COVID-19 affects everyone but not equally: The gendered poverty effects of the COVID-19 pandemic in Colombia

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Abstract: COVID-19 does not distinguish borders, race or gender. Everyone is affected but not equally. Women are at risk of seeing structural socioeconomic gaps deepen with COVID-19, along with worsening violence and social norms. We explore the extent to which COVID-19 will exacerbate gendered employment, income generation and, ultimately, poverty gaps. We explore a new but sprawling literature discussing the employment effects of COVID-19. We also develop a simple microsimulation methodology to estimate the poverty impacts of COVID-19 (versus a counterfactual of no COVID-19); the specific poverty reduction impacts of mitigation policies; and the distinctive impacts by gender. We test our microsimulation approach in Colombia, a country that has implemented an unparalleled number of mitigation measures and has reopened its economy earlier than regional neighbors. We find that the poverty impacts of COVID-19 are daunting (between 3.0 and 9.1 pp increases of poverty headcount). Mitigation measures vary considerably in their individual capacity to reverse poverty (from no effect to 0.9 pp poverty reduction). A fiscally neutral UBI will bring about larger poverty reductions. Importantly, both men and women report similar poverty impacts from the pandemic and mitigation policies. The sheer magnitude of the downturn, the design of interventions and our own measure of poverty explain this results.

JEL CODES: I32, I14, H12

1. Introduction

At the time of this writing, the global death toll has exceeded 369,000 with 6,000,000 of confirmed cases (JHU 2020). This is the third largest pandemic the world has recorded, only behind the 1918-19 Spanish flu and the 1331-53 Black Death, with tolls of 100 and 75 million deaths, respectively (Jordà, Singh and Taylor 2020). The welfare impacts of COVID-19 are likely to be widespread and long lasting. The decline in the growth of GDP attributed to that virus remains unknown but is expected to be unparalleled. Latest estimates talk of a contraction of the global economy in 2020 between 3.0 and 5.2 percent (IMF 2020 and World Bank 2020, respectively). The World Bank estimates that global remittance flows will fall 20 percent in 2020, compared with 5 percent during the 2008-09 financial crisis (World Bank 2020a). COVID-19 is also expected to increase extreme poverty globally by 71 to 100 million people, depending on the duration and severity of the outbreak and actions undertaken to curb its spread (World Bank 2020a).

The COVID-19 pandemic affects everyone. It respects neither geographical borders, political and administrative divisions, nor gender, religion or race. Yet, COVID-19 does not affect everyone equally. Epidemiologically, global cases increase starkly with age and its compounding probability

of underlying medical conditions (JHU 2020). Socioeconomically, poor people are more likely to test positive for COVID-19: Schmitt-Grohe, Teoh and Uribe (2020) report positive testing going up from 35 to 62 percent moving from richest to poorest zip codes in New York City. Across the US—40 states for which disaggregated information is available—the latest overall COVID-19 mortality rate for Black Americans is 2.4 times as high as the rate for Whites (APM Research Lab 2020). Vulnerability to COVID-19 varies according to prevailing inequalities within the household, among markets and across society. A different vulnerability is manifested in dissimilar caring roles across household members; disparities in access to the health care system; distinct abilities to telework; or varying housing conditions during the lockdown period, to cite some.

This article focuses on one such vulnerable populations, women, and one of strongest socioeconomic transmission channels of the pandemic, employment. There are several reasons why women should be expected to fare worse in this pandemic. Globally, women are more likely to work in informal and/or low-paid jobs—the very jobs that are most prone to disruption during public health emergencies (ILO 2020, Alon et al 2020). These jobs frequently lack the legal and social protections that could help mitigate the effects of crises. Furthermore, home-based work is more frequent among women than men, most notably in developing countries. For example, ILO (2020) reports than in India alone some 37 million people work from home, most of them women in the manufacturing sector. The overlap of paid work and unpaid care-related work at home might have consequences for personal life, decent work conditions and productivity that will impact women had-hit (ILO 2020a). Closures of schools and daycare centers have massively increased childcare needs, which has a particularly large impact on working mothers (Alon et al 2020). This is a critical difference with previous major economic downturns. In such downturns, the employment of male workers was usually more strongly affected than that of women. Women would increase their labor supply to compensate for male unemployment, which is no longer a possibility in this pandemic (Doepke and Tertilt 2016, Coskun and Dalgic 2020). When these issues are considered alongside the gender norms that restrict women's and girls' roles in society and their intersectional identities, COVID-19 puts at risk decades of progress towards women's economic justice and rights (CARE 2020).

