SHORT AND LONG-RUN DISTRIBUTIONAL IMPACTS OF COVID-19 IN LATIN AMERICA

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COMMITMENT TO EQUITY

CEQ INSTITUTE
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Tulane University

Working Paper 96
October, 2020

The CEQ Working Paper Series

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OCTOBER 2020

ABSTRACT

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JEL Codes: C63, D31, I24, I32, I38, J62

Keywords: COVID-19, lockdowns, inequality, poverty, human capital, school closures, social spending, intergenerational persistence, Latin America, Argentina, Brazil, Colombia, Mexico

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This paper was prepared as part of the Commitment to Equity Institute's country-cases research program and benefitted from the generous support of the Bill & Melinda Gates Foundation. For more details, click here www.ceqinstitute.org.

Short and Long-Run Distributional Impacts of COVID-19 in Latin America*

Nora Lustig (Tulane University)

Guido Neidhöfer (ZEW Mannheim)

Mariano Tommasi (Universidad de San Andrés)

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I. Introduction

In the last twenty-five years, Latin America experienced progress in reducing inequality and poverty, and their intergenerational persistence.[1] The COVID-19 pandemic puts this progress at a serious risk. By October 2020, Argentina, Brazil, Colombia, Mexico, and Peru were among the top ten countries in terms of infections. Brazil, Ecuador, Mexico, and Peru were also among the top ten in terms of deaths per hundred thousand inhabitants.[2] To contain the spread of the virus, governments implemented lockdown policies of various degrees. In addition, as individuals took their own precautions to avoid contagion, demand for many goods and services fell. Compounded by the fall in exports, tourism and capital inflows triggered by the global economic meltdown, these dislocations in domestic demand and supply have caused sharp reductions in output, employment, and income.[3] As a consequence, inequality and poverty – both in income and non-income dimensions – are on the rise.[4] The mitigation measures have also involved massive school closures. If children from poor households are not able to adequately replace regular classes by home schooling, the pandemic could have a lasting impact on intergenerational mobility and equality of opportunity.

In this paper, we estimate the short- and long-term distributional consequences of the pandemic in the four largest Latin American economies: Argentina, Brazil, Colombia and Mexico. In particular, we project the short-term effects on inequality and poverty by simulating potential income losses at the household level using microdata from household surveys and information on the sectoral effects of lockdowns. For the long-run effects, we simulate the impact of school closures and other short-term shocks on the accumulation and allocation of human capital and its intergenerational persistence.

Our microsimulations suggest that the short-term impact on income inequality and poverty can be very significant, but that additional spending on social assistance might have a large offsetting effect in Brazil and Argentina. The effect is much smaller in Colombia and nil in Mexico, where there has been no such expansion. Compared to their pre-shock income, households across the entire income distribution are worse off on average after the lockdowns. Somewhat surprisingly, the losses tend to be higher for the middle deciles rather than the poorest. The middle deciles include the moderate poor, the non-poor households who are vulnerable to fall below the poverty line if subject to a shock, and also households in the middle-class.

Changes in income, however, are not equivalent to changes in welfare. While incomes may be falling across the distribution, those in the upper echelons are likely to be able to smooth their consumption while those at the bottom are not. And even if middle-class households are unable to protect their

[1] See, for example, Lopez-Calva and Lustig (2010), Lustig (forthcoming), Neidhöfer, Serrano, and Gasparini (2018), and Neidhöfer (2019).
[2] https://coronavirus.jhu.edu/data/mortality.
[3] According to IMF (2020) and ECLAC (2020), the region's GDP could contract in 2020 by 9.4 and 9.1 percent, respectively.
[4] See, for example, Bottan, Hoffman, and Vera-Cossio (2020); Brussevich, Dabla-Norris, and Khalid (2020); Busso and Messina (2020); Egger et al. (2020); INEGI (2020); Lustig et al. (2020); Lustig and Martinez Pabon (forthcoming); OPHI-UNDP (2020); Universidad Iberoamericana (2020).

previous levels of consumption, they are not likely to get trapped in poverty. In contrast, small income falls may be devastating for the extreme poor. Furthermore, the chronic poor have been experiencing the exacerbation of multiple non-income deprivations during the pandemic.[5] The poor tend to live in overcrowded spaces and lack access to water and sanitation, which makes it particularly hard for them to follow the epidemiological recommendations to prevent contagion. Stressful situations, domestic violence and child abuse, which correlate with housing conditions, also become more prevalent under lockdown measures. The poor also suffer disproportionally from service disruptions caused by the pandemic, in dimensions such as food access, health care, schools, and early childhood services

Modern development literature emphasizes the permanent effects that temporary shocks can have on the lives of infants, children, and teenagers.[6] Circumstances such as child malnutrition, interruptions to schooling, and traumatic experiences occurring at some point in life, often have irreversible effects. The significant effect that this situation is having on the human capital of the children and youngsters in poor households will have long lasting effects on their human development, and hence on future poverty and inequality. The negative effects may even linger for decades.[7]

In this paper, we attempt to estimate the potential effects that the pandemic may have on one dimension of human capital – namely school achievements – and how these effects differ across the distribution. More precisely, to project the long-term consequences of the pandemic, we simulate the impact of school closures, combined with parental job loss and health shocks, on the accumulation and allocation of human capital and its intergenerational persistence. Hereby, we account for the cushioning effect of the educational online and offline mitigation interventions in each country on instructional losses. Our findings show that in all four countries the impact is strongly asymmetric and affects particularly the human capital of disadvantaged children, leading to substantial decreases in secondary school completion rates. Consequently, educational inequality and inequality of opportunity are expected to increase substantially, in spite of the mitigation policies. We conclude that, besides short-term interventions to cushion the immediate impact of the economic crisis, more effort and targeted policies are necessary to reduce the potential long lasting consequences of the pandemic on the human capital of the most vulnerable.

II. The Short-Term Distributional Impact of COVID-19

In this section, we analyze the impact of lockdown policies on incomes across the socioeconomic ladder, poverty, and inequality in the four largest countries in Latin America: Argentina, Brazil,

[5] See Lustig and Tommasi (2020b), Busso and Messina (2020), as well as section III below for references.

[6] See for instance the comprehensive summary in Heckman and Mosso (2014).

[7] See Lustig (2000) for the short and long-term effects of macroeconomic crises (this article--Lustig's LACEA's Presidential Address--appeared in Economia's inaugural issue). See, for example, Skoufias (2003) for the effects, coping strategies, and policy implications of both economic crises and natural disasters. For the long-term human capital effects of the 1918 pandemic, see, for example, Almond (2006). For a recent summary of the potential effects of the COVID-19 crisis on children in primary and secondary education, see e.g. Garcia Jaramillo (2020).

Colombia, and Mexico.[8] We assess the extent to which expanded social assistance measures offset potential income losses. Several authors have estimated the potential impact of the pandemic-related economic shocks on poverty in Latin America for 2020. Many studies assume that the income losses are proportionally equal across the income distribution.[9] However, the assumption that the distribution of income remains constant during the implementation of lockdown measures is a strong one. Real time telephonic surveys suggest that poorer and informal sector workers lost their employment and income in larger proportion during the COVID-19 crisis.[10] Few studies on the poverty impact allow for distributional changes, while none of these studies incorporates the mitigating effects of expanded and new social assistance programs.[11] Drawing from Lustig et al. (2020), we use microsimulation to estimate the distributional consequences of COVID-19-induced lockdown policies and simulate the effects of most of the expanded social assistance that governments have introduced in Argentina, Brazil, Colombia and Mexico.

Composition of Pre-Crisis Income

The distributional impacts are estimated by simulating potential income losses at the household level using microdata from household surveys.[12] The simulations first identify individuals whose income is "at risk" because they work in sectors in which the lockdowns have reduced or eliminated activity.[13] The welfare indicator used is gross income, defined as labor income plus rents, private transfers, pensions, and government cash transfers before any direct taxes.[14] At the household level, the at-risk incomes also include rental incomes and incomes of informal street vendors (regardless of the sector in which they work). Incomes from government sources such as cash transfers programs, social security pensions, and employment in the public sector as well as private transfers (e.g., remittances) are assumed not to be affected by the lockdowns. Finally, incomes of white-collar workers who are CEO's, managers and researchers with internet access at home are excluded from the at-risk category

[8] The results in this section are based on Lustig et al. (2020).

[9] See, for example, Gerszon Mahler et al. (2020), Sumner, Hoy, and Ortiz-Juarez (2020), and Valensisi (2020).

[10] See, for example, Bottan, Hoffman, and Vera-Cossio (2020); Brussevich, Dabla-Norris, and Khalid (2020); Busso and Messina (2020); INEGI (2020); Universidad Iberoamericana (2020).

[11] See, for example, ECLAC (2020) and Vos, Martin, and Laborde (2020).

