the country under examination. Due to different situations in each country, different assumptions were used in the calculation of the effect of indirect taxes. These assumptions may have overestimated the regressivity of indirect taxes in Brazil and Uruguay while underestimating it in Mexico and Peru.

A further limitation of the CEQ methodology is the manner in which in-kind transfers are determined. Due to the limitation in calculating the exact benefit derived by a specific household, the CEQ project uniformly attributes the benefit of an in-kind transfer to receiving households based on government expenditures from national accounts. For example, the average national expenditure per student on education (by type of education) is uniformly applied to households for each child enrolled in public education. This thus does not capture the differences between regions or the quality of these services.

The CEQ does not account for public spending and investment in infrastructure that has a significant impact on quality of life and labor opportunities, for example roads, water projects and electricity. This omission may result in underestimates of the progressivity of government fiscal policy. Furthermore, the CEQ analysis is static and thus does not analyze the long-term benefits of investing in education, healthcare and other infrastructure.

For more information on the CEQ project, visit www.commitmenttoequity.org.

57 The following household surveys were used: Argentina—Encuesta Permanente de Hogares, 1st semester of 2009; Bolivia—Encuesta de Hogares, 2009; Brazil—Pesquisa de Orçamentos Familiares, 2008-2009; Colombia—Encuesta Nacional de Condiciones de Vida para 2010; Mexico—Encuesta Nacional de Ingreso y Gasto de los Hogares, 2008; Peru—Encuesta Nacional de Hogares, 2009; and Uruguay—Encuesta Contínua de Hogares, 2009. Data on government revenues and spending are from each country's national accounts.

58 The method used to calculate the fiscal impact on households varies by country depending on data availability. See Lustig, Pessino and Scott (2014).

Annex 7. Commitment to Equity results

Table A.5. Effects of government fiscal policy on inequality

Country	Market income	Net market income	Disposable income	Post-fiscal income	Final income
Argentina		0.489	0.447		
Bolivia	0.503	0.503	0.493	0.503	0.446
Brazil	0.579	0.565	0.544	0.546	0.439
Mexico	0.511	0.497	0.488	0.481	0.429
Peru	0.504	0.498	0.494	0.492	0.466
Uruguay	0.492	0.478	0.457	0.459	0.393

Source: Lustig and Pessino (2014), Paz Arauco et al. (2014), Higgins and Pereira (2014), Scott (2014), Jaramillo (2014), Bucheli et al. (2014). Note that taxation information is unavailable for the CEQ study on Argentina. ©The CEQ Compendium of Indicators presented here is the property of the Tulane Educational Fund and the Inter-American Dialogue.

Table A.6. Concentration coefficients

		Argentina	Bolivia	Brazil	Mexico	Peru	Uruguay
Taxes	Kakwani coefficient		-0.132	0.016	0.111	0.080	0.068
Flagship CCTs	Concentration coefficient	-0.513	-0.254	-0.578	-0.536	-0.651	-0.611
Education	Concentration coefficient	-0.167	-0.0184	-0.154	-0.087	-0.170	-0.110
Health	Concentration coefficient	-0.37	-0.0447	-0.119	0.036	0.180	-0.103

Source: Lustig and Pessino (2014), Paz Arauco et al. (2014), Higgins and Pereira (2014), Scott (2014), Jaramillo (2014), Bucheli et al. (2014). ©The CEQ Compendium of Indicators presented here is the property of the Tulane Educational Fund and the Inter-American Dialogue.

