

Initial scientific progress report: Simulations of policy responses and interventions to promote inclusive adaptation to and recovery from the COVID-19 crisis in Ecuador

Carla Canelas*[†] Juan David Robalino[‡] §

March 31, 2021

*The American University of Paris, Paris, France

[†]Centre d'Economie de la Sorbonne, Paris, France.

[‡]Universidad San Francisco de Quito, Quito, Ecuador

§IZA – Institute of labour Economics

1 Introduction

The sudden appearance and rapid spread of the Covid-19 virus pushed Governments around the world to partially shut down their economies in order to limit contact and suppress transmission. During the first trimester of the pandemic, Ecuador was among the countries hardest hit by the virus. Even though it was one of the first countries to impose lockdown measures, according to an analysis of mortality data by The New York Times, between March and October 2020, the overall number of deaths in Ecuador was 36,800 higher than usual compared to the same period in previous years –that is 2.97 times higher than the number of deaths officially reported.

The economic effects of the pandemic are being widely felt in the country, which by the time of the virus outbreak, was also dealing with one of its worst economic crises in decades. Most Ecuadorian households are economically vulnerable to income shocks, and the double impact of COVID-19 on supply and demand has exacerbated this vulnerability. Indeed, the social distancing and lockdown measures needed to reduce the spread of the virus have had important consequences in the labour market and on remittances, thus directly affecting household's economic well-being. In addition, a large share of workers are informal workers (66 per cent of total employment in December 2019).^{1,2} Economic shocks to employment or to labour income are particularly dangerous for these workers as they have a very limited savings capacity and they do not have access to unemployment protection.

So far the Ecuadorian Government has implemented two large-scale policy responses aiming to alleviate the economic impact of the crisis on household welfare:³

1. The Humanitarian Support Law introduces minor tax reliefs and labour reforms, along with other minor amendments to renegotiate commercial debt.⁴ In terms of

¹Socio-Economic Database for Latin America and the Caribbean

²Productive informality: An individual is considered an informal worker if (s)he belongs to any of the following categories: (i) unskilled self-employed, (ii) salaried worker in a small private firm, (iii) zero-income worker.

³[Diario el Comercio: Ley de Apoyo Humanitario se publicó en el Registro Oficial, ¿qué implica?](#) (last accessed 20 October 2020)

⁴See [Registro-Oficial \(2020\)](#)

labour reforms, it allows the modification of existing economic conditions in current labour contracts, in particular, the reduction of employees' working time up to 50 per cent of the normal working hours, thus reducing payments proportionally. In terms of social security coverage and unemployment protection, it allows salaried workers who had been laid off, to apply for unemployment insurance after 10 days of unemployment instead of 60 days, as it was before.

2. Family Protection Bond for Emergencies: is a temporary emergency programme targeting families whose income is below the minimum wage and do not have access to social security (informal workers).

Yet, these policies seem quite modest compared to the economic impact of COVID 19. It is, therefore, key to evaluate the impact of COVID19 on the economic well-being of Ecuadorians, as well as the effectiveness of the current policies and other potential policies.

We will divide this project in three parts: first, we will use household labour surveys from December 2019 to estimate the impact of COVID19 on labour income by economic sector in May and September 2020. Then, we will use these estimates to simulate individual incomes post-COVID19 and analyse the average impact for key sub-populations. Finally, we will run simulations of the effect of existing alleviation policies.

The remainder of this report is organised as follows: Section 2 presents the economic context pre-COVID in Ecuador; Section 3 describes the data and the empirical strategy; Section 4 presents our results and Section 5 concludes.