Our study aims at quantifying the extend of gendered employment disparities in a specific country, Colombia. An upper-middle income economy recently joined the OECD, Colombia has benefitted from steadily economic growth, poverty and inequality reduction in the last decade. It has also made critical strides towards leaving behind a six-decade conflict. Colombia also epitomizes a rapid response to the pandemic across the Latin American and the Caribbean region, a firm and early lockdown, and a first-mover into a progressive and selective reopening of the economy. Colombia has no rival in the region in terms of expanding existing and creating new mitigation interventions, both in terms of social and economic reactivation programs. Despite all those efforts, COVID-19 has been preliminarily shown to enlarge current gender gaps (Consejería para la Equidad de la Mujer, CPEM, 2020). For example, the unemployment rate for women between February and April 2020 have increased to 18.4 percent, well above men's unemployment rate of 11.9 percent for the same period (DANE 2020). The increase in the number of calls to the gender violence phoneline, 115, has more than doubled since the start of the lockdown (CPEM 2020).

This article addresses two questions, one, the expected poverty impacts of the COVID-19 lockdown and mitigation policies in Colombia and, two, the extent to which COVID-19 increases the gendered poverty gaps prevailing in the country. In section 2, after this introduction, the article provides a concise review of the socioeconomic effects of COVID-19 from a new but sprawling literature. Section 3 presents the microsimulation methodology and data used to analyze the gender equity impacts of COVID-19 and implemented mitigation policies in Colombia. Section 4 presents the main results of the analysis and discusses main findings. Section 5 brings the article to an end.

2. Literature Review

Past pandemics, although at a much smaller scale than COVID-19, have also had significant socioeconomic impacts (Ma et al 2020; and Furceri et al 2020, for latest reviews). Ma et al (2020) find that real GDP is 2.6 percent lower on average across 210 countries in the year their respective outbreak is officially declared and remains 3.0 percent below pre-shock level five years later. Barro et al. (2020), using a sample of 42 countries, report GDP impacts of even larger magnitudes for the Spanish flu and the two world wars of the 20th century. Furceri et al (2020), Haan and Sturm (2017) and references therein show that crises and recessions exacerbate inequality by depressing employment for those most vulnerable, such as less skilled and youth. This leads to increases in the Gini coefficient, rising income shares of higher deciles of income and lowering employment-to-population ratio for those with basic education compared to those with higher education (Furceri et al 2020). Using a panel of 175 countries over the period 1961-2017, Furceri et al (2020) estimate increases in pre-shock Gini between 0.75 and 1.25 percent five years after the pandemic.

COVID-19 has already caused severe disruptions in the labor supply of most affected countries, along with their aggregated demand. This is explained by increasing subjective uncertainty in business expectations and in household spending (Alfaro et al. 2020; Baker et al. 2020a,b; Bartik et al. 2020; Fetzer et al. 2020; Carvalho et al. 2020). Those impacts fundamentally impair the economies' ability to function (Furceri et al 2020). Globally, the ILO estimates that 1.25 billion workers, representing nearly 40 per cent of the global workforce, are employed in sectors that face high risk of worker displacement as a result of the pandemic (ILO 2020b). These sectors also have a high proportion of workers in informal employment, with limited access to health services and social protection (ILO 2020b). The decline in working hours is already equivalent to a decline in 195 million full-time jobs (ILO 2020b). In the US alone, evidence from a large-scale survey of households suggests that 20 million jobs were lost by early April (Furceri et al 2020). This monthly impact is far more severe than those found in the literature during the entire Great Recession of 2008-09 and other major economic downturns (Hoynes, Miller and Schalle 2012; Christiano, Eichenbaum and Trabandt 2015; Coibion, Gorodnichenko and Weber 2020).