Table A.7. Incidence of government spending on the bottom 40%, as a percentage of total spending by category of spending

Concept	Decile	Argentina	Bolivia	Brazil	Mexico	Peru	Uruguay
Taxes	1		2.3	1.1	0.6	0.7	1.5
	2		3.8	1.8	1.1	1.3	2.1
	3		5.1	2.5	1.9	2.3	2.8
	4		6.4	3.3	2.5	3.5	3.6
	Bottom 40%		17.7	8.7	6.2	7.8	10.0
Flagship CCT	1	28.2	15.8	31.9	32.8	41.2	37.6
	2	25.6	14.8	25.4	20.5	25.1	26.1
	3	15.0	13.7	17.6	16.5	16.4	14.7
	4	10.8	13.6	10.9	11.1	8.1	8.7
	Bottom 40%	79.7	57.9	85.7	80.9	90.7	87.1
Education	1	12.8	10.0	15.7	11.5	13.8	14.4
	2	15.0	9.9	13.4	11.2	12.9	12.5
	3	12.8	10.1	12.0	11.4	12.8	11.1
	4	11.7	10.6	11.0	11.1	12.1	10.3
	Bottom 40%	52.4	40.6	52.1	45.1	51.6	48.2
Health	1	20.4	9.6	10.5	9.1	5.7	12.4
	2	20.3	10.3	11.3	9.3	6.2	12.0
	3	15.2	13.8	11.6	9.5	6.9	11.7
	4	12.2	10.0	12.2	9.7	8.3	11.1
	Bottom 40%	68.1	43.6	45.6	37.5	27.1	47.2

Source: Lustig and Pessino (2014), Paz Arauco et al. (2014), Higgins and Pereira (2014), Scott (2014), Jaramillo (2014), Bucheli et al. (2014). Note that taxation information is unavailable for the CEQ study on Argentina. The flagship CCT programs included in the analyses were (1) in Argentina: Asignación Universal por Hijo, Jefes y Jefas de Hogar Desocupados, Programa Familias para la Inclusión Social, and Programa Nacional de Becas Estudiantiles; (2) in Bolivia: Bono Juancito Pinto and Bono Juana Azurduy; (3) in Brazil: Bolsa Família; (4) in Mexico: Oportunidades; (5) in Peru: Juntos; and (6) in Uruguay: AFAM - Asignaciones Familiares (Plan de Equidad).

Annex 8. The Human Opportunity Index[59]

The Human Opportunity Index (HOI) was originally developed by Barros et al. (2009). The index empirically considers two concepts: the average coverage of a basic good or service and the inequality in the distribution of the good or service across circumstances. To accomplish this, the HOI discounts from the overall rate of coverage *(C)* a penalty *(P)* that is associated with inequality in the provision of opportunities considered.

(A.1) $$HOI = C - P$$

Coverage *C* represents the proportion of members who have access to the good or service under consideration, while the penalty *P* represents the inequality in the provision of this opportunity. Therefore, the HOI measures the proportion of members with access to certain goods and services and penalizes the measure for the degree of inequality in access to such opportunities.

The penalty is chosen such that it is zero if coverage rates of all groups or circumstances are the same, while it is positive and increases if inequality between different sets of circumstances increases. The calculation of the penalty requires identifying the coverage rates of those groups that have below average access to the opportunity under consideration. The penalty is calculated as the average of the gaps in opportunities for these groups.

(A.2) $$P = \sum_{k=1}^{v} \alpha_k |C - C_k|$$

where *k* denotes a particular set of circumstances, *v* denotes the total number of groups with below average access, α_k the relative share of group *k* in the sample circumstances, and C_k the coverage corresponding to group *k* circumstances. Therefore, the penalty *P* indicates how much of the overall coverage *C* should be reassigned to members of groups with low coverage rates so that everyone has an equal chance of accessing the same opportunities. It is precisely this penalty which is subtracted from the overall rate of coverage *C* for the HOI.

The penalty and the HOI can both be expressed in terms of the dissimilarity index *(D)*. Thus the penalty index can be expressed as $P = C * D$, whereupon the HOI can be expressed as

