

Simulations of policy responses and interventions to promote inclusive adaptation to and recovery from the COVID-19 crisis in Argentina*

Julian Martinez-Correa Guillermo Cruces Juan Menduiña Jorge Puig

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Abstract

This research report simulates the impact of COVID-19 crisis on households' incomes, unemployment, poverty, and inequality in Argentina. For this purpose, simulates impacts on welfare using household survey data, administrative data on employment and wages by economic sectors. The study also includes a gender and age groups analysis. Simulations also account for public assistance (i.e., policy response), implemented by the government to mitigate the crisis. Results indicates that during COVID-19 crisis households experimented a reduction on their incomes. This welfare loss was nonlinear along the income distribution, being the lowest income earners who suffered the most in relative terms due to relatively higher informality at the bottom of income distribution. Policy response seems to ameliorate by around 1/3 what the average drop in household income. This prevented major increases in poverty and inequality.

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*This document was elaborated by Julian Martinez-Correa, Juan Menduiña, and Jorge Puig under the supervision of Guillermo Cruces. Affiliation for all authors and the scientific mentor is Center for Distributive, Labor and Social Studies (CEDLAS), belonging to the Institute of Economic Research of the Faculty of Economic Sciences at National University of La Plata (UNLP). Cruces also belongs to School of Economics, University of Nottingham, and CONICET. We would like to thank to an anonymous reviewer for suggestions, clarification requests, and useful comments. Also to Edgar Cooke for discussing our report during PEP's Annual Conference, and attendees to our presentation for useful comments and suggestions. The usual disclaimer applies. E-mail contact: jorge.puig@econo.unlp.edu.ar.

1 Introduction and background

As in most countries, COVID-19 pandemic has disengaged a severe crisis in Argentina. The preventive and compulsory social isolation (ASPO, in Spanish), established by the National Government on March 20th 2020, had the primary objective of immobilizing the population to prevent the virus circulation, and gain time to prepare the health system for the sanitary consequences. The ASPO had been extended for more than 200 days, being one of the longest isolations in the world. Consequently, economic activity has suffered strongly. According to the National Institute of Statistics and Census (INDEC) of Argentina, economic activity fell 25 percent in April, and 20 percent in May (compared to the same months of 2019). While many productive and considered essential activities continued normally (e.g., food production, health services), others less essential were significantly reduced (e.g., transportation, construction, domestic services). Those that require physical presence in the workplace (e.g., manufacturing, construction) were also restricted, and others directly suspended (e.g., tourism, recreation). Finally, some activities were adapted and carried out remotely (e.g., many professional services, education). This reduction in economy activity has put job stability of many people at risk, affecting their income levels, and deteriorating social indicators.

In this context, the Argentine Government has implemented a series of economic policy responses to face the crisis. To guarantee access to food and sustaining income of less well-off sectors, an Emergency Family Income (IFE, in Spanish) was established. This was an exceptional payment of \$ 10,000 pesos (around US\$120, an about 60 percent of the minimum wage) during the months of April, June, and August, to unemployed people, informal workers, low-income self-employed, and domestic workers. The social protection system was also reinforced. Beneficiaries of cash transfer programs (e.g., holders of the Universal Child Allowance (AUH) and Universal Allowance for Pregnancy (AUE)) received a bonus payment. Also, retirees and pensioners received an extra payment.¹ This package of measures was estimated on approximately 4 points of GDP and had been in place from the beginning of the crisis until the end of 2020 for those activities that were affected by the crisis.²

Given the crisis' magnitude and the public policy responses it becomes very relevant to inquire on the damages of the crisis and on how effective these policies have been in mitigating it. However, any attempt of studying this phenomenon today, in September 2020, faces two main limitations. First, a limitation of data availability on how the COVID-19 is affecting economic activity – in real time –

¹Additionally, with the objective of containing the decline in productive activity the Assistance Program for Emergency to Work and Production (ATP, in Spanish) was created. Through this program the National Government assist firms –that applied to the program– by paying 50 percent of wages to employees.

²According to Argentina's Ministry of Economy, during 2020 current transfers registered a year-on-year increase of \$ 153 billion pesos of which \$ 114 billion were received by the private sector. Payments for the Emergency Family Income (IFE) and the Emergency Work and Production Assistance Program (ATP) amounted to \$ 11 billion (2 points of GDP). For their part, family allowances increased by \$ 22 billion by virtue of the increases granted through Decrees N ° 163/20, N ° 495/20 and N ° 692/20 and the mobility applied during 2019.

For example, at the moment of writing this report only the household survey corresponding to the first quarter of 2020 is available in Argentina. Also, information on how employment in the different sectors is being affected is published with lags. Second, a limitation on how to predict the evolution of this uncertain phenomenon. Argentina, like the rest of the countries in the world, are going through the COVID-19 pandemic without certainty about when or how it will yield. In any case, this study makes an effort to simulate the effects of COVID-19 at the moment and its potential evolution, using all available information at the time. To some extent, it can be considered as a simulation tool that seeks, given the aforementioned limitations, to provide general insights on how the COVID-19 is affecting employment and income distribution. The underlying hypothesis is that the COVID-19 crisis strongly deteriorated the Argentine economy and households' welfare, but the implemented public policies collaborated to counteract (at least partially) these negative effects. To inquire on this hypothesis, in this research report we analyze the impact of COVID-19 crisis on households' incomes, unemployment, poverty, and inequality. We also explore heterogeneous effects by gender and age groups. For this purpose, we simulate impacts on welfare at the household level using household survey data, administrative data on employment and wages by economic sectors, and government cash transfers. We consider different scenarios. First, we start by characterizing the pre-COVID-19 scenario in terms of socioeconomic indicators using microdata from Argentina's household survey corresponding to the first quarter of 2020 (Initial Scenario). Second, we simulate the effects on unemployment and household's income for three quarters after the beginning of the pandemic.³ To this aim, we use last available figures on the evolution of economic activity, and past changes on employment and wages by sector. All scenarios also include public assistance (i.e., policy response), in line with what the Argentine government is doing to mitigate the crisis, to get a general sense of how effective these policies were in counteracting those effects.

Results indicate that during COVID-19 crisis households would have experimented a reduction of about 6 percent on their incomes. This reduction was nonlinear along the income distribution, being the lowest income earners who suffered the most in relative terms. This is strongly related with relatively higher informality at the bottom of income distribution. The greater negative effects of the pandemic in less well-off part of the income distribution are in line with results from [Bonavida & Gasparini \(2020\)](#). Furthermore, the impact was not homogeneous by gender: on average, the employment rate fell more among women than men (-23.0 percent vs. -20.8 percent when comparing 2nd and 1st quarters of 2020). In early working ages (18-24) the differences are very significant: the fall in employment rate was 63 percent for men and 80 percent for women. These differences become more pronounced when considering the presence of children. For example, for the age group 18-24, the contraction in employment for men with children was close to 57 percent, while for women with children it was 82 percent. In the group between 25 and 40 years old, the falls were 18 percent and 30 percent, respectively. Even conditioning on sector, in seven of the eleven analyzed sectors women's employment was more affected than that of men. These findings are consistent with [ILO \(2020\)](#) and can be associated with the overlap of work responsibilities

³These are the periods between June - March 2020 (1st quarter ahead Scenario), July - September 2020 (2nd quarter ahead Scenario), and October - December 2020 (and 3rd quarter ahead Scenario).

and care (housework, childcare and eldercare) responsibilities which have intensified during the pandemic, especially for households with children (OECD, 2020; WEF, 2021).⁴ The policy response mitigated the impact of the crisis: cushioned by around 1/3 what the average drop in household income would have been. This prevented major increases in poverty and inequality. A key aspect of the satisfactory policy response was that public assistance was targeted at informal workers and at less well off households with children. This policy response large offsetting effect is in line with previous findings such as Lustig *et al.* (2020).⁵

The research makes three contributions. First, it provides estimates of the effectiveness of the government's response to the pandemic with respect to its impact on household welfare. Second, it contributes to the literature that studies the effects of COVID-19 on socioeconomic variables such as unemployment, poverty, and inequality. To some extent, it contributes to fill the lack of evidence on the immediate effects of the COVID-19 crisis at the household-level for most low-and middle-income countries, as remarked by Janssens *et al.* (2021).⁶ Since it focuses on Argentina, a Latin American developing country, is closely related with some previous studies for the region on this topic. Lustig *et al.* (2020) micro simulate the distributional consequences of COVID-19 in Latin American countries, considering the expanded social assistance that governments introduced in response to the crisis. Their findings suggest that: i) worst effects are not on the poorest, but those (roughly) in the middle of the income distribution; ii) policy response presented large offsetting effect, but with different intensity across countries; and iii) the increase in poverty induced by the lockdown was similar for male- and female-headed households. Bonavida & Gasparini (2020) analyze the effects of COVID-19 on remote employment evaluating to what extent this type of employment is feasible for Argentine workers. They suggest that about a quarter could do it remotely, and the degree of applicability of this modality is very heterogeneous, by occupation and industry. Less compatible occupations are characterized by a higher share of informal and self-employed workers, with lower levels of education, skills, and wages. Thus, short-term negative effects of the pandemic would be greater in the lower-income sectors, implying a significant increase in poverty and income inequality.⁷ Brum & De Rosa (2021) micro simulate the short-run effect of the crisis on the poverty rate for Uruguay. They estimate the effect of the crisis on formal, informal, and self-employed workers, finding that during the first full month of the lock-down, the poverty rate reaches 11.8 percent, an increase of over 38 percent. Cash transfers implemented by the government would have had a positive but very limited effect in mitigating this poverty spike. Third, it provides a timely and accurate measurement on the effects of the adopted policies for policy makers, highlighting pros and cons to assist the design of

⁴On the overload women usually bear regarding childcare and housework see Angelov *et al.* (2016) and Bertrand (2020).