And, yet, these labor impacts from COVID-19 are unequal within and across countries (Adams-Prassl et al 2020). In early April 2020, some 18 and 15 percent of individuals in a sample of 4,000 respondents,[1] report having lost their jobs within the last four weeks due to the

[1] Surveys were conducted in the US, UK and Germany, of 4,000 respondents each, two waves for the US and UK, between March 24 and April 14, 2020, and one for Germany alone, April 9-12, 2020.

coronavirus outbreak in the US and the UK, respectively, compared to only 5 percent in Germany (Adams-Prassl et al 2020). Within each country, the ability of workers to work from home and having a permanent contract in a salaried job significantly reduce their probability to lose their jobs due to the coronavirus outbreak. This is also supported by evidence form Dingel and Neiman 2020, and Mas and Pallais 2020). Furthermore, workers on flexible hour contracts or who are paid by the hour among those on permanent contracts have been hit the hardest (Adams-Prassl et al 2020). Although these characteristics vary across sectors and across economies, the percentage of tasks workers can do from home is the most significant predictor across sector (Adams-Prassl et al 2020).

Dingel and Neiman (2020) report that 34 percent of jobs in the US are or could potentially telework. They also conclude that such jobs have above average earnings. Elsewhere, they report that fewer than 25 percent of jobs in Mexico and Turkey could be performed at home, this share exceeds 40 percent in Sweden and the United Kingdom. Following Dingel and Neiman (2020) methodology, Boeri et al. (2020) estimates potential shares of telework among the occupied of 24 percent for Italy, 25 percent for Spain, 28 percent for France and 29 percent for Germany. Albrieu (2020), Foschiatti and Gasparini (2020) and Guntin (2020) conclude that between 26 to 29 percent of Argentinian, and between 20 and 34 percent of Uruguayan workers are in occupations that can be done remotely. Saltiel (2020) reports that in 10 developing countries only 13 percent of workers can work from home and the income distribution of such jobs is quite broad (although this analysis does not consider industrial workers working from home).

Gender and human capital are also predictor of job losses. In the US and UK women and workers without a college degree are significantly more likely to already have lost their jobs (between 7 and 8 percent, respectively, for gender and college degree in the US and 5 and 6 percent, respectively in the UK), while younger individuals are significantly more likely to experience a fall in their earnings.[2] In the US and UK, Adams-Prassl et al (2020) report a large gender gap in respondents' ability to telework: in the US (UK), women on average report they can do 42 percent (41 percent) of their tasks from home, compared to 53 percent (46 percent) for men. However, when controlling for occupation and percentage of tasks that can be done from home, the job loss gap by education disappears but not for gender. Adams-Prassl et al (2020) argue that among the population working from home, women spend significantly more time homeschooling and caring for children, an average of an hour per day (mostly spent on care activities). Neither of those gaps associated with gender and college degree is found in Germany. We found no other study using real time data to analyze labor gendered effects of COVID-19. Alon et al. (2020); Dingel and Neiman (2020); Mongey and Weinberg (2020) using data collected before the lockdown have discussed channels through which the current lockdown may affect workers differently depending on their gender and occupation. Alon et al (2020) find that 28 percent of male workers but only 22 percent of female workers are employed in highly telecommutable occupations in the US. Boniol et al (2019) highlights that women make up over 70 percent of the global health and social workforces, frontline jobs that increase their likelihood of contracting COVID-19 (CARE 2020). Women are disproportionally employed in the sectors hardest hit by the pandemic, including entertainment, retail, tourism, travel, and smallholder farming, as well as in the informal economy and as migrant workers. Women entrepreneurs face

[2] Neither of those effects were found for Germany in the same study.

uneven adversity in rebuilding their livelihoods as they may face more unfavorable conditions, such as, for instance, a decreasing access to financial services. And gender-based violence—of all types—is on the rise and more exposed to domestic violence while quarantined with their abusers. Financial stress and unemployment further contribute to an increased risk (Capaldi et al 2012).

In Colombia, official data from the National Statistical Institute, DANE, show that unemployment rose 1.8 percentage points in the first week of lockdown (up to 12.6 percent) alone and labor demand plummeted by 1.5 million (DANE 2020). Lamprea-Barragan et al (2020) estimate daily job destruction between 21,000 and 35,000 jobs, based on the ability of workers to telework. They conclude that about 10.8 percent of workers already worked normally from home before the pandemic and a total of 37.7 percent of workers(out of 22.3 million) are or would be able to continue productive work without infringing social distancing. The results are in line with the percentage of telework found by Dingel and Neiman (2020) for the United States and with the results reported for Colombia by Jaramillo et al. (2020). By gender, Lamprea-Barragan et al (2020) show that 43.7 percent of the female population can work from home, higher than the 33.5 percent among men. This is due to the already higher proportion of women already working from home. Instead, men are more likely to work remotely than women (59.6 vs. 39.4 percent) if not working already from home.