2 The case of Ecuador

2.1 Economic Context

Ecuador was already a fragile economy when it became one of the countries most affected by COVID19. Since 2015, the average GDP growth of the economy was almost zero and GDP per capita decreased every year, except 2017 when it grew marginally (see A.1 in the Appendix). Unemployment fell from 4.7 to 3.8% in 2019, but through a lower participation in the labour market and a growth in informal work from 58.4% to 66.07%. Part of

this growth in informality is driven by a growth in self-employment from 34 to 38%. These are likely to be workers who could not find salaried work, thus they start low productivity subsistence activities. Labour income also fell and fiscal accounting deteriorated. For the vast majority of households in the country, labour income accounts for the main, if not the only, source of income. At December 2019, labour income accounted for 82% of total household income. Other sources of income include conditional cash transfers from the Government (CCT accounted for 15% of total income of programme eligible households) and international remittances.

Ecuador has a long history of economic migration. In the late 1990s, the country suffered one of the worst macroeconomic and financial crises in its history, which resulted in the adoption of the US dollar in January 2000. The destruction of wealth in the wake of the crisis and the concomitant loss of jobs set off the largest emigration wave in Ecuador's history (Jacome, 2004). As a consequence, during the first half of the 2000s, the amount of remittances received by Ecuador was comparable to oil revenues and allowed households to recover from the crisis (Canelas, 2019). In 2019, the amount of remittances received by Ecuador was 3.2 billions US dollars.⁵ This represented 3.01% of the country's GDP in that year.

The country has also high levels of income inequality (the Gini coefficient was 0.459 in 2017, 0.469 in 2018, and 0.473 in 2019). The incidence of poverty is also high with an increasing trend (21.5% in 2017, 23.2% in 2018, and 25% in 2019). These trends are likely to worsen by the effect of the pandemic.

In terms of social security coverage, the percentage of wage workers registered with the system's contributory scheme in 2019 was only 53.9%, that is 24.7% of the working population. If we take into account unpaid workers (16%) and self-employed (38%), the percentage of workers not covered by the social security system accounted, on average, for 75% of the working population. Given that these workers have a limited savings capacity to cope with economic shocks and they do not have access to unemployment protection, changes in labour income associated to this group of workers are particularly important in terms of economic policy.

⁵According to the Central Bank of Ecuador, 88% of this amount came from the USA, Spain, and Italy.

2.2 Presidential Elections and Candidate’s Proposals

Ecuador is currently in the middle of presidential elections. Amid allegations of fraud and vote recounts, the official results of the first round of the elections came on Friday, 19th of February 2021: Andrés Arauz – linked to the former president Rafael Correa– came first with 32% of the vote; he will face Guillermo Lasso in the second round of the elections –right-wing candidate from the banking industry– who came second with 19.74% of the vote, just ahead of Yaku Pérez –left-wing candidate from the indigenous movement– who got 19.38% of the vote.

For now, we outline the main proposals to alleviate the impact of COVID from the two remaining candidates:

- Andrés Arauz, proposes an ‘economic emergency transfer’ during the first two weeks of his mandate consisting of a one-time transfer of \$1,000 to one million of households.
- Guillermo Lasso, right-wing candidate, proposes to increase the coverage of the Human Development Bond (flagship cash transfer program in Ecuador) to all ‘affected families’.

3 Data and empirical strategy

3.1 Data and descriptive analysis

The data used in this paper is drawn from the National Survey of Employment and Unemployment 2019 and 2020 conducted by the Ecuadorian National Institute of Statistics (INEC).⁶ The ENEMDU is a pooled cross-sectional survey representative of the Ecuadorian population. The survey collects detailed information on household demographics, health, education, occupations and labour force participation, housing and asset ownership, and income, including contributions from social assistance. It also collects the volume of international transfers received, i.e., remittances.

⁶Encuesta Nacional de Empleo y Desempleo—ENEMDU

3.2 Empirical strategy

This study is part of a broader research initiative on the ‘inclusive adaptation and recovery policies responding to the COVID-19 crisis in developing countries’. In order to allow for some comparability among the different countries in the project, we follow a similar methodology to estimate the effects of the COVID19 on household welfare.