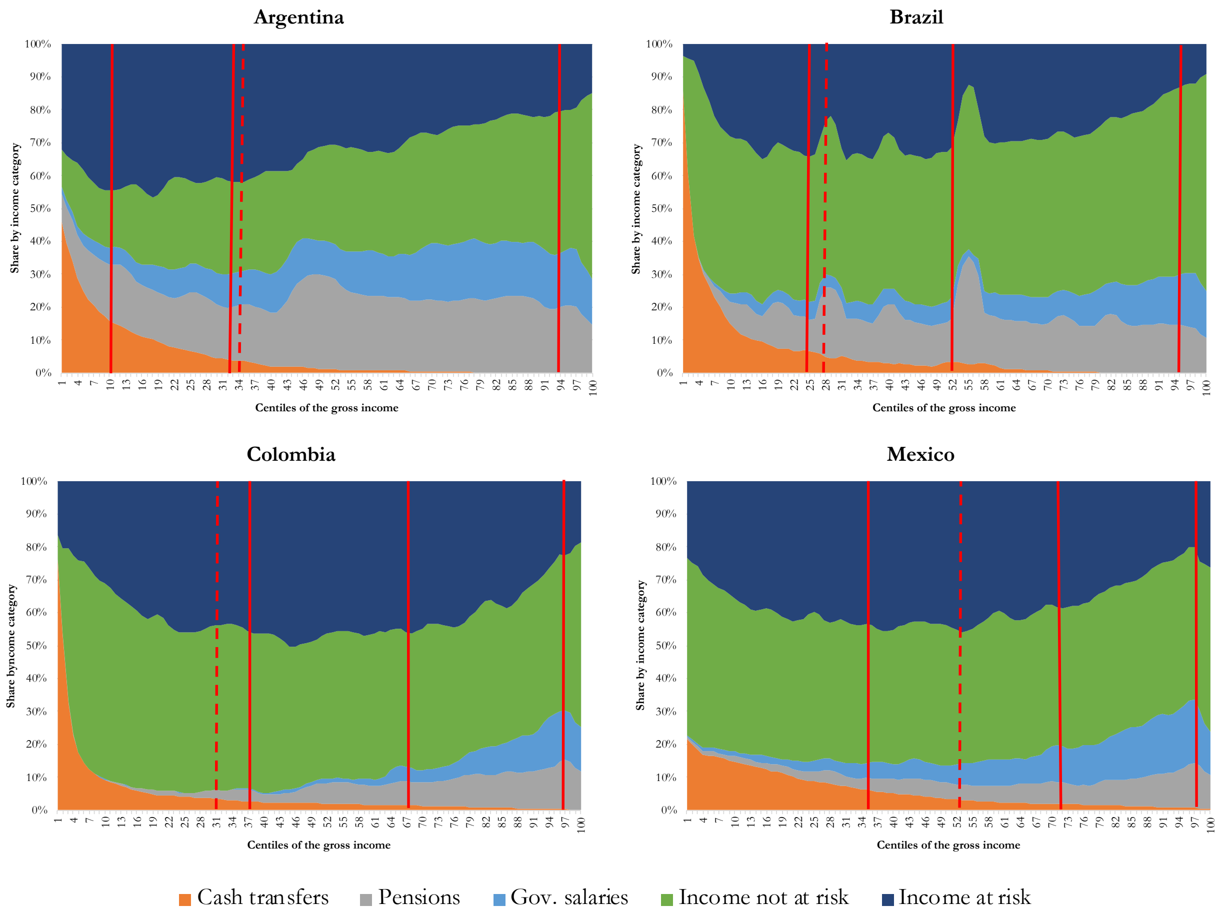
[12] The simulations use the most recent household survey available in each country: Argentina: Encuesta Permanente de Hogares (EPH, 2019), Brazil: Pesquisa Nacional por Amostra de Domicilios (PNAD, 2019), Colombia: Gran Encuesta Integrada de Hogares (GEIH, 2019), Mexico: Encuesta Nacional de Ingresos y Gastos de los Hogares (ENIGH, 2018). The household surveys for Brazil, Colombia and Mexico are representative at the national level. In Argentina the survey covers large urban areas only that represent around 62 percent of the population.

[13] The determination of at-risk income is based on the economic sectors in which one works. It is assumed that income derived from work in sectors that are "essential" is not at risk, while other earned income is. For Argentina and Colombia, the lockdown measures stated explicitly which sectors are essential. For Brazil and Mexico, we use the ILO definition of essential sectors. Decree 297/2020 (Argentina), Decree 457 of March 22nd of 2020 (Colombia), and ILO Monitor: COVID-19 and the world of work (Brazil and Mexico). The distribution of employment between at-risk and not-at-risk by sector is presented in Lustig et al (2020).

[14] To maintain comparability across countries, own-consumption and the rental value of owner-occupied housing are excluded.

even if they work in nonessential sectors.[15] The at-risk income is aggregated to the household level. Figure 1 shows the composition of income sources across the pre-shock (gross) income distribution.

FIGURE 1. Composition of Pre-Crisis Household Income



Notes: The dashed line is the national poverty line and the bold lines are—from left to right-- the $5.50 (moderate poor), $11.50 (lower-middle class) and $57.60 (middle class) per day international lines (in 2011 PPP), respectively. Data for Argentina covers urban areas (over 60 percent of the population).
Source: Lustig et al. (2020).

To generate the post-shock income distribution, actual losses are simulated using various combinations of two key parameters: the share of households with at-risk income that actually lose income and the share of income lost (for those who lose income). Households who actually lose income are randomly selected from the set of households with at-risk income. The microsimulation lets the two parameters range from zero to one-hundred percent (in 10 percent intervals), yielding a ten-by-ten matrix of possible income losses. To ensure consistency with macroeconomic forecasts,

[15] In the case of Argentina, the household survey does not allow to identify internet access at home for white-collar workers.

the analysis is narrowed to the outcomes that yield an overall loss of income per capita similar to the IMF estimates released in June 2020 (IMF, 2020).[16] Within those "iso-loss" scenarios, we focus on two corner cases where either the smallest proportion of households lose much income –"*concentrated income losses*" scenario-- or the largest proportion of households lose smaller amounts of income – "*dispersed income losses*" scenario.

In addition to examining the *ex ante* and post-lockdown income distributions, the microsimulations produce a third distribution that simulates most of the social assistance policies each government has put in place to cushion the impact of the crisis, including both expansions of existing and the introduction of new programs. This yields a post-lockdown, post-policy response distribution. Table 1 gives a brief description of each government's policy responses that were included in the simulations. Note that Mexico has provided no additional social assistance in the wake of the crisis.[17]

TABLE 1. COVID-19 New and Expanded Social Assistance Included in Simulations

Country	Program	Target population of new programs	Number of transfers	Amount of the transfers		Transfer as % of poverty line		Total beneficiaries (administrative data)	Fiscal cost in % of GDP
				LCU	USD	National	$5.50 PPP		
Argentina	AUH / AUE	-	1	ARG$3,100	US$46	34.7	77.5	4.3 million people	0.06%
	Ingreso Familiar de Emergencia*	Vulnerable, Informal workers	3	ARG$10,000	US$148	111.9	249.8	9 million people	1.14%
Brazil	Auxílio Emergencial*	Vulnerable, Informal workers	5	R$600	US$107	120.2	138.4	53 million people	1.95%
Colombia	Familias en Acción	-	3	COL$145,000	US$38	58.7	52.5	2.6 million households	0.10%
	Jóvenes en Acción	-	3	COL$356,000	US$92	144.1	128.9	204 thousand people	0.02%
	Colombia Mayor	-	3	COL$160,000	US$42	64.8	57.9	1.7 million people	0.07%
	Ingreso solidario*	Vulnerable, Informal workers	3	COL$160,000	US$42	64.8	57.9	3 million households	0.13%
	Bogotá solidaria*	Vulnerable, Informal workers	3	COL$233,000	US$60	94.3	84.4	300 thousand households	0.01%
Mexico	No additional social assistance								

Notes: * refers to new social assistance programs that were introduced in the first months of lockdowns. Amount of the transfer in (local/USD) prices of May 2020.
Source: Lustig et al. (2020).

Impact on Inequality and Poverty

The economic dislocation caused the policy response to COVID-19 is likely to be asymmetric. Households whose working members are employed in nonessential sectors are hit harder. Table 2 presents results of our microsimulation exercise for **inequality**. One can observe the change in the Gini coefficient from *ex ante* income to post-lockdown income and from *ex ante* income to post-lockdown income inclusive of policy responses. As would be expected, under the "concentrated income losses" scenario, the increase in inequality is large in all four countries, but it is less so in

[16] The IMF predictions are adjusted to per capita growth rates using data on population growth for latest year available. Then, following the method suggested by Ravallion (2003) and applied by Lakner et al. (2020), we assume a "pass-through" of GDP growth to household (gross) income growth of 0.85.
[17] Mexico neither expanded nor introduced new safety nets. There were really only two mitigation policies and neither involves an additional transfer; beneficiaries of the noncontributory pensions and scholarships were given two months in advance (with total payments for the year unchanged, at least for now); and small and medium enterprises were given access to "credito a la palabra" (a loan without any guarantees). The latter could become a transfer in retrospect if the loans are not paid back.

the "dispersed income losses" scenario. In the former, a smaller proportion of households are losing almost all their at-risk income which shifts them far to the lower end of the income distribution, necessarily increasing inequality almost regardless of where they started. In the latter, each losing household's loss is smaller and so less likely to push a large number of households to the low end of the distribution.[18] The new social assistance measures implemented in Argentina and Brazil succeed in reducing the lockdown-induced increase in inequality. In fact, in the case of Brazil, the rise in inequality could potentially be completely offset.