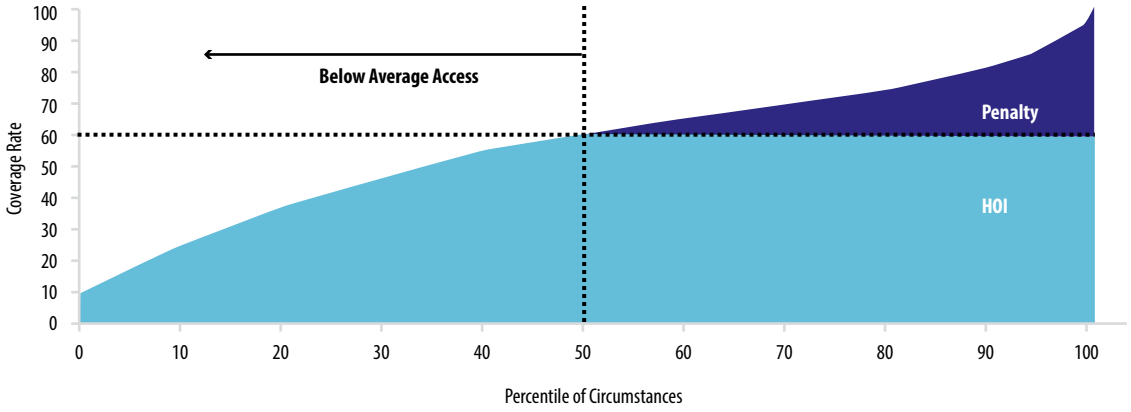
(A.3) $$HOI = C * (1 - D) = C * \left(1 - \frac{P}{C}\right)$$

Intuitively, *D* represents the fraction of opportunities that needs to be reallocated to achieve a complete equality in the provision of a certain good or service.

Figure A.1 introduces a graphical representation of the HOI. In this example, the overall coverage rate is 59 percent and it is represented by the horizontal dashed line. However allocation of opportunities in the graph depends on the percentile of circumstances represented by the horizontal axes. For example, the 10th percentile has a coverage of about 20 percent, while the 50th percentile has a coverage of about 60 percent. Allocations of the opportunities above the horizontal dashed line (the blue area) represent a violation to the equality of opportunities and are considered a penalty. Therefore, the HOI is the overall coverage (the area below the horizontal dashed line) minus the penalty and it is represented by the light blue area in the graph.

59 This section largely relies on Molinas et al. (2012).

Figure A.1: Graphical representation of the HOI



The HOI can be estimated in the following five steps:[60]

a. Estimate a logit model of the probability of accessing an opportunity, where the dependent variable is the opportunity (access to water, sanitation, completing 6th grade on time, etc.) and the independent variables are the circumstances (gender, parents' income, place of residence, etc.).

b. Obtain the predicted probabilities of the logit model for each individual:

(A.4) $$\hat{p}_i = \frac{Exp\left(\hat{\beta}_0 + \sum_{k=1}^{m} x_{ki}\hat{\beta}_k\right)}{1 - Exp\left(\hat{\beta}_0 + \sum_{k=1}^{m} x_{ki}\hat{\beta}_k\right)}$$

where $\hat{p}_i$ is the estimated probability that child *i* has of accessing the opportunity under analysis, x_{ki} is a vector of circumstances *k* of individual *i*, and $\hat{\beta}_k$ is the parameter estimate related to circumstance *k*.

c. Calculate the overall coverage *C*:

(A.5) $$\hat{C} = \sum_{i=1}^{n} \varpi_i \hat{p}_i$$

where ϖ_i is a sampling weight and *n* is the number of observations.

d. Estimate the inequality D-index:

(A.6) $$\hat{D} = \frac{1}{2\hat{C}} \sum_{i=1}^{n} \varpi_i \left|\hat{p}_i - \hat{C}\right|$$

e. Estimate the HOI:

(A.7) $$HOI = \hat{C}(1 - \hat{D})$$

60 HOI estimates in this report are obtained using STATA software and a routine available through the publicly-available ado file called "hoi" (see Azevedo et al. 2010).