⁵For an application to the San Francisco Bay Area , Martin *et al.* (2020) find also that government benefits decrease the amplitude of the crisis.

⁶As remarked by Janssens *et al.* (2021) most evidence is from developed countries. See, for example, Coibion *et al.* (2020); Forsythe *et al.* (2020); Montenovo *et al.* (2020).

⁷Similarly, and for the United States, Montenovo *et al.* (2020) show that job loss was larger in occupations that cannot be performed remotely.

the new round of measures to be adopted at the end of the pandemic.

The remainder of this report is structured as follows. Section 2 details data and the methodological approach. Section 3 presents the simulation, distinguishing between scenarios before COVID-19 and after it. Section 4 summarizes the key findings and offers guidelines and recommendations for public policy discussions.

2 Data and Methodology

The main source of information for this report is the Permanent Household Survey (EPH), carried out by INDEC. The survey covers urban areas that represent around 62 percent of the total population. It contains information on whether the household member is (labor) active and in which economic sector he/she works. It also reports information on earned income, both labor and non-labor incomes. The latter includes cash transfers, including those from government.⁸

As remarked by Araar *et al.* (2020) COVID-19 can generate a set of multiple shocks on welfare. These include the reduction in labor supply and labor incomes, the increase in prices, and the decrease in remittances. This report will focus on the effects on labor incomes and will also consider the government policy response.⁹ To measure households' welfare we mainly use the monthly gross income per capita (gipc).

The methodology to simulate the COVID-19 impact in different scenarios involves several steps. First, we characterize the pre-COVID-19 situation using the EPH corresponding to the first quarter of 2020.¹⁰ We denote this situation as Initial Scenario, providing an accurate representation on how the Argentine situation – in terms of incomes, poverty, and inequality – was before the pandemic. To measure poverty, we use the same methodology as INDEC.¹¹ That is, the current household's total income is compared to the household's poverty line, based on the market value of a food-basket, a non-food basket, and the number of members.¹² We rely on the Gini coefficient and Atkinson indicators to measure the impact on inequality. In this scenario, as in the reminders, we explore heterogeneity on results regarding

⁸We do not impute the rental value of owner-occupied housing.

⁹We do not consider the effect of price changes given that in Argentina home production is negligible, so net producer/consumer models are not relevant for this country. In addition, we also do not consider the remittances given that are not a relevant component of households' income. In 2019, remittances only accounted for 0.11 of GDP.

¹⁰The latest wave available at the time of writing this report.

¹¹See [here](#) for the official methodology on poverty estimation in Argentina.

¹²For INDEC's poverty measure we need to modify the gipcf by dividing total household income by the household's number of equivalent-adult members (i.e., a 30 to 60 years old male according to caloric needs), instead of simply the number of members. In addition, poverty lines depend on the household's geographical location (i.e., region) because of price level variation.

age groups, gender and economic sector.

Second, we simulate the post-COVID-19 situation for three quarters after the pandemic, considering effects on employment and on labor incomes.¹³ We assume that labor incomes variation affects only households with active members and non-zero labor income. Given that the COVID-19 shock may have differential effects by economic sector depending on productive sectors characteristics, for the employment simulation we use data on employment variations dis-aggregated by 11 sectors provided by the Argentine Ministry of Labor, Employment and Social Security.¹⁴ We also distinguish between public and private employment, and in the latter between formal and informal workers. Simulations on employment variations involve three steps: (i) determine how much employment falls in each sector, and also between formal and informal workers; (ii) determine who are the individuals who lose their jobs, and (iii) determine the variation on wages for those who remain active. To determine how much employment falls we rely on past information.¹⁵ The COVID-19 shock was the largest economic contraction that Argentina experimented after the Great Recession of 2008/2009. Output contraction was almost twice during the COVID-19 shock than it did in the Great Recession. Therefore, for the simulation on employment variations we use the largest quarterly drop in employment during the Great Recession, increased by the relation between output drops during COVID-19 shock relative to those ones during the Great Recession.¹⁶ To determine who are the individuals who lose their jobs, we rely on a simple selection model based on individual probabilities. Specifically, we estimate logistic regressions for formal and informal workers, respectively, together with unemployed individuals. The dependent binary variable takes the value one if the individual is employed, and zero otherwise. The vector of independent variables includes a set of characteristics referring to individual and households' observable characteristics.¹⁷ We then use the estimated probability: those individuals with lower probability of being employed are the ones chosen to lose their jobs.¹⁸ To determine the variation on wages for those who remain active, we simulate the variation on labor incomes for those who continue working –as in the Initial Scenario– using data on wages from INDEC. In this case we consider income variation for public employees, private employees, and informal workers (non-registered salaried employees and self-employed).¹⁹

¹³Note that quarters correspond to the 2nd, 3rd, and 4th quarter of 2020.

¹⁴See [here](#). These data provide quarterly information on the number of formal and informal workers by economic sector.

¹⁵Given that at the time of this simulation there are no data on changes in employment.

¹⁶For example, during the Great Recession, output experienced the highest contraction during the second quarter of 2009. The reduction was 11.3 percent. Formal (informal) employment in primary sector fell, on average, 33.1 (47.3) percent. During the second quarter of 2020, output experienced a reduction of 19.0 percent. Thus, we assume that primary sector reduction on formal employment was 62.9 (89.8). See Table [A1](#) in the Appendix.

¹⁷The first group includes age, squared age, gender, marital status, and indicator variables for educational levels. Variables at the household level include the logarithm of the household's per capita income, and the number of members in the household. See Table [A2](#), in the Appendix.

¹⁸An implicit assumption that we are making is that there are no formal-informal transitions, all those selected to lose their job go to unemployment / inactivity.

¹⁹We exclude business-owners, non-salaried family workers and public sector employees for simulating employment losses.

Formally, we define $Y_{i,h,0}$ as the pre-COVID-19 (2020, 1st quarter) total income for individual i in household h , and $L_{i,h}$ as the labor income variation for individual i .²⁰ Then, in equation 1, $Y_{i,h,1}$ constitutes the simulated total income in the post-COVID-19 situations,

$$Y_{i,h,1} = Y_{i,h,0} - L_{i,h} \quad (1)$$

Since inflation in Argentina is very high, we further deflate total incomes by the price level variation of the total basic basket between 1st and the three subsequent quarters that cover the post COVID-19 situation.²¹ With these real final incomes, we re-estimate total household's income and the gipc to compute poverty and inequality indicators. We denote these situations as 1st, 2nd, and 3rd quarter ahead Scenarios without policy response.

Third, we simulate government policy responses in line with what the Argentine government is doing to mitigate the crisis. Specifically, we consider the most relevant ones in terms of household's welfare (see Section A1 in the Appendix).²² First, the Emergency Family Income (IFE). This consisted of three exceptional payments during the months of April, June, and August of \$ 10,000 pesos -each- to less well-off families. Note that this policy will affect only the 1st and 2nd quarter after COVID-19 simulations. Second, the extra payment to holders of the AUH, AUE, and retirees. This was an exceptional payment of \$ 3,000 pesos for the 1st and 2nd quarter after COVID-19. For the 3rd quarter after COVID-19 the payment of AUH was increased up to \$6.000 (corresponding to a 5% increase plus 20% of the cash transfer that is withheld every month and received at the end of the year). In terms of the simulation, we identify in the EPH all potential beneficiaries of these programs according with eligibility criteria and we then simulate the cash transfer $T_{i,h}$.²³ Thus, the after-policy response individual incomes $Y_{i,h,1}^p$ are,

$$Y_{i,h,1}^p = Y_{i,h,0} - L_{i,h} + T_{i,h} \quad (2)$$

Again, we compute the poverty and inequality indicators for these situations, denoted as 1st, 2nd, and 3rd quarter ahead Scenario with policy response.