TABLE 2. Gini Coefficient

Panel (a) "Concentrated income losses"

Country	*Ex ante*	*Ex post*	Change	*Ex post* + Social Assistance	Change
Argentina	0.444	0.486	0.042	0.469	0.025
Brazil	0.554	0.591	0.037	0.565	0.011
Colombia	0.550	0.578	0.028	0.574	0.024
Mexico	0.464	0.503	0.039	0.503	0.039

Panel (b) "Dispersed income losses"

Country	*Ex ante*	*Ex post*	Change	*Ex post* + Social Assistance	Change
Argentina	0.444	0.467	0.022	0.451	0.007
Brazil	0.554	0.570	0.016	0.545	-0.009
Colombia	0.550	0.564	0.014	0.560	0.010
Mexico	0.464	0.479	0.015	0.479	0.015

Notes: In Panel (a) the smallest proportion of households lose much income (*concentrated income losses*) while in Panel (b) the largest proportion of households lose smaller amounts of income (*dispersed income losses*). Data for Argentina covers urban areas (over 60 percent of the population).
Source: Lustig et al. (2020).

Table 3 shows the change in **poverty.** As with any negative macroeconomic shock, we would expect poverty to rise due to the sharp contraction in overall economic activity. During this pandemic, poverty is expected to rise even more because inequality is increasing. We estimate the incidence of poverty using two poverty thresholds: the national poverty lines and the US$5.50 a day international poverty line (in 2011 purchasing power parity).[19] The increases in poverty due to the lockdowns are quite large for all countries, poverty lines, and scenarios. The last three columns of Table 3 show the results when the effects of mitigation policies are taken into consideration. In Argentina and Brazil,

[18] As expected, the Gini coefficient is in all cases lower for the "dispersed income losses" than for the "concentrated income losses" scenarios. This is not true for the poverty headcount because it depends on the density of the population around the poverty line.
[19] The national poverty line in 2011 PPP a day is equivalent to $12.3 in Argentina, $6.3 in Brazil, $4.9 in Colombia, and $7.8 in Mexico. For Argentina, the conversion to 2011 PPP uses Buenos Aires city's CPI because the one produced by the National Statistics Institute (INDEC) went through a series of methodological changes that weakened its credibility. See, for example, Cavallo (2013).

where governments have committed significant resources to new or expanded social assistance, those policies have offset a considerable amount of the lockdown-induced increase in poverty. Indeed, in Brazil the offset is almost complete at the national poverty line and more than complete at the $5.50 line. In Colombia and Mexico, where governments have dedicated much less (or nothing in the case of the federal government in Mexico) to new social assistance spending, the effect is much smaller or nil.

TABLE 3. Incidence of Poverty

Panel (a) "Concentrated income losses"

Country	*Ex ante*	*Ex post*	Change	New poor (in millions)	*Ex post* + Social Assistance	Change	New poor (in millions)
Panel (a) Headcount (National Poverty Line)							
Argentina	35.5	42.8	7.2	2.0	40.3	4.8	1.4
Brazil	28.2	34.6	6.4	13.5	31.5	3.4	7.1
Colombia	31.8	37.9	6.1	3.0	37.3	5.6	2.7
Mexico	53.8	60.1	6.4	8.0	60.1	6.4	8.0
Panel (b) Headcount ($5.5 PPP Poverty Line)							
Argentina	10.9	19.1	8.2	2.3	16.8	5.9	1.7
Brazil	25.4	32.0	6.6	13.9	27.9	2.5	5.3
Colombia	37.6	43.6	6.0	2.9	43.0	5.4	2.7
Mexico	34.9	43.8	9.0	11.2	43.8	9.0	11.2

Panel (b) "Dispersed income losses"

Country	*Ex ante*	*Ex post*	Change	New poor (in millions)	*Ex post* + Social Assistance	Change	New poor (in millions)
Panel (a) Headcount (National Poverty Line)							
Argentina	35.5	43.1	7.6	2.1	40.7	5.1	1.4
Brazil	28.2	33.6	5.4	11.4	29.5	1.3	2.8
Colombia	31.8	36.9	5.2	2.5	36.4	4.6	2.3
Mexico	53.8	60.8	7.0	8.8	60.8	7.0	8.8
Panel (b) Headcount ($5.5 PPP Poverty Line)							
Argentina	10.9	15.8	4.9	1.4	12.8	1.9	0.5
Brazil	25.4	29.8	4.5	9.3	25.2	-0.2	-0.4
Colombia	37.6	42.6	5.1	2.5	42.1	4.5	2.2
Mexico	34.9	42.9	8.1	10.1	42.9	8.1	10.1

Notes: In Panel (a) the smallest proportion of households lose much income (*concentrated income losses*) while in Panel (b) the largest proportion of households lose smaller amounts of income (*dispersed income losses*). Data for Argentina covers urban areas (over 60 percent of the population).
Source: Lustig et al. (2020).

There is a growing literature on the poverty impact of the crisis. In contrast to our exercise, several studies assume that losses are proportional across the income distribution. Sumner, Hoy, and Ortiz-Juarez (2020) is the only one that presents results for individual countries for the $5.50/day poverty line. These authors predict an increase in the number of poor (those below the $5.50/day poverty line) of 15.8 million for the four countries analyzed here. Our microsimulations suggest an increase (before the expanded social assistance) of 23.3 ("dispersed losses") and 30.4 ("concentrated losses") million. Their estimates are lower than ours mainly because their study assumes proportional contractions across the income distribution.[20] In ECLAC (July 2020) incomes do not contract proportionally. However, ECLAC's projections use labor income before transfers; that is, they ignore the cushion that existing social assistance programs provide to the poor. This difference may explain why for the four countries included here, ECLAC projects an increase of 31.2 million poor people using national poverty lines. Our estimate is an increase of between 24.9 ("dispersed income losses") and 26.5 ("concentrated income losses") millions, considerably lower.

Who Bears the Largest Losses?

Income trajectories are of considerable interest when income losses (or gains) differ, perhaps greatly, among households as they do here. To describe those trajectories, we use non-anonymous growth incidence curves —in this case, "contraction incidence curves".[21] Figure 2 shows the change in income at each percentile of the *ex ante* income distribution.[22] Households across the entire income distribution are worse off on average (regardless of the scenario) after the lockdowns, which is not surprising, but the losses tend to be higher for the middle deciles rather than the poorest. The middle deciles include, in particular, the moderate poor, the non-poor households who are vulnerable to fall below the poverty line if subject to a shock, and also households who might belong to the "middle-class." This U-shaped result reflects that poorest and richest household are somewhat more protected from this shock, albeit for different reasons. On one end, poorest households have a cushion given by the existing social assistance programs (the orange "band" in Figure 1). On the other end, three types of income not at risk are concentrated at the higher end of the *ex ante* income distribution: social security pensions, salaries earned in the public sector, and labor earnings of white collar workers who are CEO's, managers and researchers with internet access at home.

The dotted lines show the growth incidence curves after considering the effect of the expanded social assistance. As expected, social assistance cuts the losses and, indeed, increases the income of poor