Table A.8: HOI by opportunity

(a) School enrollment				
Country	**Circa 2000**		**Circa 2012**	
	HOI	**D-Index**	**HOI**	**D-Index**
Argentina	97.6	0.5	98.4	0.2
Bolivia	90.8	2.2	96.0	1.1
Brazil	95.4	1.0	98.0	0.4
Chile	97.9	0.6	99.1	0.2
Colombia			93.8	1.1
Costa Rica	92.6	1.8	95.5	1.1
Dominican R.	96.9	0.7	96.7	0.8
Ecuador	84.2	4.0	95.0	1.3
El Salvador	83.3	4.3	92.3	2.1
Guatemala	73.7	5.9	86.6	2.6
Honduras	78.7	5.0	81.5	3.6
Mexico	89.7	2.6	93.2	1.5
Nicaragua	81.1	5.1	79.9	4.9
Panama	94.5	1.5	96.1	1.0
Paraguay	89.5	2.7	94.7	1.5
Peru	93.8	1.6	96.9	1.0
Uruguay	94.3	1.5	96.6	0.7

Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: The table shows HOI for LAC countries in 2000 and 2012, or the nearest year in cases in which 2000 or 2012 data are unavailable.

Table A.8: HOI by opportunity (cont.)

(b) Completion of sixth grade on time				
Country	**Circa 2000**		**Circa 2012**	
	HOI	**D-Index**	**HOI**	**D-Index**
Argentina	85.0	3.2	88.2	2.3
Bolivia	61.1	12.2	72.3	6.6
Brazil	46.4	18.7	61.9	10.1
Chile	80.3	4.0	84.2	2.5
Colombia			55.5	12.6
Costa Rica	64.8	9.2	73.6	6.4
Dominican R.	38.6	20.1	63.5	10.3
Ecuador	73.0	7.3	85.4	3.4
El Salvador	33.6	22.2	51.6	12.0
Guatemala	26.0	30.0	53.8	12.9
Honduras	41.1	17.2	53.6	11.3
Mexico	74.5	7.5	90.3	2.5
Nicaragua	42.7	21.4	51.0	15.7
Panama	75.3	6.3	79.3	5.8
Paraguay	48.1	14.9	73.0	7.4
Peru	54.5	13.0	83.9	4.3
Uruguay	79.6	4.8	83.6	4.2

Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: The table shows HOI for LAC countries in 2000 and 2012, or the nearest year in cases in which 2000 or 2012 data are unavailable.

Table A.8: HOI by opportunity (cont.)

(c) Electricity				
Country	**Circa 2000**		**Circa 2012**	
	HOI	**D-Index**	**HOI**	**D-Index**
Argentina				
Bolivia	46.4	25.1	83.9	6.5
Brazil	90.0	4.3	98.7	0.6
Chile	96.7	1.5	99.4	0.2
Colombia			93.1	2.9
Costa Rica	97.6	1.0	98.3	0.6
Dominican R.	83.7	6.5	96.9	1.3
Ecuador	89.9	3.9	94.1	2.2
El Salvador	71.9	10.5	88.3	4.0
Guatemala	57.4	15.0	72.4	8.9
Honduras	50.9	21.9	66.0	12.9
Mexico	95.5	1.7	98.3	0.7
Nicaragua	50.5	21.6	55.5	20.7
Panama				
Paraguay	83.4	5.9	96.6	1.3
Peru	45.5	27.5	81.0	8.1
Uruguay	98.5	0.5	99.8	0.1

Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: The table shows HOI for LAC countries in 2000 and 2012, or the nearest year in cases in which 2000 or 2012 data are unavailable.

Table A.8: HOI by opportunity (cont.)

(d) Water				
Country	**Circa 2000**		**Circa 2012**	
	HOI	**D-Index**	**HOI**	**D-Index**
Argentina	92.0	2.0	97.6	0.6
Bolivia	12.2	41.3	27.5	29.3
Brazil	72.0	11.3	87.1	5.1
Chile	84.8	6.1	93.4	1.6
Colombia			87.5	4.1
Costa Rica	93.4	2.0	96.3	1.2
Dominican R.	63.1	12.2	63.2	11.2
Ecuador	48.2	21.2	57.5	18.6
El Salvador	14.4	46.4	17.3	41.1
Guatemala	38.4	20.5	42.6	19.4
Honduras	16.5	32.8	27.9	24.6
Mexico	37.8	27.6	50.8	17.7
Nicaragua	10.5	42.1	24.4	35.8
Panama				
Paraguay	24.9	36.6	47.1	14.6
Peru	42.8	18.6	64.0	10.0
Uruguay	88.6	3.9	96.1	1.4

Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: The table shows HOI for LAC countries in 2000 and 2012, or the nearest year in cases in which 2000 or 2012 data are unavailable. Access to water and sanitation was calculated using non-harmonized versions of the household surveys (see Box 6 for definitions).