See Table A1, in the Appendix.

²⁰Labor income is collapsed to zero for those individuals who are selected to lose their job, and variation in wages is imputed for those who remain employed.

²¹According to INDEC the annual rate of inflation for 2020 was 36.1 percent.

²²It should be noted that our simulations only indirectly consider the ATP program. Since this program was granted to companies for the payment of salaries and avoid dismissals, wage and employment figures used for the simulation implicitly contemplate it.

²³In other words, we follow the benefit-incidence analysis, one of the most widely used methodologies for policy response simulation (van de Walle, 1995; Bourguignon & da Silva, 2003; Gasparini *et al.*, 2014; Lustig, 2017).

A critical point regarding the evolution of labor incomes must be taken into account to compare the post COVID-19 quarters with the Initial Scenario. Workers in Argentina benefit from a wage bonus that is paid twice a year. This bonus is known as *aguinaldos* and is paid bi-annually during June and December. They are consequently registered and included in the 1st and the 3rd quarters of our simulations but not in the 2nd and the 4th ones. Thus, in order to provide an accurate comparison, the Initial Scenario should be compared with the 2nd quarter ahead Scenario. This is valid for both the situation with and without policy response. Finally, leaving aside the Initial Scenario, each quarter can be compared between the situation with and without policy response, respectively. This comparison will provide a good approximation for the effects of policy response after the pandemic.

3 Results

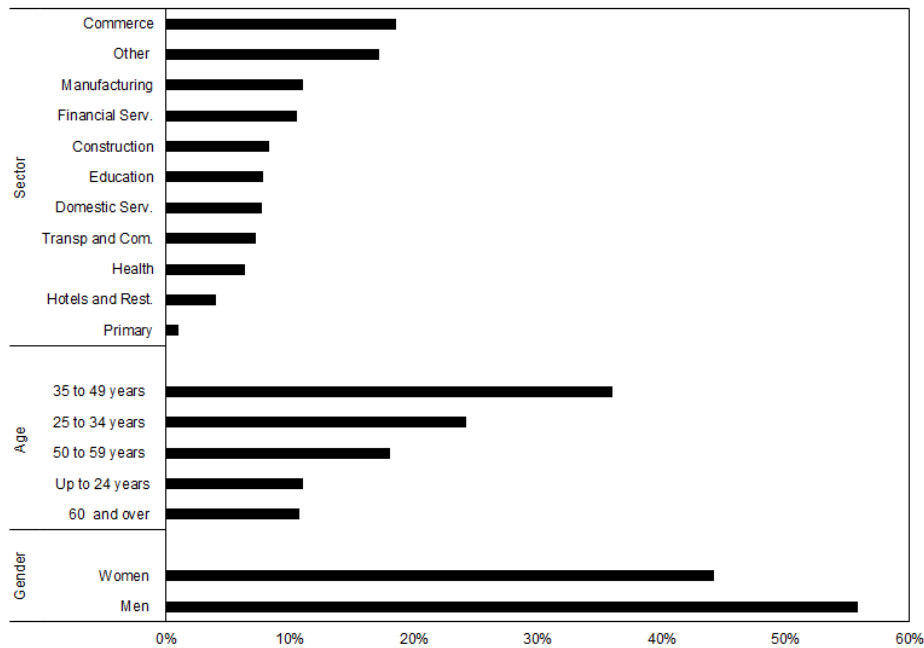
3.1 Initial Scenario

We begin by characterizing the pre-COVID-19 situation. According to EPH, approximately 12 million of people were employed during the first quarter of 2020. The distribution of workers among gender, age groups and economic sectors is shown in Figure 1. Male workers represent 56 percent of total employees. Around 78 percent of total workers were among 25 and 59 years old. Most relevant economic sectors in terms of employment were commerce (19 percent), financial services (11 percent), and manufacturing (11 percent). Informality rate was on average 40 percent, but this rate is decreasing on the income level. Panel A in Figure 2 indicates that for lowest (highest) income decile informality rate is near 85 (10) percent. The share of woman between informal workers seems to be slightly higher income levels increase. Informality also varies among economic sectors (see Panel B in Figure 3), being domestic services the sector with the higher informality rate (76 percent), and with higher relative participation of woman among informal workers. Construction is another sector with high informality, but mostly made up by male workers. Education and health can be mentioned among those sectors with a relatively low informality rate.

Average per capita income for pre-COVID-19 situation is presented in Table 1, Column [1]. For the first quarter of 2020 it was \$ 19,914, being slightly higher for households with male's household head. The richest decile shows an income approximately 22 times higher than the poorest. In Table 2, Column [1], the same information is provided but distinguishing between economic sectors instead of income deciles. A wide heterogeneity across sectors can be appreciated. Higher per capita incomes are related to sectors like primary activities, financial services, and social and health services. Domestic services, construction, hotels and restaurants are among sector with lowest incomes. These figures on per capita income results in a Gini coefficient of 0.441 (Table 3, Panel A, Column [1]). Income inequality was more pronounced among households with females' head (0.458, see Table 3, Panel B, Column [1]). In terms of indigence and poverty, 8.59 percent of the population was indigent. Poverty rate was around 34.5 percent, which represents around 9.8 million of people (Table 3, Panel C, Column [1]). Again, poverty

incidence is higher for households with females' head (38.5 vs 31.8 in Table 3, Panel B, Column [1]).

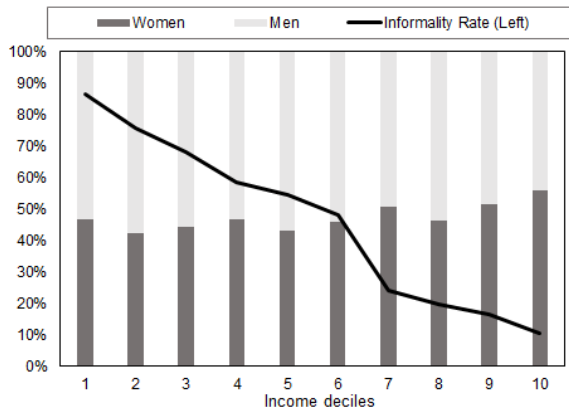
Figure 1: Pre COVID-19 situation. Distribution of workers among gender, age groups and economic sectors. First quarter of 2020. Percentage.



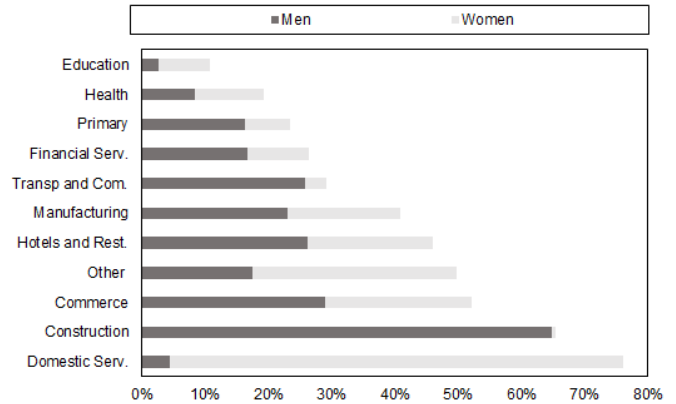
Source: Own elaboration based on Ministry of Labor, Employment and Social Security, and INDEC.

Figure 2: Pre COVID-19 situation. Share of informal workers by deciles of per capita income, gender, and economic sectors. First quarter of 2020. Percentage.

Panel A. Informality Rate by deciles.



Panel B. Informality Rate by economic sector.



Source: Own elaboration based on Ministry of Labor, Employment and Social Security, and INDEC.

Table 1: Average per capita income by deciles and by gender. Pre and post COVID-19 Scenarios with and without policy response. In pesos and percentage change.