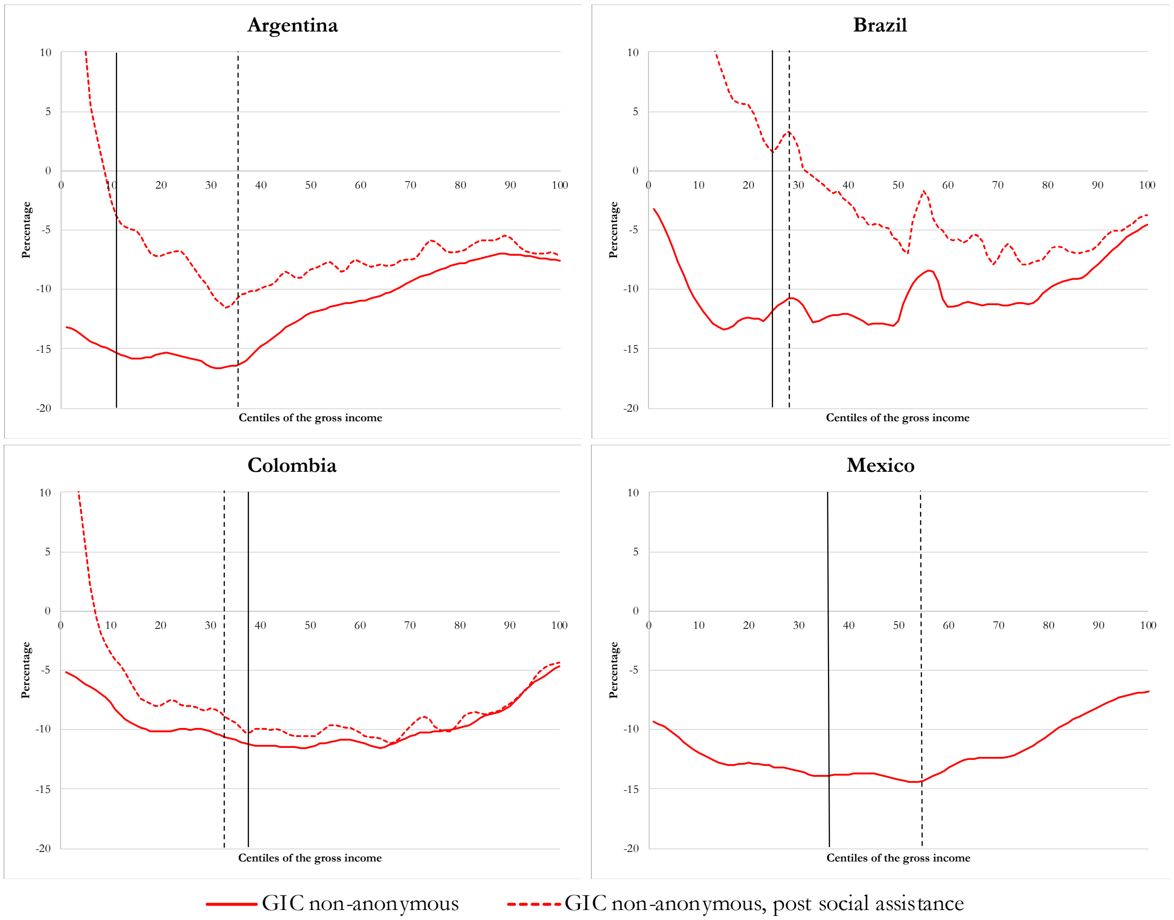
[20] As a check on the importance of including the change in the distribution of income on our poverty estimates, we repeated our analysis assuming that everybody's income declines by the same per capita fall projected by the IMF for each country. In this case, the increase in the number of poor in the four countries taken together would equal 12.5 million (using the $5.50 poverty line). This has to be compared with our distribution-sensitive simulations. The increase in number of poor from the lockdowns is estimated to be between 23.3 ("dispersed losses) and 30.4 ("concentrated losses") million individuals. When we compare our results for the case without changes in the distribution to Sumner, Hoy and Ortiz-Juarez (2020), there is a difference of roughly three million more new poor in their estimates compared to ours: 12.5 m (ours) vs. 15.8 (theirs). We think that our estimates are lower because the IMF projections indicate lower than 10 percent contractions for Argentina, Brazil and Colombia.

[21] Bourguignon (2011).

[22] Each point on the curves shows the loss for the households that are, *ex ante*, in the shown centile in the x-axis. The y-axis shows the average change in per capita income. For example, the households in the first centile in Argentina could potentially lose about 13 percent of their pre-COVID per capita income before the expanded social assistance; that loss becomes a gain of roughly 30 percent once we consider expanded social assistance.

households by significantly more in Argentina and Brazil where the mitigation policies have been much more ambitious. In all three countries that have new social assistance transfers those transfers favor the *ex ante* poor and the poorest within the *ex ante* poor, which is a desirable outcome.

FIGURE 2. Non-anonymous Growth Incidence Curves.



Notes: The Figure presents the "concentrated income losses" case. The dispersed income losses case, which shows similar patterns, is available upon request. The dashed line is the national poverty line and the bold line is the $5.50 (moderate poor) per day international line (in 2011 PPP). Poverty lines based on the *ex ante* distribution of income. Data for Argentina covers urban areas (over 60 percent of the population).
Source: Lustig et al. (2020).

III. From Short-Term Income Losses to Welfare and Long-Term Effects

The previous section addressed the potential impact on incomes of the pandemic, lockdown policies, and expansion of social assistance. It showed that income losses are greatest in the deciles in the middle of the *ex ante* distribution rather than among the poorest. That "middle" includes the moderate poor, the non-poor households who are vulnerable to fall below the poverty line if subject to a shock, and middle-class households.

One should be careful, however, regarding the policy implications drawn from these results. We argue in this section that, even though the poor appear to suffer smaller relative income losses, they should still be the main focus of attention. This is especially important given the uncertainty about the duration of the pandemic. Many Latin American countries, notably Argentina among the four under study here, were in dire fiscal and macroeconomic situations before the pandemic, and are in even weaker grounding at this time (IDB, 2020). That should remind us that, while applauding the expansion of social assistance that prevents further income drops, we need to think about priorities in terms of public efforts beyond short-term income support. It is important to identify welfare effects and risks more precisely. In that spirit, in this and the next section we move from analyzing the possible impact on incomes in the short term to broader welfare implications and possible long-term effects.

Even though the microsimulations of the previous section suggest that – after considering the offsetting effect of expanded social assistance – average income losses for the very poor have been tempered in Argentina and Brazil, there are still likely to be some extreme poor households who have suffered important income losses.[23] And for those not far from subsistence levels, even a small temporary drop in income might have dramatic welfare effects. This should remind us that income losses are not equivalent to welfare losses. The latter depend on consumption. If the ability to smooth consumption increases with income, the impact of the lockdowns, especially on the upper-middle classes and the rich, could be negligible or nil. On the other end, the extreme poor suffer from multiple deprivations which become exacerbated during the pandemic. Moreover, for the poor and vulnerable, even small income losses combined with school closures and health shocks, can seriously erode investment in children's human capital with lasting effects on intergenerational persistence and equality of opportunity.

Consumption

In order to capture the potential effects of the pandemic on consumption, we must take into consideration not only current income but also savings. In Latin America, saving as a share of income is monotonically increasing across income deciles, becoming positive around the middle deciles.[24] In fact, among lower-income households, negative saving rates are often observed. Poorer households move in and out of saving vehicles but do not accumulate large stocks of net savings over time. These households use savings mainly to pay for short-term expenses or to finance investments that require small lump sums, rather than for long-term goals. This implies that, of the broad segments of the Latin American middle class whose incomes have dropped temporarily due to the pandemic, the upper segments might be able to maintain levels of consumption way above subsistence by drawing on their

[23] That is true in the microsimulations and possibly more so in reality, given that the compensations we study are statutory, assigning the transfers to those who should receive them, but what actually happens on the ground might be somewhat different.
[24] Cavallo and Serebrinsky (2016) and Gandelman (2015).

savings. This means that the main short-term income support programs should target the poor and the vulnerable (those above but closer to the poverty line).[25]

In addition, consumption of the poor, especially of poor children, in many Latin American countries comes in the form of transfers in-kind such as school meals and neighborhood kitchens ("comedores"). It is often the case that these sources provide a more adequate nutrition than meals produced at home. As a result of the pandemic, these programs have suffered supply and logistic problems.[26]

Multidimensional Deprivations

Income poverty is only the tip of the iceberg in terms of the lives of the chronic poor. Poverty is a life condition that implies deprivations in multiple dimensions. For instance, twenty-two percent of Latin Americans lack access to safe drinking water; 59 percent have no sanitation; and 34 percent are deprived of internet connectivity, which has proven so essential in these circumstances. Over 20 percent of urban residents live in slums, where conditions in terms of overcrowding and poor habitat are extreme. All of these deprivations, which give shape to multidimensional poverty, interact, in turn, with the conditions generated by the pandemic to create a potentially vicious cycle. Many of these vulnerabilities make people more likely to get infected by the coronavirus, and many of the effects of the pandemic exacerbate the suffering produced by the deprivations.[27]

Going to work is harder for the chronic poor, but so is staying home enduring a number of hardships caused by overcrowding, the lack of basic services, and the poor environments in which the homes are located. For this segment of the population, staying at home could cause other problems, and could breed other health issues, especially given the current health sector scenario in which issues unrelated to coronavirus are not receiving proper attention. The lockdowns are also having significant mental health effects. Quarantined people are more likely to report depression, exhaustion, detachment from others, anxiety, irritability, insomnia, and poor concentration.[28] These symptoms are more likely to affect those living in poor and limited housing conditions.[29] Also, confinement, boredom, uncertainty, and fear associated with the current situation could exacerbate family dysfunctions which, in the extreme, worsens domestic violence and child abuse.[30]

Service disruptions in multiple domains (such as health services, schools, early childhood, transportation) have affected living circumstances everywhere, and the impact of many of these