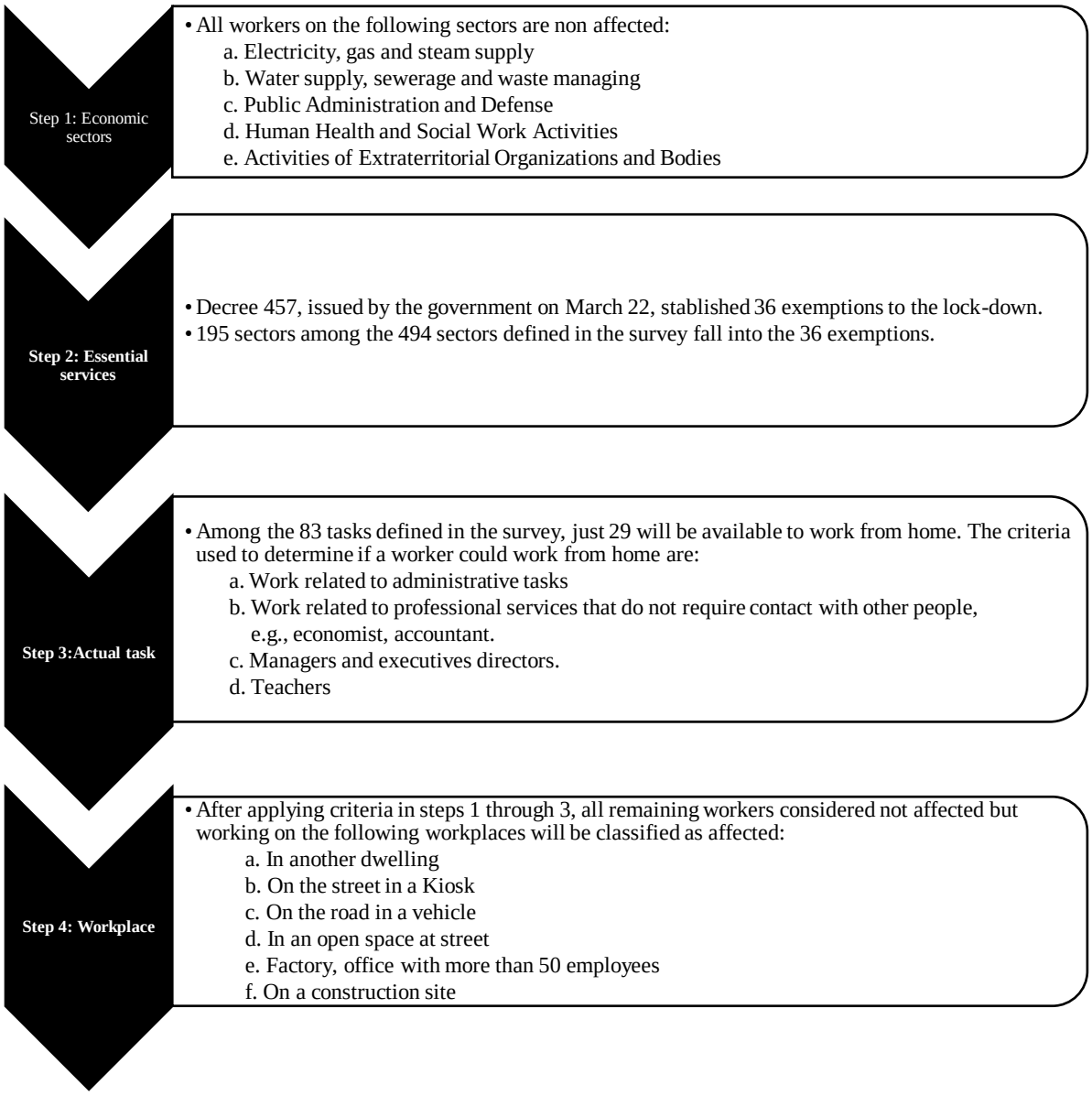
3. Methodology and application to Colombia

We develop an ex-ante simulation exercise using a static microsimulation model to predict poverty in scenarios with and without COVID-19. We follow the widely known van de Walle and Nead (1995) and Lustig (2018)'s partial equilibrium analysis which captures the short-run effects of policies, before any potential behavioral response. We still consider second round effects accruing from mitigation interventions from both social and economic reactivation programs. Mechanically, we use microdata to identify which workers will be affected by the lockdown following the outbreak of COVID-19. To do so, we follow a sequential four-step procedure.