Decil	Group	Pre-COVID19	Post-COVID19 Scenario (without policy response)						Post-COVID19 Scenario (with policy response)					
		Initial	1 quarter ahead		2 quarters ahead		3 quarters ahead		1 quarter ahead		2 quarters ahead		3 quarters ahead	
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
		Level	Level	Level	Level	Change [4] - [1] (in %)	Level	Change [6] - [2] (in %)	Level	Change [8] - [2] (in %)	Level	Change [10] - [1] (in %)	Level	Change [12] - [6] (in %)
1	Head Male	2876.8	2019.1		2386.4	-17.05	2382.7	18.0	2812.6	39.3	3114.0	8.2	2856.4	19.9
	Head Female	2810.4	1933.5		2404.7	-14.43	2391.3	23.7	2869.8	48.4	3288.3	17.0	3085.9	29.1
	Decile	2841.8	1974.0		2396.1	-15.69	2387.2	20.9	2842.7	44.0	3205.8	12.8	2977.3	24.7
2	Head Male	5881.1	4534.6		5227.2	-11.12	5008.1	10.4	5173.8	14.1	5795.6	-1.5	5413.6	8.1
	Head Female	5754.5	3920.8		4746.2	-17.52	4588.4	17.0	4635.6	18.2	5424.5	-5.7	5109.7	11.4
	Decile	5822.4	4250.3		5004.4	-14.05	4813.7	13.3	4924.5	15.9	5623.7	-3.4	5272.9	9.5
3	Head Male	8223.8	6429.1		7382.5	-10.23	6966.7	8.4	7001.6	8.9	7889.2	-4.1	7301.9	4.8
	Head Female	8138.5	5810.2		7078.7	-13.02	6765.8	16.4	6414.1	10.4	7615.7	-6.4	7093.1	4.8
	Decile	8189.0	6176.9		7258.7	-11.36	6884.8	11.5	6762.2	9.5	7777.8	-5.0	7216.8	4.8
4	Head Male	10352.4	7943.7		9356.1	-9.62	8676.8	9.2	8400.7	5.8	9757.7	-5.7	8876.9	2.3
	Head Female	10389.5	7609.1		8974.6	-13.62	8589.7	12.9	8139.7	7.0	9439.9	-9.1	8890.4	3.5
	Decile	10367.5	7807.2		9200.6	-11.26	8641.3	10.7	8294.3	6.2	9628.1	-7.1	8882.4	2.8
5	Head Male	12904.4	10491.4		11875.5	-7.97	11122.0	6.0	10852.8	3.4	12204.3	-5.4	11323.5	1.8
	Head Female	13082.1	10147.3		11608.8	-11.26	11060.8	9.0	10654.5	5.0	12050.0	-7.9	11273.4	1.9
	Decile	12978.9	10347.1		11763.7	-9.36	11096.3	7.2	10769.7	4.1	12139.6	-6.5	11302.5	1.9
6	Head Male	16017.4	13231.7		14856.3	-7.25	13547.2	2.4	13519.3	2.2	15123.6	-5.6	13710.4	1.2
	Head Female	16023.9	12326.6		14745.6	-7.98	13698.8	11.1	12776.4	3.6	15128.6	-5.6	13906.7	1.5
	Decile	16019.6	12918.2		14818.0	-7.50	13599.7	5.3	13262.0	2.7	15125.3	-5.6	13778.4	1.3
7	Head Male	19768.0	16373.9		18662.9	-5.59	17113.0	4.5	16612.0	1.5	18883.1	-4.5	17261.5	0.9
	Head Female	19819.5	16361.2		18490.0	-6.71	16927.5	3.5	16651.9	1.8	18757.7	-5.4	17118.9	1.1
	Decile	19789.5	16368.6		18590.6	-6.06	17035.5	4.1	16628.7	1.6	18830.7	-4.8	17201.9	1.0
8	Head Male	24920.4	21226.2		23533.0	-5.57	21187.1	-0.2	21430.0	1.0	23721.8	-4.8	21320.8	0.6
	Head Female	25243.5	21744.7		24002.2	-4.92	22073.2	1.5	22025.2	1.3	24263.6	-3.9	22225.9	0.7
	Decile	25037.3	21413.7		23702.7	-5.33	21507.7	0.4	21645.3	1.1	23917.8	-4.5	21648.2	0.7
9	Head Male	33505.8	28632.5		32187.2	-3.94	28267.5	-1.3	28791.9	0.6	32330.1	-3.5	28354.1	0.3
	Head Female	33536.6	28922.2		32361.5	-3.50	29063.2	0.5	29100.1	0.6	32512.2	-3.1	29152.7	0.3
	Decile	33516.6	28733.5		32248.0	-3.78	28544.9	-0.7	28899.3	0.6	32393.6	-3.4	28632.5	0.3
10	Head Male	64176.4	53944.6		61847.3	-3.63	52654.1	-2.4	54050.2	0.2	61947.0	-3.5	52708.0	0.1
	Head Female	65193.7	55416.9		62714.9	-3.80	54648.5	-1.4	55557.0	0.3	62839.6	-3.6	54701.1	0.1
	Decile	64559.5	54499.1		62174.1	-3.69	53405.3	-2.0	54617.7	0.2	62283.2	-3.5	53458.7	0.1
All	Head Male	20717.0	17218.3		19557.8	-5.60	17406.4	1.1	17583.7	2.1	19888.1	-4.0	17616.4	1.2
	Head Female	18746.6	15334.1		17495.6	-6.67	15901.6	3.7	15823.0	3.2	17940.1	-4.3	16198.6	1.9
	Population	19914.0	16450.4		18717.4	-6.01	16793.1	2.1	16866.1	2.5	19094.2	-4.1	17038.6	1.5

Source: Own elaboration based on Ministry of Production and Labor, and EPH-INDEC. Notes: Workers in Argentina benefit from a wage bonus that is paid twice a year. This bonus is known as aguinaldos and is paid bi-annually during June and December. So, they are registered and included in the 1st and the 3rd quarters of our simulations but not in the 2nd and the 4th ones. Thus, in order to provide an accurate comparison, the Initial Scenario should be compared with the 2nd quarter ahead Scenario. This is valid for both the situation with and without policy response.

Table 2: Average per capita income by economic sector and by gender. Pre and post COVID-19 Scenarios with and without policy response. In pesos and percentage change.

Sector	Group	Pre-COVID19	Post-COVID19 Scenario (without policy response)						Post-COVID19 Scenario (with policy response)					
		Initial	1 quarter ahead		2 quarters ahead		3 quarters ahead		1 quarter ahead		2 quarters ahead		3 quarters ahead	
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
		Level	Level	Level	Level	Change [4] - [1] (in %)	Level	Change [6] - [2] (in %)	Level	Change [8] - [2] (in %)	Level	Change [10] - [1] (in %)	Level	Change [12] - [6] (in %)
Primary Act.	Head Male	36813.8	22837.4		32161.1	-12.6	27830.7	21.9	23202.8	1.6	32424.3	-11.9	27945.6	0.4
	Head Female	30860.1	15576.9		23544.3	-23.7	21181.2	36.0	16024.4	2.9	23934.9	-22.4	21405.0	1.1
	Sector	35381.3	21090.5		30087.9	-15.0	26230.8	24.4	21475.7	1.8	30381.8	-14.1	26371.9	0.5
Manufacturing	Head Male	19989.8	16026.3		18621.2	-6.8	16331.7	1.9	16396.8	2.3	18954.0	-5.2	16485.8	0.9
	Head Female	17260.7	13267.5		15606.6	-9.6	14307.4	7.8	13801.5	4.0	16082.7	-6.8	14568.9	1.8
	Sector	19020.6	15046.6		17550.6	-7.7	15612.8	3.8	15475.1	2.8	17934.3	-5.7	15805.1	1.2
Construction	Head Male	14908.3	12140.8		13967.8	-6.3	12659.0	4.3	12779.0	5.3	14558.4	-2.3	12928.4	2.1
	Head Female	13641.8	10299.1		12277.8	-10.0	11321.5	9.9	10839.4	5.2	12773.2	-6.4	11645.0	2.9
	Sector	14493.5	11537.6		13414.3	-7.4	12220.9	5.9	12143.8	5.3	13973.7	-3.6	12508.1	2.3
Commerce	Head Male	18750.6	15335.0		17579.7	-6.2	15853.3	3.4	15799.7	3.0	18068.8	-4.0	16066.3	1.3
	Head Female	17827.3	13716.8		16310.7	-8.5	14985.7	9.3	14271.4	4.0	16813.1	-5.7	15249.8	1.8
	Sector	18401.6	14723.3		17100.0	-7.1	15525.3	5.4	15222.0	3.4	17555.6	-4.6	15757.6	1.5
Hotels and Rest	Head Male	17423.5	13116.4		15739.9	-9.7	14196.0	8.2	13640.7	4.0	16204.1	-7.0	14368.0	1.2
	Head Female	16560.2	11427.0		14373.7	-13.2	12941.8	13.3	11998.8	5.0	14859.8	-10.3	13203.5	2.0
	Sector	17049.4	12384.3		15147.9	-11.2	13652.5	10.2	12929.2	4.4	15621.6	-8.4	13863.4	1.5
Tran. & Commu.	Head Male	24247.9	19141.4		22432.7	-7.5	19678.4	2.8	19477.1	1.8	22731.1	-6.3	19824.2	0.7
	Head Female	25173.4	18819.4		22697.5	-9.8	20257.9	7.6	19160.1	1.8	22986.2	-8.7	20399.6	0.7
	Sector	24533.3	19042.1		22514.4	-8.2	19857.1	4.3	19379.4	1.8	22809.8	-7.0	20001.7	0.7
Financial serv.	Head Male	29727.0	24441.8		27713.6	-6.8	24574.5	0.5	24728.0	1.2	27967.8	-5.9	24683.9	0.4
	Head Female	26969.8	20540.5		24609.8	-8.8	21681.1	5.6	20926.5	1.9	24938.6	-7.5	21800.6	0.6
	Sector	28750.7	23060.5		26614.6	-7.4	23550.0	2.1	23382.0	1.4	26895.2	-6.5	23663.0	0.5
Education	Head Male	28563.8	23565.4		26985.3	-5.5	22982.5	-2.5	23658.5	0.4	27069.8	-5.2	23015.4	0.1
	Head Female	27261.2	22627.4		25685.2	-5.8	22364.7	-1.2	22797.2	0.8	25830.7	-5.2	22418.4	0.2
	Sector	27983.4	23147.5		26406.0	-5.6	22707.2	-1.9	23274.8	0.5	26517.7	-5.2	22749.4	0.2
Soc.& Health	Head Male	30351.3	25821.1		29034.2	-4.3	25062.0	-2.9	25963.8	0.6	29162.2	-3.9	25120.4	0.2
	Head Female	26952.0	22510.3		25606.0	-5.0	22136.8	-1.7	22732.7	1.0	25804.1	-4.3	22237.4	0.5
	Sector	28959.7	24465.7		27630.8	-4.6	23864.5	-2.5	24641.0	0.7	27787.5	-4.0	23940.1	0.3
Domestic Serv.	Head Male	12683.2	9882.2		11586.0	-8.7	10526.5	6.5	10427.7	5.5	12094.6	-4.6	10771.9	2.3
	Head Female	11652.9	8560.4		10398.5	-10.8	9574.0	11.8	9585.7	12.0	11355.6	-2.6	9939.9	3.8
	Sector	12080.5	9108.9		10891.3	-9.8	9969.3	9.4	9935.1	9.1	11662.2	-3.5	10285.2	3.2
Other serv.	Head Male	21020.8	17336.8		19808.2	-5.8	17438.2	0.6	17710.4	2.2	20149.1	-4.1	17577.5	0.8
	Head Female	22221.4	18924.4		20941.3	-5.8	19308.4	2.0	19492.4	3.0	21467.2	-3.4	19586.9	1.4
	Sector	21463.2	17921.9		20225.8	-5.8	18127.4	1.1	18367.1	2.5	20634.8	-3.9	18318.0	1.1
All	Head Male	24977.5	20058.8		23392.5	-6.3	20294.4	1.2	20405.7	1.7	23705.5	-5.1	20434.2	0.7
	Head Female	23659.2	18439.3		21722.3	-8.2	19144.0	3.8	18910.9	2.6	22146.5	-6.4	19339.6	1.0
	All Sectors	24460.2	19423.3		22737.1	-7.0	19843.0	2.2	19819.1	2.0	23093.7	-5.6	20004.7	0.8