[25] The drops in income of the middle segments are likely to have political economy consequences, but that is a subject beyond the scope of this paper.
[26] See Lustig and Tommasi (2020b) and references therein.
[27] See Lustig and Tommasi (2020), Santos (2020) and references therein.
[28] Brooks et al. (2020).
[29] Amerio et al. (2020).
[30] Perez-Vincent and Carreras (2020) find a 32 percent increase in calls to a domestic violence hot line following the introduction of mobility restrictions in Argentina. Gibbons, Murphy, and Rossi (2020) find a positive link between lockdown restrictions and intimate partner violence, with the effect decreasing with the level of education of the victim.

disruptions is likely to vary across groups depending on prior conditions associated to their socioeconomic characteristics and their ability to cope with shocks through private means.[31]

Various countries in the region have seen their health systems overwhelmed by the surge of COVID-19 cases, leading to weaker attention for other diseases. It is well known that both the access to these public health services and the probability of various health conditions is higher for people with lower education.[32] During the past Ebola and SARS crises, increases in maternal mortality were reported due, in part, to reduced access to health services and fears of contagion in maternity wards. Similarly, lack of access to reproductive health can increase the number of unwanted pregnancies, especially among adolescent girls.[33]

As part of the containment policies, practically every country in the region has implemented widespread school closures that, according to UNESCO, have affected about 160 million children and youth.[34] In addition to the impact on education, the closing of schools affects poor and vulnerable children because they may no longer have access to school feeding and health programs.[35] Similarly, schools are crucial contact points for the early detection and reporting of domestic violence and child abuse. There is indeed some evidence that school closings are behind a drop of up to 30 percent in child abuse reports, with larger reductions among females and in poorer municipalities.[36]

The severe limitation to the functioning of early childhood services during lock-downs is affecting the quality of live and accumulation of human capital of young mothers and their children, particularly in vulnerable contexts.[37] Modern development literature emphasizes the permanent effects that temporary shocks can have on the lives of poor infants and children. Circumstances such as child malnutrition, school dropout, and traumatic experiences occurring at early stages in life, often have irreversible effects. Research on past crises reveals that these long-lasting effects do exist and are a leading cause for persistent inequalities and low mobility.[38]

Long-Term Implications

Of course, not all of the changes in poverty, inequality and impoverishment caused by the lockdowns estimated above are likely to be permanent. As the economy recovers, incomes of certain groups will bounce back (partially or in full) to the previous levels. However, long-lasting effects on poverty and

[31] World Bank (2020).
[32] Berlinski, Gagete-Miranda, and Vera-Hernandez (2020).
[33] Caren Grown and Carolina Sánchez-Páramo, "The coronavirus is not gender-blind, nor should we be," *Voices* (blog), April 20, 2020 https://blogs.worldbank.org/voices/coronavirus-not-gender-blind-nor-should-we-be. Bandiera et al (2020) studied the impact of Ebola in Sierra Leone and find that school closures led teen pregnancies to rise sharply and post-epidemic school enrolment among young girls to drop by 17 percentage points, long after schools had re-opened.
[34] UNESCO (2020) https://en.unesco.org/covid19/educationresponse.
[35] World Bank (2020).
[36] Cabrera-Hernandez and Padilla-Romo (2020).
[37] Lopez Boo, Behrman, and Vazquez (2020).
[38] Lustig (2000), Skoufias (2003), Duryea, Lam, and Levison (2007), Cantillon et al. (2017).

inequality may occur because some households get trapped in their new circumstances. Many of the impacts just mentioned will have effects beyond current welfare, affecting human development, inequality, and poverty well into the future.

For those in the middle of the distribution whose incomes have dropped, the short-term consumption and multidimensional suffering is not likely to be too large if the income shock was indeed temporary. The main risk there would be a permanent scarring of labor markets that can affect incomes permanently.[39]

In contrast, in the case of the poor (and even more so, the chronic poor) the short term negative effects on consumption and access to education and healthcare can have important long-term consequences for their human capital. At an aggregate level, the greatest long-term costs are likely to come through the effects on the human capital of infants, children, and adolescents.[40] Incomes losses, worsened living conditions, and service disruptions are likely to affect a number of crucial state variables such as nutrition, health, mental health, and various other human capital components connected to early childhood and school-age experiences.[41]

Some studies are suggesting that the impact on health outcomes could be dire. For example, according to one study of 118 low and middle income countries, child mortality could increase for the first time in more than 60 years due to the lack of access to basic health services and due to the effects of the pandemic on children's nutrition.[42] Declines in household incomes, changes in the availability and affordability of nutritious foods, and interruptions to health, nutrition, and social protection services, are expected to increase child malnutrition -- including wasting and stunting.[43]

School closures are likely to deeply affect the children of poor households who may find it extremely difficult if not impossible to continue their education at home due to lack of adequate equipment, connectivity and – above all – coaching. It is quite likely that children will end up with lower achievements and many might drop out of school altogether. This year may end up being the one with the largest loss of human capital in modern history; a loss that will be distributed very unfairly, with the poor enduring the brunt of this cost. Hence, the next section analyzes these potentially irreversible losses in educational attainment. As we shall see, even in the countries where short-run mitigation policies appear to protect the poor fairly well such as in Argentina and Brazil, the impact on educational attainment of today's children of poor households can be quite dire.

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[39] Jonathan Portes , "The lasting scars of the Covid-19 crisis: Channels and impacts," *Voxeu* (blog), 01 June 2020 https://voxeu.org/article/lasting-scars-covid-19-crisis

[40] Heckman and Mosso (2014).

[41] Hincapie, López-Boo, and Rubio-Codina (2020) describe multiple channels through which the physical, mental, and emotional development of children in Latin America are being affected. These effects have a strong socioeconomic gradient, and are likely to generate large future losses. See also Garcia Jaramillo (2020).

[42] Roberton et al. (2020).

[43] Headey et al. (2020).

IV. Long-run Effects of COVID-19 on the Intergenerational Persistence of Human Capital

This section analyzes the potential long-run distributional effects of the COVID-19 pandemic in Argentina, Brazil, Colombia, and Mexico. We evaluate one of the main mechanisms of these long-run effects, namely shocks to the accumulation and allocation of human capital and its intergenerational persistence. As mentioned before, the opportunities to invest in the human capital of children are seriously challenged by the pandemic, but to a different degree depending on the socioeconomic background of the family. As a consequence, the current impact of the pandemic could have lasting distributional consequences that might be transferred over generations.

The shock to the human capital of children during the COVID-19 pandemic is mainly driven by three factors affecting the supply and demand of education: the closure of educational institutions, the income loss suffered by families, and the health consequences related to the spread of the disease. On the other side, public interventions to mitigate the educational, economic and social impact of the crisis cushion these impacts. Taking into account all these circumstances, we quantify the effect of the pandemic on the human capital of children with different parental socioeconomic background. Following Neidhöfer, Lustig, and Tommasi (2020), we perform a counterfactual exercise to simulate the impact of the COVID-19 crisis on the intergenerational persistence of human capital.[44]

Intergenerational Persistence of Education in Latin America

The intergenerational persistence of socioeconomic status is insightful about the long-run distribution of resources and equality of opportunity in a society.[45] The strength of the relationship between the education of parents and children yields a useful measure of such equality of opportunities, particularly in developing countries where income data over two subsequent generations is scant.[46] Furthermore, education is one of the key dimensions for the opportunities of economic well-being later in life. Latin America has historically been one of the regions with the highest levels of intergenerational persistence and low equality of opportunity.[47] However, educational expansions that mostly benefited children at the bottom of the distribution led to a notable increase in upward mobility, and to higher degree completion rates in recent decades.[48] This rise in mobility seems also partly related to the decrease in income inequality experienced by the region in the last decades.[49]

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[44] Some recent studies analyzed the effect of the pandemic on learning outcomes, either with surveys and real time data (e.g. Angrist et al., 2020; Aucejo et al., 2020), standardized test scores (e.g. Maldonado and De Witte, 2020), or simulating the potential aggregate impact (e.g. Azevedo et al., 2020) and its consequences for long-run earnings (Psacharopoulos et al., 2020). The present study is, together with Neidhöfer et al. (2020), the first to estimate the potential impact of the pandemic on intergenerational persistence.

[45] Becker and Tomes (1979; 1986).

[46] Blanden (2013); Narayan et al. (2018).