Table A.8: HOI by opportunity (cont.)

(e) Sanitation				
Country	**Circa 2000**		**Circa 2012**	
	HOI	**D-Index**	**HOI**	**D-Index**
Argentina	59.4	13.5	72.2	7.9
Bolivia	20.9	36.5	37.0	30.0
Brazil	75.5	8.9	88.0	4.0
Chile	75.3	10.0	88.3	1.6
Colombia			79.7	7.8
Costa Rica	88.8	4.0	94.9	1.9
Dominican R.	37.4	27.3	56.1	16.9
Ecuador	68.8	11.7	87.3	4.9
El Salvador	13.8	47.2	17.1	41.6
Guatemala	11.9	49.7	23.5	38.0
Honduras	34.8	23.0	30.0	31.1
Mexico	57.8	18.6	80.3	7.6
Nicaragua	38.2	18.1	35.6	20.1
Panama				
Paraguay	35.9	30.7	56.9	18.3
Peru	37.4	28.9	64.4	11.9
Uruguay	99.3	0.2	98.6	0.5

Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: The table shows HOI for LAC countries in 2000 and 2012, or the nearest year in cases in which 2000 or 2012 data are unavailable. Access to water and sanitation was calculated using non-harmonized versions of the household surveys (see Box 6 for definitions).

Table A.8: HOI by opportunity (cont.)

(f) Cellphone				
Country	**Circa 2000**		**Circa 2012**	
	HOI	**D-Index**	**HOI**	**D-Index**
Argentina				
Bolivia			86.5	4.5
Brazil	16.8	35.3	86.6	4.8
Chile	20.9	30.2	97.6	0.5
Colombia			91.5	2.5
Costa Rica	30.8	25.1	96.3	1.0
Dominican R.			67.3	4.3
Ecuador			85.9	3.9
El Salvador	6.2	34.4	91.8	2.0
Guatemala	3.0	57.0		
Honduras			82.4	4.4
Mexico			68.3	10.2
Nicaragua	1.1	53.0	46.6	19.3
Panama				
Paraguay	17.4	31.2	90.2	2.7
Peru	1.7	50.0	76.3	7.9
Uruguay			96.9	0.9

Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: The table shows HOI for LAC countries in 2000 and 2012, or the nearest year in cases in which 2000 or 2012 data are unavailable.