The aim is to estimate individual incomes post COVID and use them to analyse changes for key demographic groups. We start by computing the actual changes in average income for each economic sector in May 2020 and September 2020 with respect to December 2019 (see Table 1). For this purpose we compute the mean labour income by economic sector for each cross-sectional period as well as the total employment based on the sampling weights; we then compute the changes in labour income considering also the changes in employment (i.e. considering the change in total employment in a given sector as zero-income so that our simulated incomes capture the expected income post-COVID including the probability of unemployment). We then use these shocks to estimate individual changes in labour income base on the economic sector of each worker. We use these individual estimates to report income changes for key groups, including by gender, rural/urban areas, formal/informal workers. We also analyse changes in poverty rate and inequality using our simulated incomes.

Finally, we also simulate the impact of the current Government cash transfers in response to the crisis. Our strategy consists of considering the total Government expenditure on transfers and distribute it equally to individuals bellow the extreme poverty line.

4 Evaluation of the impact of COVID19

We start by estimating the impact of COVID19 on the mean labour income and employment by economic sector (see Table 1). Compared to December 2019, in May 2020 the aggregate mean income dropped by -54% and employment dropped by -21%. The most affected economic sectors during this period were construction, restaurants & hotels, and personal services with drops in average income of -84%, -74%, -71%, respectively. By September 2020, the drop in mean income across sectors improved (-10% compared with

Table 1: Change in labour income and employment 2019/2020

Econ. Sector	December 2019	May/June 2020		September 2020			
	Income	Income	Change in income	Change in employment	Change in income	Change in employment	
Agriculture, fishing and mining	286.40	146.22	-48.95%	-12.47%	237.35	-17.12%	-2.64%
Industry, electricity, gas and water	493.96	215.85	-56.30%	-28.54%	397.77	-19.47%	-8.48%
Construction	433.61	69.88	-83.88%	-41.17%	323.20	-25.46%	-11.48%
Trade	424.92	175.81	-58.62%	-22.29%	459.61	8.16%	-1.14%
Restaurants & Hotels	403.82	104.78	-74.05%	-20.68%	291.98	-27.69%	-4.82%
Transportation & communication	509.62	186.62	-63.38%	-21.26%	349.11	-31.50%	-15.92%
Real estate	543.52	214.64	-60.51%	-34.42%	447.00	-17.76%	-6.61%
Public administration and defence	1014.40	849.85	-16.22%	-4.94%	1068.60	1.78%	3.50%
Education	785.80	609.70	-22.41%	-13.30%	823.47	0.97%	3.78%
Health	811.76	643.77	-20.69%	-14.47%	864.35	6.48%	-2.98%
Personal services	336.88	98.32	-70.81%	-40.38%	217.85	-35.33%	-29.83%
Other services	934.51	964.50	-16.15%	23.09%	1165.69	4.28%	19.62%
All	461.91	211.77	-54.15%	-21.11%	414.49	-10.27%	-5.60%

Source: ENEMDU December 2019, June/May 2020, and September 2020

December 2019) and the average income recovered in several sectors such as education, health, and trade. We use the estimates from Table 1 to simulate the individual income shocks as explained in the methodology.

4.1 Shocks to individual labour income

Table 2 shows the changes on individual labour income by gender, rural/urban areas, formal/informal workers, and income deciles. We find that informal workers' labour income was considerably more affected than formal workers' (-58% vs -48% in May 2020 and -15% vs -10% in September 2020). Males' labour income was slightly more affected than females' (-55% vs -53% in May and -14% vs -13% in September), yet females still earn less than males in all periods. Workers in urban areas were slightly more affected than in rural areas in May (-56% vs. -52%), but they recovered more by September (-12% vs. -16%). Rural workers earn considerably less than urban workers in all periods.