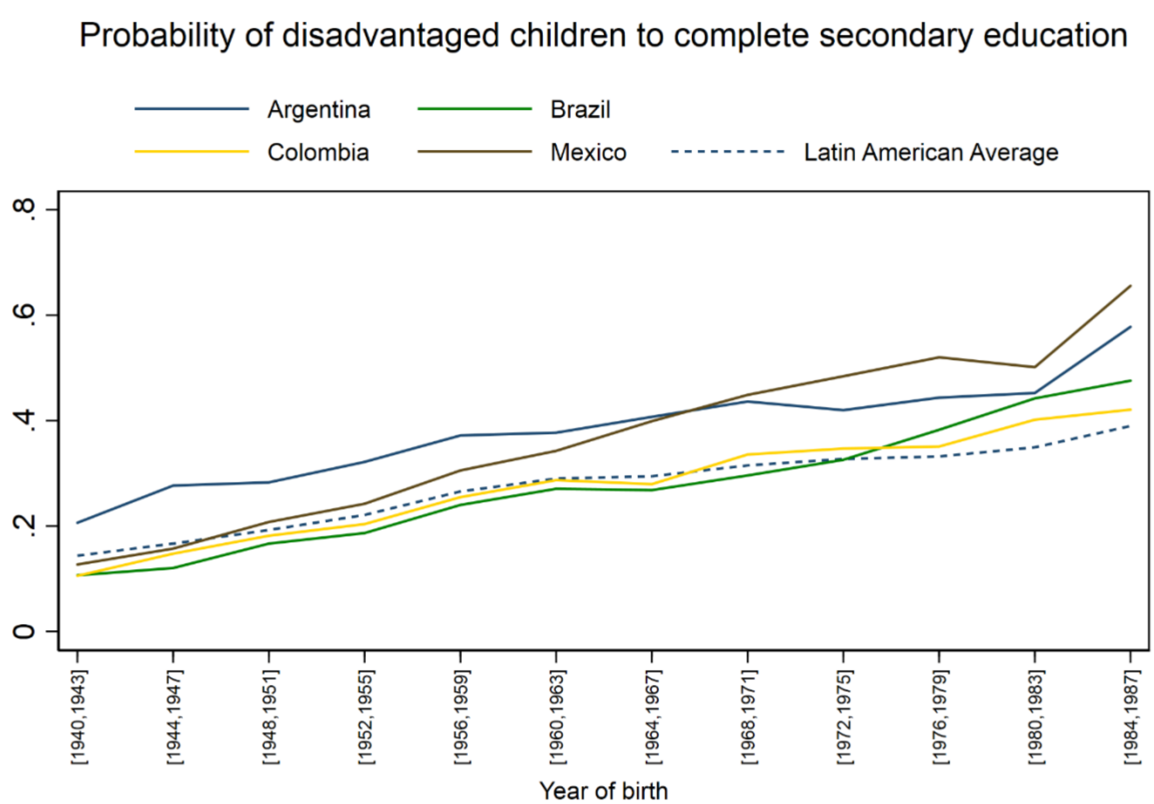
[47] Behrman et al. (2001); Brunori, Ferreira, and Peragine (2013); Daude and Robano (2015); Hertz et al. (2007); Torche (2014).

[48] Neidhöfer, Serrano, and Gasparini (2018).

[49] Neidhöfer (2019).

Figure 3 shows the evolution of secondary school completion rates of children with disadvantaged background in Argentina, Brazil, Colombia, and Mexico, as well as the Latin American average. We observe a clearly positive trend in the four countries. In the following analysis, we will perform a counterfactual exercise to project how the COVID-19 crisis could impact this trend and lead to stronger intergenerational persistence of educational attainments.

FIGURE 3. Secondary school completion of children with disadvantaged background



Notes: Lines show the trend in the likelihood of children with low educated parents (no secondary degree) to complete secondary education.
Source: Mobility-Latam Database (see Neidhöfer, Serrano, and Gasparini, 2018), own elaboration.

COVID-19 Shock on Human Capital

The COVID-19 pandemic shocks the demand and supply of education at the same time. Hence, we use a unified framework to evaluate the impact of both types of shocks on the human capital of affected children, accounting for asymmetries in the response of countries as well as in the capabilities of families to cushion instructional losses. We apply a counterfactual exercise to simulate changes in the education of individuals with distinct parental background, if they would have experienced the COVID-19 crisis in their childhood.[50] The exercise is applied on individual data from Latinobarometro.[51]

The post-pandemic counterfactual education is defined as the actually reported years of schooling subtracting the instructional time lost due to COVID-19, measured as share of the year. The instructional time lost varies by country depending on several variables: closure and reopening of educational facilities; interventions aimed at facilitating learning at home and infrastructural characteristics (such as internet coverage) supporting this process; epidemiological parameters affecting the likelihood of infection and death of household members; household income losses; economic mitigation strategies.

Additionally, our procedure to estimate the instructional loss takes the ability of parents to substitute formal schooling into account. Parents with high education may compensate the instructional loss, while children of low educated parents completely rely on the supply of schooling provided by the education system (either in class or through the support of home learning).[52] The range of the resulting loss in instructional time may, in principle, range from zero to one; i.e. the potential instructional loss due to school closures may be completely offset by parental and public interventions, or the entire year of schooling might be lost due to the pandemic, respectively.

The procedure of defining the instructional time lost as share of the academic year, similar to the ones followed by Adda (2016) and Abadzi (2009), has the caveat of not considering a potential cumulative negative effect of the learning loss. Hence, our assumption is that individuals continue their educational trajectory after having suffered the COVID-19 shock. Despite being a rather restrictive assumption, the direction of the bias deriving from it is clear: if learning losses generate higher drop-out rates, our estimates shall be interpreted as a lower bound of the negative impact of the shock. The same applies to additional negative effects of the pandemic on other features, such as nutrition, mental health, teenage pregnancy, non-cognitive skills.[53] Also, in the choice of all the parameters within the model, we choose the combination that goes in the same direction yielding lower bound estimates.

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[50] That is, we take generations for which we know their education history and modify those histories as if they had suffered a shock equivalent to that of COVID-19. The framework and logic of the counterfactual exercise is developed in more detail in Neidhöfer, Lustig, and Tommasi (2020).

[51] The Latinobarometro survey is particularly suitable for an evaluation of intergenerational persistence in the four analyzed countries because it includes information about the education of individuals and, retrospectively, about the education of their parent with the highest degree (see Neidhöfer et al., 2018; Neidhöfer, 2019). Hereby, it encompasses information on completed degrees as well as incomplete educational tracks. We use survey waves from 1998 to 2017 and restrict the sample to individuals born between 1987 and 1994 who were at least 23 years old when responding to the survey. All our estimates are obtained weighting for the inverse probability of selection, while normalizing individual weights over different survey waves. For more details on the survey, see https://www.latinobarometro.org/ .

[52] For instance, see the evidence on the negative short and long-run effects of teacher strikes in Argentina provided by Jaume and Willen (2019).

[53] See e.g. Wang et al. (2020).

Formally, the expected counterfactual post-pandemic years of schooling $\hat{e}$ of individuals with parental education background *j* living in country *c* is defined as:

$$\widehat{e_{ijc}} = e_{ijc} - \left(\frac{t_c\left(1-f_c\cdot\delta-n_c\cdot a_{jc}\cdot(1-\delta)\right)+\tau}{T_c}\right)\cdot \alpha_j - D_{jc} \quad (1)$$

Where e are the reported years of schooling, t the days of instructional loss (taking into account the dates of school closure and eventual reopening, as well as school vacations lying within this period), and T the days in a regular year of schooling. f and n are indices constructed to measure the alternative supply of education during school closures through offline (TV, radio, cellphone, printed copies) and online (internet) learning, respectively, while δ is a weight that defines their relative efficiency. In order to fulfill the criteria to compute lower bound estimates, we assume both alternatives to be equally efficient and their combination to be a perfect substitute of in-class schooling; i.e. we set δ to 0.5. Online education is also interacted with the probability of having internet access a, measured by the internet coverage among people in socioeconomic group *j*. τ captures the learning loss due to the health shocks related to COVID-19 suffered by household members. Table 4 shows the parameters of the model for the four countries under consideration.[54]

TABLE 4 – Parameters used to estimate the country-specific instructional loss

	Schooling				*Connectivity among socioeconomic groups by the education of the HH head*						*COVID-19 (09/20)*		
c	*t*	*T*	*f*	*n*	*less than primary*	*complete primary*	*incomplete secondary*	*complete secondary*	*incomplete tertiary*	*complete tertiary*	*Cases per inh.*	*Deaths per inh.*	*Avg. HH size*
ARG	154	180	0.75	0.69	0.63	0.67	0.69	0.72	0.78	0.81	0.01090	0.00023	3.3
BRA	157	200	0.50	0.63	0.49	0.59	0.68	0.84	0.91	0.92	0.01972	0.00060	3.3
COL	150	200	0.75	0.75	0.32	0.48	0.66	1.00	1.00	1.00	0.01350	0.00043	3.5
MEX	136	185	0.25	0.50	0.33	0.48	0.65	0.93	1.00	1.00	0.00504	0.00054	3.7

Notes: t are the days of instructional lost (assuming schools reopen in November 2020 if they are still closed), T the days in a regular year of schooling, f and n indices that measure the alternative supply of education during school closures through offline (TV, radio, cellphone, printed copies) and online (internet) learning. Reported COVID-19 cases and deaths per inhabitant recorded in September 2020.
Source: Neidhöfer, Lustig, and Tommasi (2020).