Source: Own elaboration based on Ministry of Production and Labor, and EPH-INDEC. Notes: Workers in Argentina benefit from a wage bonus that is paid twice a year. This bonus in known as aguinaldos and is paid bi-annually during June and December. So, they are registered and included in the 1st and the 3rd quarters of our simulations but not in the 2nd and the 4th ones. Thus, in order to provide an accurate comparison, the Initial Scenario should be compared with the 2nd quarter ahead Scenario. This is valid for both the situation with and without policy response.

Table 3: Poverty, inequality indicators, and number of poos by gender. Pre and post COVID-19 Scenarios with and without policy response. In pesos and percentage change.

Sector	Group	Pre-COVID19	Post-COVID19 Scenario (without policy response)						Post-COVID19 Scenario (with policy response)					
		Initial	1 quarter ahead		2 quarters ahead		3 quarters ahead		1 quarter ahead		2 quarters ahead		3 quarters ahead	
		[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]
		Level	Level	Level	Change [4] - [1] (in %)	Level	Change [6] - [2] (in %)	Level	Change [8] - [2] (in %)	Level	Change [10] - [1] (in %)	Level	Change [12] - [6] (in %)	
Panel A. Indigence, poverty, and inequality indicators														
Extreme Poverty														
FGT (0)		8.6	18.0	12.5	45.3	13.3	-26.3	15.3	-14.8	10.0	16.6	11.2	-15.3	
FGT (1)		3.2	10.1	6.1	90.9	6.1	-40.3	7.1	-30.4	4.1	28.9	4.8	-20.2	
FGT (2)		1.9	7.7	4.3	123.7	4.2	-46.1	4.5	-42.4	2.5	31.0	3.3	-20.6	
Moderate Poverty														
FGT (0)		34.6	45.6	39.2	13.5	43.3	-5.2	43.8	-4.0	37.3	7.9	42.0	-3.0	
FGT (1)		13.6	22.9	17.7	29.7	19.0	-16.9	20.2	-11.7	15.5	13.4	17.5	-7.9	
FGT (2)		7.6	15.6	11.1	46.0	11.6	-25.5	12.6	-18.9	8.9	17.7	10.2	-12.0	
Inequality														
Gini		0.441	0.465	0.455	3.1	0.444	-4.7	0.465	-0.1	0.450	1.9	0.435	-2.0	
Theil		0.345	0.382	0.366	6.0	0.347	-9.1	0.381	-0.2	0.357	3.5	0.333	-4.0	
ATK (0)		0.000	0.000	0.000		0.000		0.000		0.000		0.000		
ATK (0.5)		0.160	0.181	0.171	6.9	0.162	-10.4	0.180	-0.4	0.167	4.2	0.154	-4.7	
ATK (1)		0.300	0.347	0.323	7.9	0.306	-11.8	0.344	-0.8	0.315	5.1	0.289	-5.5	
ATK (2)		0.546	0.645	0.596	9.0	0.562	-12.9	0.625	-3.1	0.582	6.4	0.525	-6.7	
Panel B. Poverty and inequality indicators, by gender														
Moderate Poverty														
Poverty	Head Male	31.8	43.3	36.4	14.3	41.3	-4.6	41.4	-4.5	34.3	8.0	40.2	-2.9	
Incidence	Head Female	38.6	49.0	43.4	12.5	46.1	-5.9	47.4	-3.4	41.6	7.9	44.6	-5.9	
	Population	34.6	45.6	39.2	13.5	43.3	-5.2	43.8	-4.0	37.3	7.9	42.0	-4.2	
Inequality														
Gini	Head Male	0.429	0.444	0.439	2.4	0.428	-3.5	0.446	0.3	0.435	1.4	0.420	-5.6	
	Head Female	0.458	0.496	0.478	4.2	0.465	-6.2	0.492	-0.9	0.470	2.5	0.454	-7.6	
	Population	0.441	0.465	0.455	3.1	0.444	-4.7	0.465	-0.1	0.450	1.9	0.435	-6.5	
Panel C. Number of poors														
	Head Male	5,376,778	7,324,550	6,147,894	771,116	6,986,696	-337,854	6,997,154	-327,396	5,804,325	427,547	6,795,035	-191,661	
	Head Female	4,489,291	5,698,983	5,045,405	556,114	5,365,024	-333,959	5,505,334	-193,649	4,841,836	352,545	5,181,325	-183,699	
	Population	9,866,069	13,023,533	11,193,299	1,327,230	12,351,720	-671,813	12,502,488	-521,045	10,646,161	780,092	11,976,360	-375,360	

Source: Own elaboration based on Ministry of Production and Labor, and EPH-INDEC. Notes: Workers in Argentina benefit from a wage bonus that is paid twice a year. This bonus in known as aguinaldos and is paid bi-annually during June and December. So, they are registered and included in the 1st and the 3rd quarters of our simulations but not in the 2nd and the 4th ones. Thus, in order to provide an accurate comparison, the Initial Scenario should be compared with the 2nd quarter ahead Scenario. This is valid for both the situation with and without policy response.