Labour income in all deciles decreased considerably in May, with the middle class (deciles 4 to 7) experiencing the largest drop (-57%) and the top income the smallest drop (-47%). By September the drop in income was around -15% for the lowest eight deciles

Table 2: Monthly individual labour income pre and post Covid

Group	December 2019	May/June 2020		September 2020	
	Income	Income	Change	Income	Change
<i>By gender</i>					
Female	415.24	218.62	-53.35%	377.75	-12.58%
Male	489.70	230.00	-55.47%	427.72	-14.43%
<i>By area</i>					
Rural	311.99	151.01	-51.74%	264.54	-16.47%
Urban	523.48	256.45	-56.23%	468.42	-12.04%
<i>By type of employment</i>					
Formal	719.77	394.68	-48.19%	655.79	-10.31%
Informal	289.13	112.56	-57.83%	243.75	-15.36%
<i>By income decile</i>					
1	107.15	47.29	-52.63%	90.64	-15.88%
2	181.72	76.85	-55.17%	152.08	-15.95%
3	250.49	108.64	-55.62%	212.99	-15.45%
4	274.84	116.36	-56.85%	232.35	-15.11%
5	303.49	130.61	-56.96%	259.65	-14.47%
6	355.02	152.59	-57.41%	301.17	-15.02%
7	395.75	179.13	-56.71%	342.25	-13.97%
8	463.95	218.79	-55.84%	407.86	-13.17%
9	559.60	288.86	-52.53%	505.60	-10.98%
10	1045.30	564.32	-48.64%	956.88	-9.60%

Source: ENEMDU Dec 2019 and authors' calculations

and around -10% for the top two deciles.

4.2 Poverty and Inequality

Table 3 shows the poverty rates in December 2019 and the simulated rates in May and September 2020 for rural/urban areas and for formal/informal workers. Overall, the poverty rate more than doubled in May reaching 55%; in September it went to 31%, still six percentage points higher than in December 2019. Poverty is particularly severe in rural areas where it reached 71% in May and 48% in September (over 20 percentage points higher than in urban areas in all periods). Poverty is also particularly severe for informal workers for whom it reached 64% in May and 37% in September (around 30 percentage points higher than for formal workers in all periods).

Regarding inequality, Figure 1 shows the Lorenz curve and the Gini coefficient before and after the Covid crises. In December 2019, Ecuador had a Gini coefficient of 0.473. This was lower than the average for the LAC region, 0.51.⁷ Ecuador's Gini reached 0.53 in May 2020 (comparable to Brazil's Gini in 2019, the most unequal country in the region), and went back down to 0.49 in September.

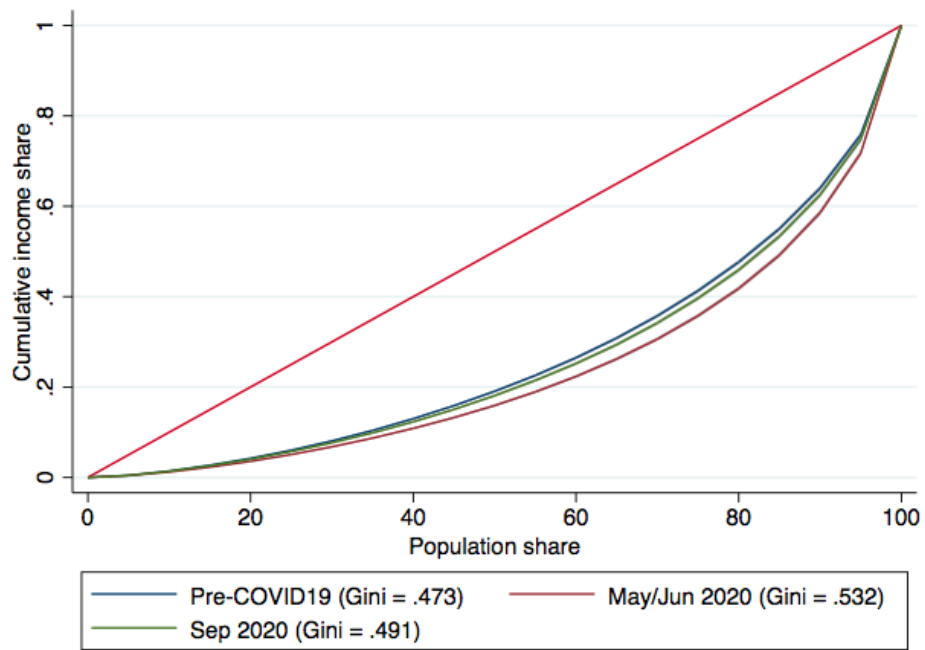
Table 3: Poverty rates pre and post Covid