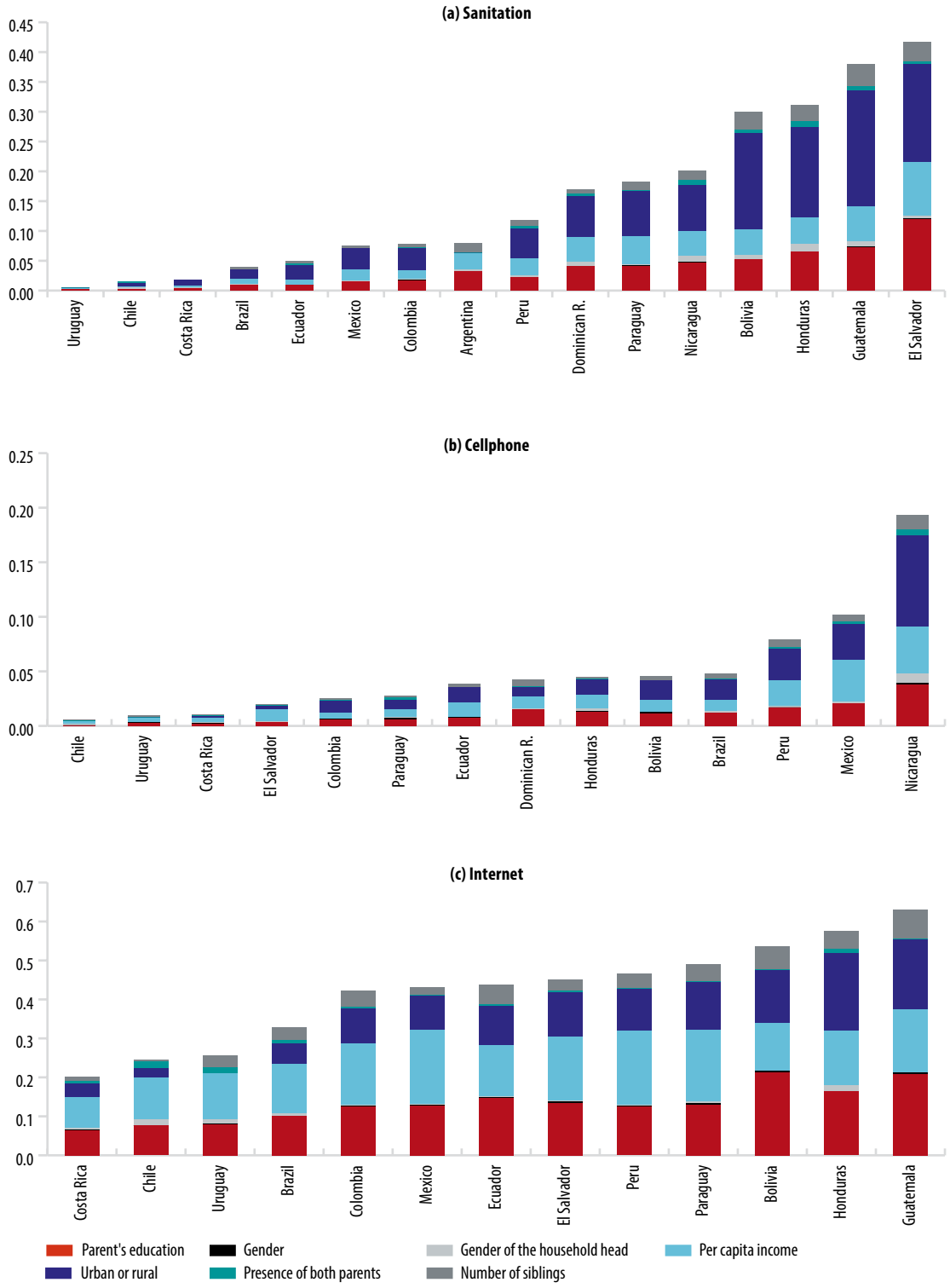
Table A.8: HOI by opportunity (cont.)

(g) Internet				
Country	**Circa 2000**		**Circa 2012**	
	HOI	**D-Index**	**HOI**	**D-Index**
Argentina				
Bolivia			3.8	53.6
Brazil	1.9	68.6	25.1	32.7
Chile	3.1	56.5	32.0	24.5
Colombia			12.5	42.3
Costa Rica			39.2	20.2
Dominican R.				
Ecuador			11.1	43.8
El Salvador			8.7	45.2
Guatemala	0.1	85.9	1.8	63.0
Honduras			3.9	57.5
Mexico			10.5	43.1
Nicaragua				
Panama				
Paraguay	0.1	91.0	9.4	49.0
Peru	0.1	74.7	9.3	46.6
Uruguay			38.2	25.5

Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: The table shows HOI for LAC countries in 2000 and 2012, or the nearest year in cases in which 2000 or 2012 data are unavailable.