3.2 Scenarios after COVID-19 without policy response

As mentioned, COVID-19 shock was the largest economic contraction that Argentina experimented after the Great Recession of 2008/2009. During the second quarter of 2020, Argentina experimented and output reduction of around 20 percent. Naturally, this shock had considerably effects on employment. Given that this output contraction was almost twice during the COVID-19 shock than it was in the Great Recession, we assume that employment reductions during second quarter of 2020 were twice as those experienced during the Great Recession.²⁴ Under this assumption, employment among formal workers was reduced –during the second quarter of 2020– by 24.2 percent, and by 47.0 percent among informal workers (see Table A1 in the Appendix). Drops in informal employment were higher than those in formal employment

²⁴Output reductions during the 3 and 4 quarters of 2020 represented 1.1 and 0.9 times the decline associated with the Great Recession, respectively. Therefore, the simulated scenarios for these periods assume that the falls in employment were 1.1 and 0.9 times the falls in employment experimented during the Great Recession.

for all economic sectors. In our simulations around 2.6 million of people lost their jobs between the second and the first quarter of 2020. In line with Figure 1 higher absolute drops in employment can be found in commerce, financial services, manufacturing, domestic services, and construction. The share of women who lost their jobs varies among sectors, being domestic service the sector in which women were more affected –92 percent of new unemployed workers were females– (Figure 3). When looking at the employment rate, the contraction was relatively higher among women than men (-23.0 percent vs. -20.8 percent, respectively). In early working ages (18-24) the differences are very significant: the fall in employment rate was 63 percent for men and 80 percent for women (See Figure 4). These differences become more pronounced when considering the presence of children. For example, for the age group between 18 and 24, the contraction in employment for men with children was close to 57 percent, while for women with children it was 82 percent. In the group between 25 and 40 years old, the falls were 18 percent and 30 percent, respectively. Even conditioning on sector, in seven of the eleven analyzed sectors women’s employment was more affected than that of men (see Table A3 in the Appendix).

In –simulated– post-COVID-19 scenarios without policy responses, average per capita income experienced a reduction of about 6.0 percent (Table 1, Column [5]).²⁵ However, this reduction was nonlinear along the income distribution. While the richest decile showed an income reduction of approximately 3.7 percent, the reduction among the poorest was around 15.7 percent.²⁶ This is explained by the fact that informal workers are concentrated at the bottom of the income distribution and they were the ones most affected by the crisis (they are not protected by labor regulations).²⁷ Results for this scenario in terms of poverty and income distribution were as expected (Table 3, Panel A, Columns [4] and [5]). Indigence sharply rose up to 12.4 percent, 45.3 percent higher when comparing to initial situation. Poverty incidence rose up to 39.22 (13.5 percent higher, when comparing with initial situation). Interestingly, poverty measures that consider their severity like FGT(1) and FGT(2) present larger increases. Increases in poverty incidence were similar for female-headed (12.5 percent) households and male-headed households (14.3 percent). This change in poverty represented an additional of 1.3 million people under the poverty line (Table 3, Panel C, Column [4]). Income inequality also worsened substantially. The Gini coefficient for this scenario was 0.455, 3.1 percent higher than the corresponding to the initial situation. This could be related with the fact that lowest deciles experienced higher income reductions, relative to highest deciles.

Continuing with the post-COVID-19 scenarios without policy response, an interesting exercise

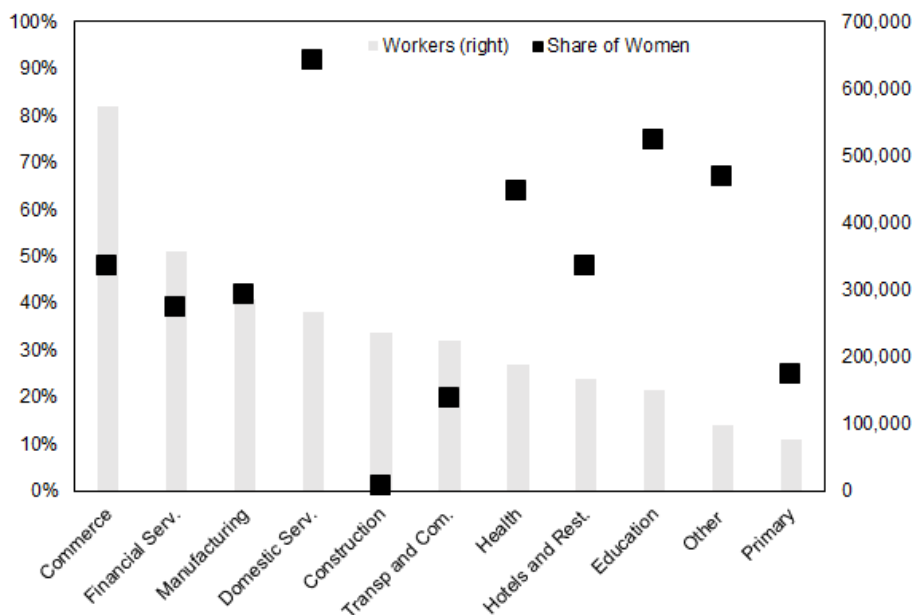
²⁵Here, it should be remembered that given the inclusion of aguinaldos an accurate comparison with the Initial Situation (1st quarter of 2020) must be done with the 2nd quarter ahead of the post COVID-19 Scenario.

²⁶For the case of Kenya, [Janssens et al. \(2021\)](#) find a similar reduction of around one-third in poorest households’ incomes. [Martin et al. \(2020\)](#) perform a simulation for the San Francisco Bay Area, and also document that the lowest income earners suffer the most in relative terms.

²⁷See Figure 2 in the main text and Table A1 in the Appendix, for the informality rate by income deciles and by economic sectors, and for employment variation between formal and informal workers.

is to compare the 3rd quarter ahead with the 1st quarter ahead (i.e., a comparison with the probable worst moment of the pandemic). This provides a sense of the evolution of incomes and employment net from public assistance. That is, changes that can be associated with economic activity only. It can be appreciated that household income on average increased by 2.1 percent (Table 1, Column [7]). However, the differential effect on income distribution remains. The income of the richest decile fell by 2.0 percent, while the income of the poorest decile increased by 20.9 percent. This, consistent with administrative data, may be due to a faster recovery of informal employment –which has a greater relative weight in the lower part of the income distribution– than formal employment. Following INDEC, the employment rate for informal (formal) wage earners went from 6.1 (19.6) percent to 7.7 (19.0) percent, between the 2nd and the 3rd quarter of 2020. This recovery of income occurs precisely in sectors that have a -relatively- higher percentage of informality such as domestic services, construction, and commerce (Table 2, Column [7]).²⁸ Consistently with this evolution of incomes, poverty and income distribution responded as expected (Table 3, Panel A, Column [7]). Indigence was reduced by 26.3 percent, and poverty incidence fell by 5.2 percent. This change represented around 0.6 million people jumping the poverty line (Table 3, Panel C, Column [6]). Income inequality also improved substantially. The Gini coefficient for the 3rd quarter ahead scenario was 0.444, 4.7 percent lower than the corresponding to the 1st quarter ahead situation after COVID-19 appearance (0.465).

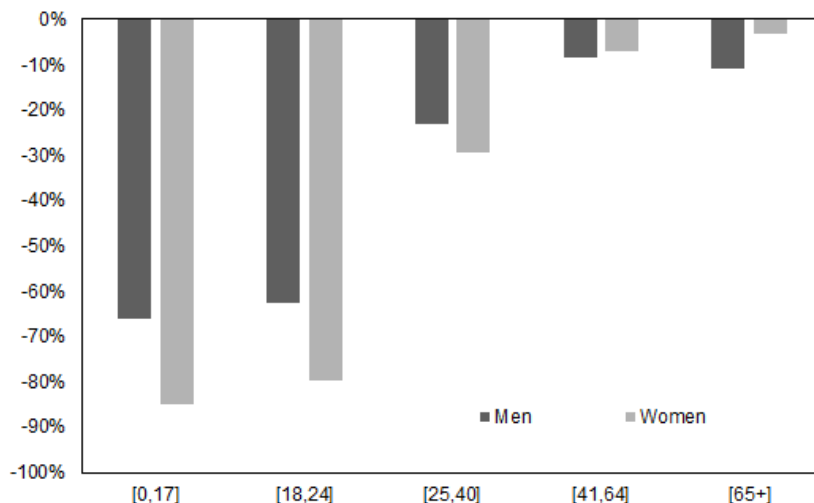
Figure 3: Post COVID-19 situation. Simulated employment lost and relative participation of woman. In thousands of workers and percentage. By economic sectors. Second quarter of 2020.



Source: Own elaboration based on Ministry of Labor, Employment and Social Security, and INDEC.

²⁸See Table A1, in the Appendix.

Figure 4: Post COVID-19 situation. Employment rate change by age groups and gender. Second Quarter vs. First Quarter 2020



Source: Own elaboration based on Ministry of Labor, Employment and Social Security, and INDEC.

3.3 Scenarios after COVID-19 with policy response

When considering government policy response, the situation seems to have ameliorated. A comparison with the initial situation represents a contrast where economic activity and policy responses will be – jointly – the main drivers behind changes. In this situation (Table 1, Column [11]), average per capita income experimented a reduction of about 4.1 percent when comparing with initial situation. Thus, public assistance cushioned by around 1/3 what the average drop in household income would have been (Table 1, -4.1 in Column [11] vs -6.0 in Column [5]). For a household at the second decile, income was reduced by 3.5 percent when consider the policy response, but in the absence of public assistance this reduction it would have been 15 percent. This ameliorating effect occurred, although with decreasing intensity, also among deciles 3 to 7. As expected, policy response seems not to have impacted substantially in the top 20 percent of the income distribution. When analyzing by economic sector the findings are similar. It is worth noting that public assistance ameliorated the situation of some exposed (to COVID-19) activities. For example, Construction sector’s workers experimented a reduction of incomes of 3.6 percent (Table 2, Column [11]). This reduction would have been 7.4 percent in the absence of the policy response (Table 2, Column [5]). Similar conclusions can be found for other sectors such as domestic services, and hotels and restaurants.