Group	Dec 2019	May 2020	Sept 2020
All	24.78%	55.33%	30.82%
<i>By area</i>			
Rural	40.22%	71.02%	48.08%
Urban	17.58%	49.32%	22.86%
<i>By employment type</i>			
Formal	5.46%	28.18%	7.97%
Informal	29.67%	64.06%	36.56%

Source: ENEMDU Dec 2019 and authors' calculations

⁷World Bank Development Indicators.

Figure 1: Gini coefficient pre and post Covid



4.3 Covid-transfers

We evaluate the impact of all the cash transfers from the Government up to date, which add up to a total budget of about \$250 million.⁸ To simulate its effect, we divide this budget equally for all individuals under the ‘extreme poverty line’ (\$47.80 per month); to compare this with the monthly labour income, we divide this transfer-share by six (the months over which the transfers took place, that is April to September 2020). This adds up to an average transfer of \$26.50 per month (for six months) to individuals below the poverty line.

Table 4: Average labour income pre- and post-Covid with and without public transfers

	Dec. 2019 Income	Sep 2020 simulated income	
		w/out transfers	w/ transfer
All	461.91	409.07	410.28
Poor	162.48	136.82	144.79

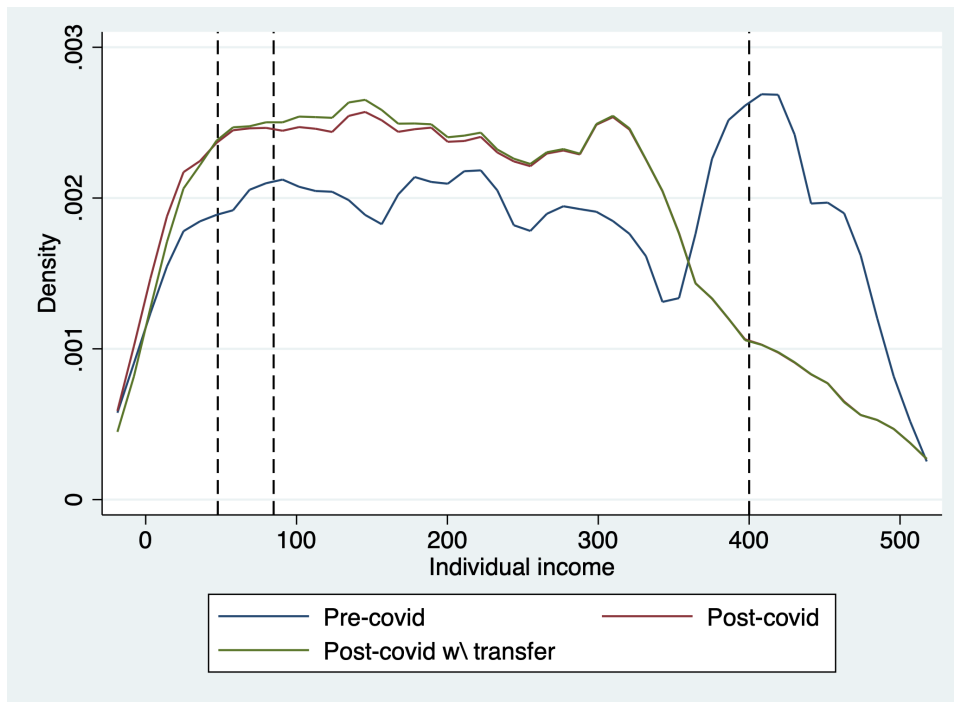
Source: ENEMDU Dec 2019 and authors’ calculations