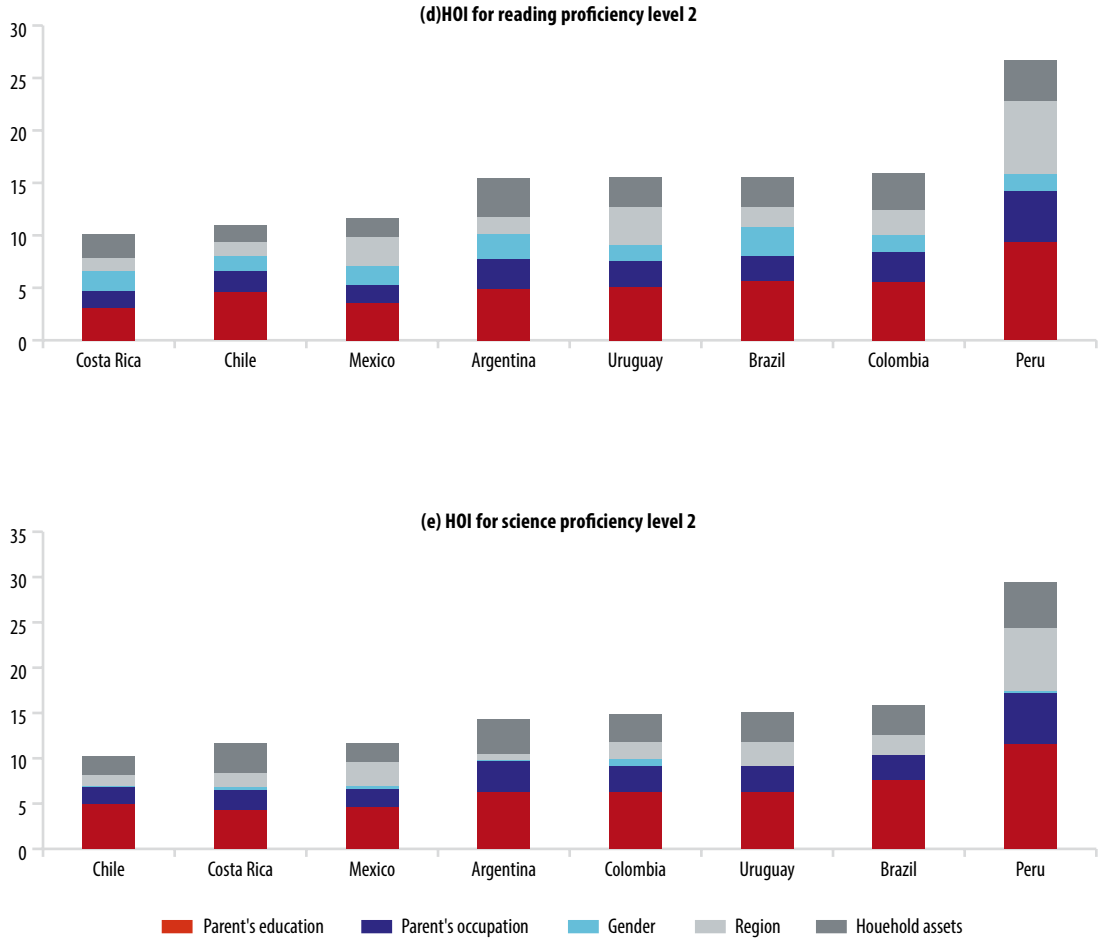
Annex 9. D-Index Decomposition

Figure A.2. Decomposition of inequality to access to basic goods and services in LAC in 2012



Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank) in panels (a), (b), and (c), and PISA 2012 data (OECD) in panels (d) and (e). Note: The figures in panels (a), (b), and (c) show the decomposition of the D-index for LAC countries in 2012, or the nearest year in cases in which 2012 data are unavailable. Access to sanitation was calculated using non-harmonized versions of the household surveys (see Box 6 for definitions).