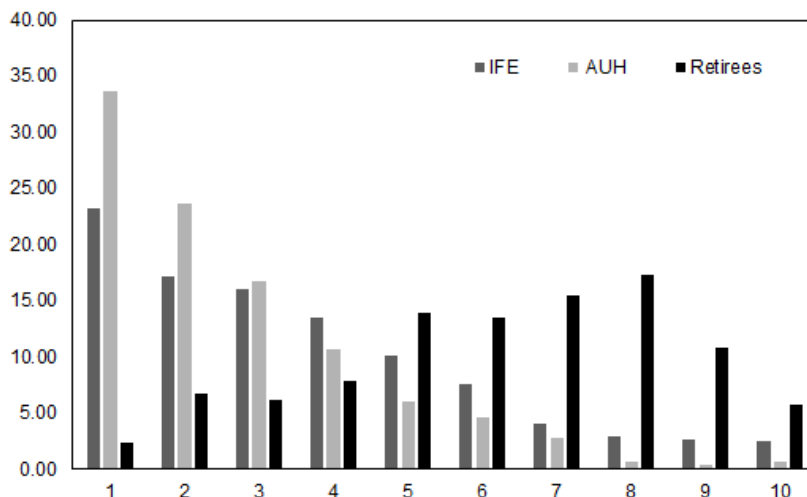
Public assistance also ameliorated the situation in terms of poverty and income distribution (Table 3, Panel A, Columns [10] and [11])). Indigence rose up to 10.02 percent, 16.6 percent more when comparing to initial situation. It is worth recalling that this 10.02 would have been 12.48 in the absence of policy response (Table 3, Panel A, Columns [5]). Poverty incidence rose up to 37.31 (2.73 percentage points or 7.9 percent higher, when comparing with initial situation). This implied a reduction 2.46 (1.92)

percentage points in indigence (poverty) rate when comparing with the situation without policy response (Table 3, Panel A, 10.02 (37.31) in Column [10] vs 12.48 (39.22) in Column [5]). This effect preserved more than 0.55 million people from falling into poverty (Table 3, Panel C, Column [10]). Policy response was equally important in alleviating poverty in female-headed and male-headed households. Among the first one's poverty rose from 38.58 up to 41.65 (Table 3, Panel B, Column [1] and [10]), while it would have rose up to 43.40 in the situation without policy response (Column [4]). This represents a cushion of 1.75 percentage points or 4.0 percent (1.75/43.40). In the case of male-headed households, the cushion was percentage 2.03 points (34.34 – 36.37) or 5.6 percent (2.03/36.37). Income inequality also ameliorated substantially. The Gini coefficient for this scenario is 0.450, pretty similar to the corresponding to the initial situation one (Table 3, Panel A, Column [10]).

For a better understanding of the aforementioned results, a characterization of public assistance beneficiaries becomes useful. In our simulations around 10 million of people received some kind of public cash transfers. We identify 4.7 million of people that received IFE, 3.5 million that received a bonus for AUH. In addition, we identify 2.7 million of retirees. The share of women among these groups was 54 percent, 57 percent, and 67 percent, respectively. Figure 5 present how these beneficiaries are distributed along the income distribution. It can be appreciated that AUH is the most pro-poor cash transfer. Around 84 percent of its beneficiaries are at the bottom 40 percent of income distribution. Approximately 72 percent of IFE's beneficiaries are also at this bottom 40. This is in line with previous figures on informality. Given that eligibility criteria for IFE were informal workers, unemployed and low-income self-employed workers, and that informal workers are in the bottom of the income distribution, logically IFE's beneficiaries will be concentrated there. Finally, the less pro-poor distribution is the associated with retirees and pensioners. Only around 23 percent them are at the bottom 40 percent of income distribution.

Finally, a comparison of the same quarters between scenarios with and without policy response could provide additional relevant insights regarding policy effects. Note that here policy responses will be –uniquely– the main driver behind the changes since economic activity driver is the same in both situations. For this purpose, in Column [9] of each Table we compare the percentage change of income levels, and poverty and inequality indicators at the 1st quarter after the pandemic but with and without policy response. In Column [13] we do the same for the 3rd quarter. Results indicate that average per capita familiar income was consistently higher -on average- in all quarters compared to what it would have been in the absence of public assistance. This holds, naturally with different intensity, for both the lower and upper sides of the income distribution. Given that we assume that the intensity of public assistance decreases as the economy reduced its rate of contraction, this seem to have its correlation with the fact that in the 1st quarter after the pandemic, household's incomes were -on average- 2.5 higher compared to what they would have been without public assistance (Table 1, Column [9]). During the 3rd quarter, this difference was reduced up to 1.5 percent (Table 1, Column [13]). This phenomenon can also be appreciated when analyzing the dynamics of income by economic sectors (Table 2, Columns [9]

Figure 5: Distribution of public assistance beneficiaries. In percentage. By deciles of per capita income. Second quarter of 2020.



Source: Own elaboration based on EPH-INDEC.

and [13]). The gradual withdrawal of public assistance is also consistent with its lower intensity to reduce indigence and poverty, and to improve income distribution. In terms of indigence reduction, during the 1st quarter post-COVID-19, public assistance reduced the indigence rate by 14.8 percent (Table 3, Panel A, Column [9]). Despite of the economy stopped falling so hard, and incomes slowly recovered, lower public assistance reduced indigence also by 15.3 percent in the 3rd quarter (Table 3, Panel A, Column [13]). In terms of poverty, it is interesting to look at the absolute values of individuals. During the 1st quarter, public assistance contributed to preventing nearly half million people from falling into poverty (521,045 in Table 3, Panel C, Column [9]). Yet in the 3rd quarter, and with a lower number of poor people, public assistance helped another 400 thousand people avoid being poor (375,360 in Table 3, Panel C, Column [13]).

4 Conclusions and recommendations for policy discussion

While the initial focus was on the health effects of the COVID-19 crisis, its socio-economic effects and accompanying policy responses are receiving increased attention, mainly in low and middle-income countries. In this context we analyze the impact of COVID-19 crisis on households' incomes, unemployment, poverty, and inequality in Argentina. For this purpose, we simulate impacts on welfare at the household level using household survey data, administrative data on employment and wages by economic sectors. Our simulations face two main limitations. First, a limitation of data availability on how the COVID-19 is affecting economic activity – in real time –. Second, a limitation on how to predict the evolution of this uncertain phenomenon. Argentina, like the rest of the countries in the world, are going through the

COVID-19 pandemic without certainty about when or how it will yield. In any case, this study makes an effort to simulate the effects of COVID-19 at the moment and its potential evolution, using all available information at the time. To some extent, it can be considered as a simulation tool that seeks, given the aforementioned limitations, to provide general insights on how the COVID-19 is affecting employment and income distribution. Simulations also include public cash transfers (i.e., policy response), implemented by the government to mitigate the crisis, in order to get a sense of how effective these policy measures were in counteracting those negative effects.

Results indicate that during COVID-19 crisis households would have experienced a reduction of about 6 percent on their incomes. This reduction was nonlinear along the income distribution, being the lowest income earners who suffered the most in relative terms. This is strongly related with relatively higher informality at the bottom of income distribution. The greater negative effects of the pandemic in less well-off part of the income distribution are in line with results from [Bonavida & Gasparini \(2020\)](#). Furthermore, the impact was not homogeneous by gender: on average, the employment rate fell more among women than men (-23.0 percent vs. -20.8 percent when comparing 2nd and 1st quarters of 2020). In early working ages (18-24) the differences are very significant: the fall in employment rate was 63 percent for men and 80 percent for women. These differences become more pronounced when considering the presence of children. For example, for the age group between 18 and 24, the contraction in employment for men with children was close to 57 percent, while for women with children it was 82 percent. In the group between 25 and 40 years old, the falls were 18 percent and 30 percent, respectively. Even conditioning on sector, in seven of the eleven analyzed sectors women's employment was more affected than that of men. These findings are consistent with [ILO \(2020\)](#) and can be associated with the overlap of work responsibilities and care (housework, childcare and eldercare) responsibilities which have intensified during the pandemic, especially for households with children ([OECD, 2020](#); [WEF, 2021](#)). Policy response cushioned by around 1/3 what the average drop in household income would have been. This prevented major increases in poverty and inequality. A key aspect of the satisfactory policy response was that public assistance was targeted at informal workers and at less well of households with children. This policy response large offsetting effect is in line with previous findings such as [Lustig *et al.* \(2020\)](#).