Table 4 compares the mean individual income in December 2020 with the simulated income in September 2020, with and without transfers. We see that, in the aggregate, these transfers had very little effect, with the average monthly income increasing by only \$1.20 per month. Yet, considering only individuals below the poverty line, the average increase was \$8 per month, representing about 5% of their pre-COVID average labour income and a recovery of 69% of the average loss in labour income.

Figure 2 shows the income distribution in December 2019, as well as the distribution of the simulated incomes from September 2020, with and without transfers. We can see how the COVID19 crisis increased the density of the distribution below the minimum wage; we can also see that the transfers had some small effect around the poverty line.

⁸FMI, Informe de país No. 20/150
<https://www.finanzas.gob.ec/wp-content/uploads/downloads/2020/11/SPA-Ecuador-2020-EFF-Bundle.pdf>

Figure 2: Income distribution post Covid & after transfer May 2020



Source: ENEMDU Dec 2019 and authors' calculations. Dash lines represent, from left to right, the extreme poverty line (\$47.80), the moderate poverty line (\$84.81) and the minimum wage (\$400).

5 Conclusions

This study shows the delicate economic situation in Ecuador. Mean labour income dropped by more than half in May 2020, while poverty rate more than doubled compared to pre-COVID levels (i.e., December 2019). The economic situation improved by September 2020; by then, the drop of income represented 10% of pre-COVID levels, and the poverty was 6 pp above the pre-COVID rate. Income inequality increased considerably in May 2020, and improved somewhat by September 2020.

The crisis affected individuals across the income distribution; only the top two deciles experienced a somewhat smaller initial shock and faster recovery. Informal workers were hit particularly hard. As this population represents almost 66% of the working force, and they do not have formal social security benefits, direct cash transfers are probably more effective than wage subsidies.

When evaluating the Government transfers in response to the crisis, we see that they had very limited effects in the aggregate. Yet, they may have been crucial for the subsistence of individuals below the poverty line.

By evaluating the impact of COVID19 among different groups of the population and by simulating the effectiveness of potential policies, we hope to guide policy makers in designing interventions aimed at alleviating the economic impact of the pandemic.

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Appendix

Table A.1: Macroeconomic Statistics

Indicator	2015	2016	2017	2018	2019
GDP (real 2007 \$)	70,174	69,314	70,955	71,870	71,909
GDP growth (% annual)	0.1%	-1.23%	2.37%	1.29%	0.05%
GDP per capita (real 2007 \$)	4,310	4,193	4,229	4,221	4,164
GDP per capita growth (% annual)	-1.45%	-2.72%	0.85%	-0.18%	-1.36%
Public debt (% GDP)	33%	38.2%	44.6%	45.2%	44.9%
Primary fiscal deficit (% GDP)	-1.68%	-5.34%	-5.39%	-2.46%	-2.48%
Total population	16,278,844	16,528,730	16,776,977	17,023,408	17,267,986
Working age population	11,399,276	11,696,131	11,937,928	12,239,023	12,402,565
Active population	7,498,528	7,874,021	8,086,048	8,027,130	8,099,030
Activity rate (% working force)	65.78%	67.32%	67.73%	65.59%	65.3%
Unemployment rate (% labour force)	4.77%	5.21%	4.62%	3.69%	3.84%
Informal work* (% employed)	58.4%	62.2%	63%	64.7%	66.08%
Self-employed* (% employed)	34.1%	35.9%	35.6%	36.9%	38.5%
Mean labour income	355.6	337.1	341.2	333.5	325.8

Source: Central Bank of Ecuador

*SEDLAC estimates