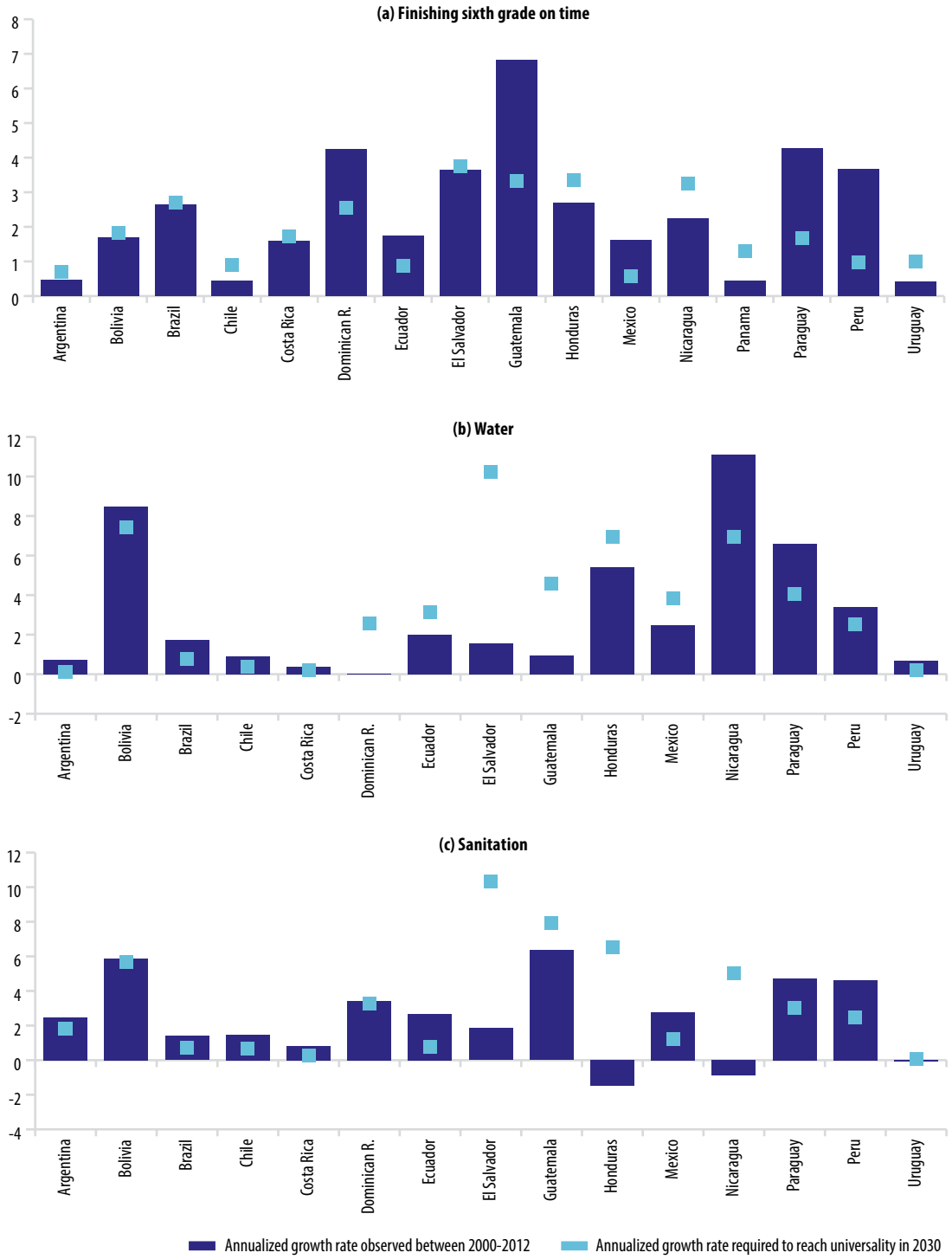
Figure A.2. Decomposition of inequality to access to basic goods and services in LAC in 2012 (cont.)



Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank) in panels (a), (b), and (c), and PISA 2012 data (OECD) in panels (d) and (e). Note: The figures in panels (a), (b), and (c) show the decomposition of the D-index for LAC countries in 2012, or the nearest year in cases in which 2012 data are unavailable. Access to sanitation was calculated using non-harmonized versions of the household surveys (see Box 6 for definitions).

Annex 10. Years Required to Reach Universality in Access to Basic Opportunities

Figure A.3. Many countries will likely reach universality in access to basic opportunities by 2030



Source: Authors' calculations using SEDLAC data (CEDLAS and the World Bank). Note: The figure presents the annualized growth rate observed between 2000 and 2012 and the annualized growth rate that is required to reach universality by 2030. Access to water and sanitation was calculated using non-harmonized versions of the household surveys (see Box 6 for definitions). For methodological details on the HOI, see Annex 8.

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