[54] A more exhaustive description of the parameters and their computation is provided in Neidhöfer, Lustig, and Tommasi (2020) for a larger set of countries.

All parameters described so far, mainly related to the supply of education, are interacted with α, which we define as *parental factor of substitution* that measures the ability of parents to substitute formal schooling. This parameter is defined as

$$\alpha_j = 1 - \frac{e_j^p}{\max(e_j^p)} \quad (2)$$

where e_j^p are the years of schooling of the parent with education *j*; the most educated of the two parents. The range goes from zero to 15 years of schooling. Hence, the extreme values of α are zero for the highest educated parents, who are able to fully substitute the instructional loss, and one for children of the least educated parents. For other levels of parental education α lies within this interval.[55] Conceptually, α is the capability of parents to support their children's education, both helping them with the learning material and investing, for instance, in technological devices, private schooling, and tutoring.[56]

Finally, $D_{jc} = \alpha_j \cdot d_{jc}$ measures the additional negative effect of household income loss on schooling outcomes.[57] Hereby, d_{jc} is the probability of parental job loss during the pandemic for families with socioeconomic background *j* in country *c* that translates into a school drop-out of the child with a likelihood that we set equal to α_j. We estimate the probability of job loss for each socio-economic group applying the microsimulation exercise used in the first part of the paper.[58] Again, we calculate this likelihood with and without the mitigating effect of social assistance.

Consequences for Intergenerational Persistence and Educational Inequality

Using the actual education of individuals, as well as the counterfactual simulated years of schooling after consideration of the COVID-19-shock, we estimate the probability of individuals to complete secondary education in the two scenarios. By definition, secondary education pre-COVID is completed with 12 years of schooling. In the simulation, the likelihood to complete secondary education is estimated by the predicted probability to attain 11.75 or more adjusted years of schooling despite of the learning loss due to COVID-19. The last figure provides a more conservative estimate

[55] Note that the same instructional loss can be produced in two different situations: either every child in socioeconomic group *j* loses the same α-share of the instructional loss due to the supply of education, or the α-share of children suffer the entire instructional loss while the other are able to substitute formal schooling. In the former α is the degree in which the parents are able to substitute schooling, while in the latter, it is the probability that the parents may perfectly substitute schooling. This distinction resembles the two scenarios of dispersed and concentrated losses contemplated in the first part of the paper. In what follows, we present the "concentrated instructional losses" case. The dispersed instructional losses case is available upon request.

[56] Parental time is another interesting dimension of parental investment with potential implications for educational inequality and intergenerational persistence between and within socioeconomic classes (Berniell and Estrada, 2020), not explicitly modelled here.

[57] Previous research has found that job losses in the family and household income shocks may cause educational drop out. See for instance Cerutti et al. (2019), Duryea, Lam, and Levison (2007).

[58] We define parental job loss as the probability of the household to lose more than 50% of income. The estimated likelihoods for each socioeconomic group are available upon request.

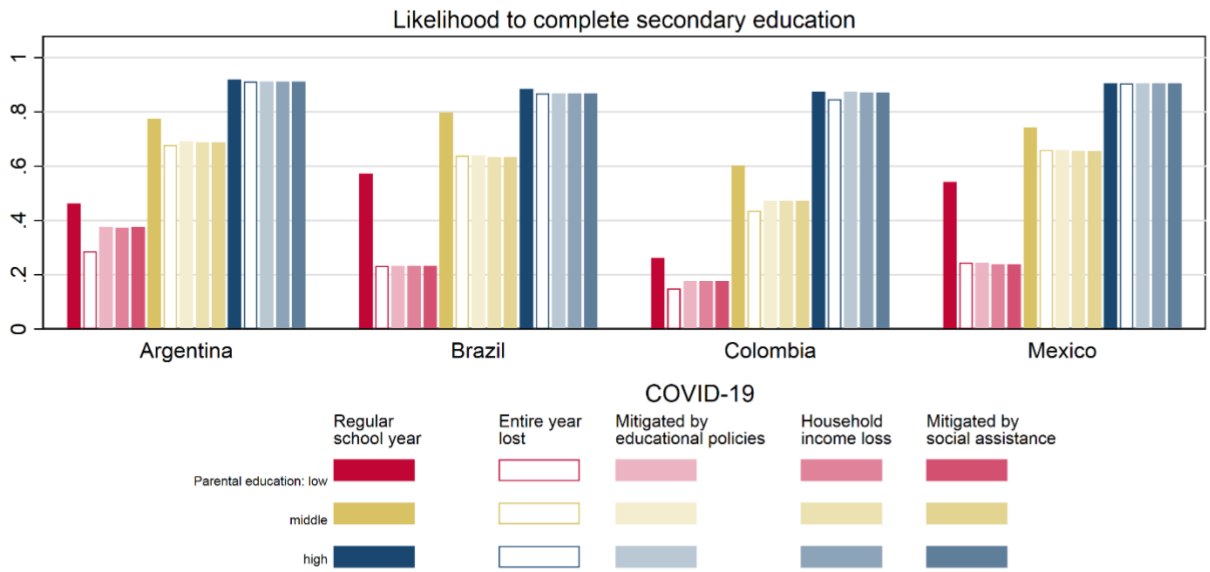
than the strict 12 and it amounts to the assumption that a child will complete secondary education despite of the COVID-19 shock if her reported education in absence of the shock is a completed secondary degree or higher, and the instructional loss she suffers due to the pandemic is not higher than 25% of the school year. This is based on past literature showing that pupils may be able to offset a moderate loss of instructional time in one year.[59]

Comparing the average probability of individuals with low, middle and high parental educational background to complete secondary education yields an intuitive indicator of intergenerational persistence: the higher is the estimated likelihood to complete secondary for children whose parents are at the bottom of the distribution, the lower (higher) is intergenerational persistence (upward mobility). Hereby, the categories of parental educational background are defined by subdividing the distribution of parental years of schooling into three quantiles.

Figure 4 shows the results of applying the mentioned simulation exercise on Latinobarometro data. The bars show the estimated likelihood of children with low, middle, and high educated parents to complete secondary education with and without the COVID-19 shock. Within each parental education group, the first bar reflects the baseline, i.e. the actually measured likelihood of individuals in the sample to complete secondary education in the absence of the pandemic shock. The second bar shows secondary school completion rates in the worst case, namely a drop in the supply of education equivalent to an instructional loss by 100 percent of the school year only offset by the parental factor of substitution (i.e. setting $t=T$ and all other factors to zero). The third bar shows the simulated likelihoods taking into account both, parental capabilities and health shocks, as well as the supply of alternative learning tools by the public education system. Finally, the last two bars show the additional simulated effect of instructional loss due to household income losses, first without any compensatory mitigation policies, then considering the mitigation by social assistance (see Table 1). All estimates and their standard errors can be found in Appendix Table A1.

[59] See e.g. Kubitschek et al., 2005. To put it differently, our assumption is that if an individual is not able to complete at least 11.75 years of schooling due to the pandemic, she will never be able to complete secondary education. We test the robustness of our results and provide a lower and higher bound of the effect of the pandemic on secondary school completion rates also defining secondary school completion at 11.6 and 12 years of schooling. Even in the less restrictive scenario we observe a substantial gap among low background pupils. The results of these additional analyses are available upon request.

FIGURE 4 – Consequences of COVID-19 on Intergenerational Persistence of Education



Notes: The Figure presents the "concentrated instructional losses" case. The "dispersed instructional losses case" is available upon request. Bars show the likelihood to complete at least 11.75 years of schooling before and after simulation of the COVID-19 shock on education. Categories of parental education mirror three quantiles of the distribution of parental years of schooling.
Source: Latinobarometro, own estimates.

Our results reveal interesting patterns. The impact of the shock is small or even inexistent at the top for all countries, while there are different impacts across countries for families at the bottom and in the middle of the distribution. At the same time, there are substantial differences in the estimated cushioning effect of mitigation policies. The instructional loss is disproportionately hitting those at the bottom of the distribution and leading to an intensification of the intergenerational persistence of education. We record a decrease in secondary school completion rates of low background children by 8.5 percent in Argentina and Colombia, by 30 percent in Mexico and by 35 percent in Brazil.