In the transition towards the end of the pandemic, policy discussion should include short-term and medium- term policies. Academic and policy debates on short-term policies should focus on how to achieve an accurate targeting of public assistance. An important obtained lesson from the Argentine case is that as most of poorest households are employed in the informal sector, relief measures –as those applied– considering informality becomes crucial. Thus, it becomes very relevant the discussion of developing policies aimed at reducing labor informality. Labor market policies play an important role in the formalization of employment. Given that most informal workers have low qualifications and work in jobs that are difficult to identify for public policies, an integrated policy approach is necessary, which includes economic, social and labor policies ([Bertranou *et al.*, 2013](#)). Along these lines, is also important to address how to adapt people to the transformation of the workplace in the post-Covid-19 era, since

the crisis may catalyze wider adoption of teleworking practices also after the crisis.

An accurate identification of those who really need public assistance also becomes crucial. All information about citizens, contained in the administrative records of the different divisions of the public sector, must be used. Invest in resources and modern technologies to obtain a good handling of this information should also be considered to have it available at the right times. In turn, it is important to make efforts to get this information as updated as possible. All this aims to minimize the typical errors of inclusion and exclusion that arise when targeting social policies. An adequate use of the administrative records of the Argentine social security, through its different contributory and non-contributory programs, despite its limitations, is a key aspect since it already covers the majority of the population (Giuliano *et al.*, 2020).

Another important aspect, as emphasized by Gutierrez-Romero & Ahamed (2021), is financial inclusion. As this study suggest, particularly financial outreach, is a key driver of poverty reduction in low-middle income countries. This effect is not direct, but indirect, by mitigating the detrimental effect that inequality has on poverty. Policies will be needed to help households receive government transfers and build financial buffers to spread resources over the likely prolonged crisis.

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Appendix

A1 Simulated policy response to mitigate COVID-19 crisis

At the beginning of the COVID-19 crisis, on March 23rd, through Decree 310/2020, the National Social Security Administration (ANSES) created a benefit called Emergency Family Income (IFE) aimed at the most vulnerable sectors of the population. The IFE consists of an exceptional non-contributory monetary benefit, intended to compensate the loss or serious decrease in income of people affected by the health emergency situation (declared by Decree No. 260/2020). In order to mitigate the increase in poverty and indigence, this measure was aimed at households made up of informal workers, unemployed and low-income self-employed workers. The latter are those with monthly average gross income less than \$ 17,394 (around US\$220). That is, those sectors of the population with the highest degree of vulnerability in socioeconomic terms. The amount of the IFE was \$ 10,000 (around US\$120, which represents 60 percent of the minimum wage) and can be collected by a member of the family group who is under conditions of exclusion or job insecurity and in conditions of socioeconomic vulnerability. The IFE presents two exclusive definitions regarding the delimitation of the beneficiary population. On the one hand, the program provides assistance to workers affected by precarious job placement (low-income self-employed workers, domestic workers, informal employees and unemployed). On the other hand, the program limits this coverage to the employment and economic situation of the family group to which the beneficiary belongs, in the sense that all its members must meet the conditions to access the IFE, and only one of them may receive the benefit. The IFE was compatible with the receipt of other social programs like the Universal Child Allowance (AUH) or Universal Pregnancy Allowance (AUE).

Simultaneously with the IFE, a bonus of up to \$ 3,000 (around US\$40) was granted to more than 4.6 million retirees and pensioners who received a single pension until reaching \$ 18,892 (around US\$240). In addition, the amount of the AUH and the AUE was also doubled, benefiting more than 4.3 million children and adolescents who received a supplementary income of \$ 3,103.

Table A1: Employment and wage variations.

Employment Variations						
Sector	1q ahead		2q ahead		3q ahead	
	Formal	Informal	Formal	Informal	Formal	Informal
Primary	-0.63	-0.90	-0.36	-0.52	-0.30	-0.43
Manufacturing	-0.18	-0.33	-0.10	-0.19	-0.08	-0.16
Construction	-0.17	-0.27	-0.10	-0.15	-0.08	-0.13
Commerce	-0.12	-0.44	-0.07	-0.25	-0.06	-0.21
Hotels and Rest.	-0.31	-0.45	-0.18	-0.26	-0.15	-0.21
Transp and Com.	-0.19	-0.44	-0.11	-0.25	-0.09	-0.21
Financial Serv.	-0.25	-0.44	-0.14	-0.26	-0.12	-0.21
Education	-0.28	-0.72	-0.16	-0.42	-0.13	-0.34
Health	-0.17	-0.58	-0.10	-0.33	-0.08	-0.27
Domestic Serv.	-0.24	-0.29	-0.14	-0.17	-0.11	-0.14
Other	-0.12	-0.33	-0.07	-0.19	-0.06	-0.15
Average	-0.24	-0.47	-0.14	-0.27	-0.11	-0.22
Wage Variations.						
	Formal	Informal	Formal	Informal	Formal	Informal
	-0.0034	0.02	0.05	0.13	0.16	0.25

Source: Own elaboration based on Ministry of Production and Labor, and EPH-INDEC. *Notes:* We assume zero variation on public employment. Assume wages variation, according to INDEC, for public employees in each quarter are 1,95%, 7.19%, and 15.22%, respectively.

Table A2: Logistic Regression on the probability of being employed. Formal and Informal workers.

	Pr (employed==1)	
	Formal	Informal
Gender (male==1)	1.307*** (0.344)	1.275*** (0.317)
Age	0.212*** (0.0157)	0.0964*** (0.0135)
Age ²	-0.00198*** (0.000184)	-0.000818*** (0.000165)
Incomplete Primary	-0.265 (0.976)	-0.891 (0.804)
Complete Primary	0.496 (0.925)	-0.561 (0.782)
Incomplete Secondary	0.334 (0.918)	-0.773 (0.776)
Complete Secondary	0.637 (0.915)	-0.860 (0.774)
Incomplete Tertiary	0.406 (0.917)	-0.897 (0.776)
Complete Tertiary	1.053 (0.904)	-1.140 (0.763)
Head of HH	0.845*** (0.121)	0.484*** (0.104)
# of Children	0.237** (0.111)	0.127 (0.0968)
Marriage status	0.627*** (0.0796)	0.368*** (0.0674)
# HH members	0.156*** (0.0231)	0.0783*** (0.0177)
HH per capita income (log)	2.013*** (0.0620)	0.552*** (0.0439)
Observations	11,656	8,478
R2	0.3613	0.0645

Source: Own estimates based on Permanent Household Survey (EPH). *Notes:* Robust standard errors in parentheses. Statistical significance *** p < 0.01, ** p < 0.05, * p < 0.1. Interaction terms and intercept are included but not reported for brevity.

Table A3: Employment by gender. Pre COVID-19 (1st quarter of 2020) vs. Post-COVID-19 (2nd quarter of 2020). Number of employed people and percentage change.

	1st Quarter 2020			2nd Quarter 2020			Change		
	Level			Level			%		
	Male	Female	All	Male	Female	All	Male	Female	All
Primary	91,750	29,883	121,633	34,636	10,945	45,581	-62.2	-63.4	-62.5
Manufacturing	874,726	451,827	1,326,553	708,487	332,908	1,041,395	-19.0	-26.3	-21.5
Construction	1,044,273	22,001	1,066,274	810,563	19,909	830,472	-22.4	-9.5	-22.1
Commerce	1,311,071	883,783	2,194,854	1,012,360	608,865	1,621,225	-22.8	-31.1	-26.1
Hotels and Rest.	278,457	183,943	462,400	191,980	104,309	296,289	-31.1	-43.3	-35.9
Transp and Com.	778,999	135,834	914,833	598,012	91,637	689,649	-23.2	-32.5	-24.6
Financial Serv.	783,739	528,898	1,312,637	566,354	389,737	956,091	-27.7	-26.3	-27.2
Education	239,797	735,108	974,905	201,445	623,182	824,627	-16.0	-15.2	-15.4
Health	1,033,530	1,123,807	2,157,337	965,203	1,004,377	1,969,580	-6.6	-10.6	-8.7
Domestic Serv.	47,380	942,717	990,097	24,948	697,099	722,047	-47.3	-26.1	-27.1
Other	246,806	276,809	523,615	214,327	211,890	426,217	-13.2	-23.5	-18.6
Total	6,730,528	5,314,610	12,045,138	5,328,315	4,094,858	9,423,173	-20.8	-23.0	-21.8

Source: Own estimates based on Permanent Household Survey (EPH). *Notes:* Includes all type of employment (public, private, self-employment, and employers).