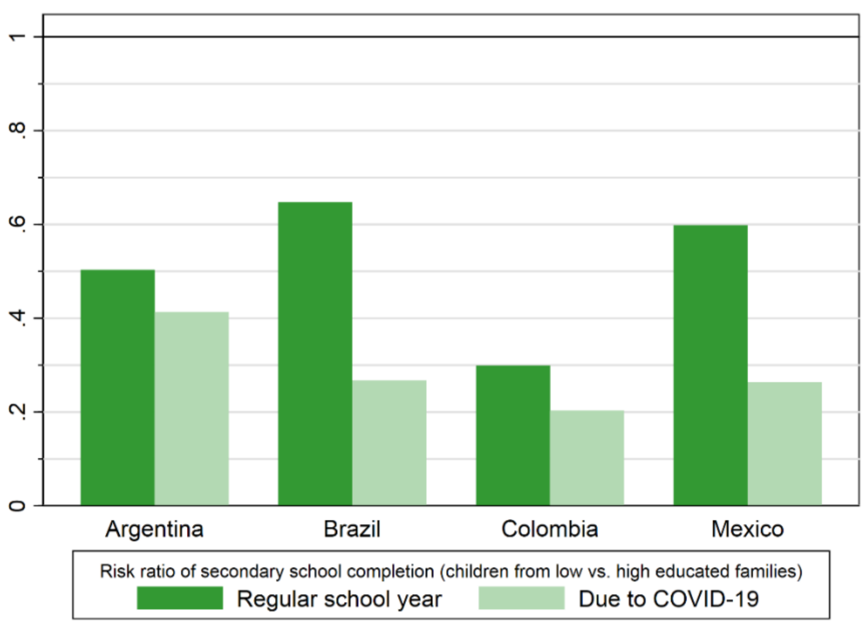
The largest proportion of the instructional loss, responsible for the decrease in secondary school completion rates, is driven by the closure of schools. The additional effect of household income losses on the demand for education is only marginal.[60] The mitigating impact of educational and other policies is rather limited and not capable to close the learning gap. In the case of educational policies, this is also due to the rather unequal distribution of internet coverage among socio-economic groups (see Table 4). The mitigation of income losses, which, as we show in the first part of the analysis, has been able to reduce the short term effect on inequality and poverty, provides little to none offsetting of instructional losses. This highlights that supporting the demand for education with cash transfers

[60] If any, an additional effect of income loss is observed for families in the middle of the distribution which, as shown in Section II, are the ones suffering the largest and more wide-spread income losses.

– which under regular circumstances may improve educational outcomes[61] – is only effective in interaction with the supply of education. Conversely, pure economic measures do not incentivize human capital investments in contexts where educational supply is affected by the shock, as in case of wars and natural disasters.[62]

Next, we evaluate the potential effect of the pandemic on educational inequality (of opportunity). Figure 5 shows the risk ratio of secondary school completion between children at the bottom and at the top of the distribution of parental education. A risk ratio of one indicates that the opportunities to complete a secondary degree are the same in both groups. Hence, the difference of the estimated risk ratios from one shows the distance of the status quo from total equality in educational opportunities.

FIGURE 5. Consequences of COVID-19 on Educational Inequality



Notes: The Figure presents the "concentrated instructional losses" case. The dispersed instructional losses case is available upon request. The graph shows the risk ratio of secondary school completion; i.e. the probability of children of low educated parents (bottom quantile) to complete secondary education over the probability of children of highly educated parents (top quantile). A risk ratio of one indicates that the likelihood is the same among both groups. For the COVID-19 case we focus on the last columns of Figure 4, with all mitigation measures in place.
Source: Latinobarometro, own estimates.

[61] Fiszbein and Schady (2009), Molina Millan et al. (2019).
[62] Ichino and Winter-Ebmer (2004), Caruso and Miller (2015).

We observe that, under regular circumstances, individuals with low educated parents in the sample are half as likely to complete secondary schooling as their peers with highly educated parents in Argentina, more than 60 percent as likely in Brazil and Mexico, and around 30 percent as likely in Colombia. After the COVID-19 shock, the unequal drop in the likelihood to complete secondary education is such to produce a substantial increase in inequality. The risk ratio falls to 0.4 in Argentina and even under 0.3 in the other three countries.

V. Conclusions

We estimated the short- and long-run distributional consequences of the COVID-19 pandemic for Argentina, Brazil, Colombia, and Mexico using microsimulations and counterfactual scenarios. Our findings suggest that the short-term impact on income inequality and poverty can be very significant, but that additional spending on social assistance – if large in coverage and magnitude per person – could have a large offsetting effect. Compared to their pre-shock income, households across the entire income distribution are worse off on average after the lockdowns. The poorest are not the ones hit the hardest as a share of pre-shock incomes; losses tend to be higher for the moderate poor, the vulnerable, and for households that belong to the middle-class.

However, even if the poorest are not disproportionately hurt in the income dimension, they are less able to smooth consumption and even small income losses can have devastating effects for them. In addition, the very poor suffer deprivations in multiple dimensions beyond income and there is evidence that the pandemic is making these deprivations more intense. Moreover, the development literature has shown that temporary shocks can have irreversible effects on the poor, especially infants and children. Circumstances such as child malnutrition and school dropout often have long-lasting effects and may be leading causes for persistent inequalities and low upward mobility.

We focused on one important circumstance, namely school achievement, and empirically quantified the effect of the pandemic on the potential instructional losses suffered by children with distinct parental background. Our results suggest that secondary school completion rates among children from low educated families are likely to drop substantially due to the pandemic. In contrast, the likelihood of children from highly educated families to complete secondary education are almost unaffected. Consequently, the asymmetric nature of the shock seriously imperils equality of educational opportunities.

Moreover, while our results suggest that economic mitigation measures seem to be effective to cushion income losses, the same could not be confirmed about the impact of educational interventions. Although the educational emergency interventions might have been able to reduce part of the instructional loss, our estimates show that, in part due to deficiencies in the digital infrastructure that is necessary to support online learning, they are unlikely to close the resulting educational gap. Hence, upward mobility and the longer-run income chances of children from vulnerable families are expected to decrease, perhaps dramatically.

Losses in educational attainment are likely to translate into lower future earnings.[63] To the extent that these losses are unequally distributed—affecting the poor by more—current school closures will push income inequality in the future upwards. The main driver of the decline in inequality in Latin America during the first decade of this century was the fall in the skill premium associated to a change in composition of the labor force.[64] Thanks to the expansion of access to education in the 1990s, low-skilled workers became relatively scarcer. COVID-19 could potentially reverse this trend with the ensuing higher levels of labor income inequality.

Taking all these factors into account will be fundamental to efficiently design policies to improve the opportunities of poor and vulnerable families. The policy response should not only focus on providing income support in the short-term but in preventing the irreversible destruction of human capital of poor children and youth. Regarding education, it is necessary to develop tools to improve the learning process in and outside of the classroom, while assuring that these tools are accessible to all pupils. Hereby, to reach the most vulnerable ones will not be possible without special attention and targeted actions and infrastructural investments. A priority is to ensure that the financing of these particular efforts will be available and not reallocated to reduce the fiscal impact of the enacted fiscal measures. In this sense, today's policy decisions bear a lasting responsibility and shall define the shape of the society we will live in tomorrow.

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[63] Lopez Boo, Behrman, and Vazquez (2020) simulate losses due to preprimary program closures because of the COVID-19 pandemic on the discounted values of future earnings when current preschool-age children become adults for a number of countries. They estimate losses of the order of 3.3 percent of GDP in Argentina, 3.9 percent in Brazil, and 4.1 percent in Mexico.

[64] See, for example, Lopez-Calva and Lustig (2010) and Messina and Silva (2018).

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APPENDIX

Table A1 – Estimates of the likelihood to complete secondary education

		ARGENTINA		BRAZIL		COLOMBIA		MEXICO	
		Likelihood to complete secondary schooling		Likelihood to complete secondary schooling		Likelihood to complete secondary schooling		Likelihood to complete secondary schooling	
Parents' Education	Scenario	Estimation	Standard Error	Estimation	Standard Error	Estimation	Standard Error	Estimation	Standard Error
Low	Regular school year	0.462	0.031	0.573	0.030	0.262	0.034	0.542	0.027
	Mitigated by educational policies	0.377	0.030	0.232	0.026	0.177	0.031	0.245	0.023
	Entire year lost	0.286	0.028	0.232	0.026	0.149	0.030	0.245	0.023
	Household income loss	0.373	0.030	0.232	0.026	0.177	0.031	0.239	0.023
	Mitigated by social assistance	0.377	0.030	0.232	0.026	0.177	0.031	0.239	0.023
Middle	Regular school year	0.775	0.028	0.798	0.027	0.602	0.044	0.742	0.029
	Mitigated by educational policies	0.692	0.030	0.639	0.032	0.473	0.044	0.660	0.032
	Entire year lost	0.678	0.030	0.639	0.032	0.436	0.044	0.660	0.032
	Household income loss	0.687	0.030	0.634	0.032	0.473	0.044	0.656	0.032
	Mitigated by social assistance	0.687	0.030	0.634	0.032	0.473	0.044	0.656	0.032
High	Regular school year	0.919	0.025	0.885	0.041	0.874	0.027	0.905	0.030
	Mitigated by educational policies	0.912	0.026	0.868	0.043	0.874	0.027	0.905	0.030
	Entire year lost	0.912	0.026	0.868	0.043	0.847	0.028	0.905	0.030
	Household income loss	0.912	0.026	0.868	0.043	0.871	0.027	0.905	0.030
	Mitigated by social assistance	0.912	0.026	0.868	0.043	0.871	0.027	0.905	0.030