In the first step we identify the economic sectors necessary to fight the virus. In the case of Colombia—and elsewhere—, these are the following sectors: utilities services, public administration and defense, human health and social work activities and finally those on activities of extraterritorial organizations and bodies. In the second step, all the workers on essential services are considered to work in sectors not affected by the pandemic. In Colombia, these services are defined by the Government, through Decree 457, and consist of the 158 sectors included into the 36 exemptions stablished in the decree. Sectors we categorize as essential include all economic sectors related to food production and all the activities needed for their distribution; the retail and wholesale of medicines; the production and distribution of gasoline; and news agencies; among others. In the third step, we look at the level of job activity performed by the worker and categorize it as compatible or incompatible with the lockdown. If the task can be done from home or elsewhere in safe conditions, the worker is categorized as not affected—in an occupational sense—by the pandemic. In the case of Colombia, we identify 29 tasks out of a total of 83 that are compatible with the restrictions imposed by a lockdown. They include, for

example, managers and executive directors, teachers, and professionals as economists, and lawyers. Finally, the fourth step uses the place of work as criterion to determine exposure to pandemic: if the person works on the street, or any open space, or in a factory with more than 50 people, even if she were working in an economically non-affected sector, she would be classified as affected. Figure 1 graphically shows the four sequential steps taken to classify workers as occupationally impacted by the pandemic and their application to Colombia.

Figure 1: Steps to identify workers in affected workers and its application to Colombia



Source**:** Authors using GEIH 2018

Once we identify workers whose employment is affected by COVID-19, we estimate their labor income reduction with regards to their pre-COVID-19 situation. During the time the lockdown lasts, the impacted worker will be unable to regularly work and earn his or her regular income.

More specifically, for all affected workers, their pre-lockdown income will be substantively impacted—an estimated 50 percent of pre-COVID-19 labor earnings. This assumed reduction is expected to capture an average of different degrees of possible earning losses, from full loss to more moderate losses associated with accepted or negotiated income reductions with firms, with furloughs, informal or aside activities during the pandemic (for example, alternative earning activities from home such as consulting, call center agent, manufacturing and sale of face masks, for example). The pandemic is assumed to last three months, after which an immediate recovery of employment and income levels prior to the lockdown takes place. This is the baseline scenario.

Next, we consider all the mitigation measures the government had put in place to alleviate the economic effects of the lockdown. They include both mitigation interventions aimed at social alleviation as well as economic recovery (see description below in the case of Colombia). The final step to estimate the poverty impact attributable to COVID-19 is to generate the distribution of income losses across households, a distribution of final household incomes with COVID-19 and comparing that income distribution with a no-pandemic counterfactual. In other words, the poverty impact attributable to the lockdown is the difference in poverty headcount (and/or gap, severity or any other monetary welfare indicator) with COVID-19 vis-à-vis a counterfactual of no COVID-19 in 2020. The analysis also provides the profiles of the newly poor, including gender.

To define the distribution of incomes with COVID-19 and its counterfactual of no COVID-19, we construct distributions of disposable incomes, Φ (Y), for the counterfactual and our simulated scenarios where the lockdown takes places. This allows us to estimate poverty indicators from these distributions, thus assessing the impact of the pandemic, the loss of labor income and the income transfers (or equivalent income transfer) from mitigation and economic recovery interventions. Specifically, our baseline disposable income distribution is defined as:

$$\Phi\ (Y)_0 = \Sigma_h\ \Theta_h\ \Sigma_{i,j}\ (\ L + P + N + S + H)_{i,j} \qquad (1)$$

Where $\Phi(Y)_0$ describes the baseline distribution of incomes across Colombian households without the pandemic. The income of household h is the sum of all income sources that each j member provides to the household—labor, L; pension income, P; and non-labor market incomes, N; and social transfers if the household receives them, in cash or in kind, S; finally we include H the rent imputation for those households that owns their dwelling. Importantly, S, social transfers, during the counterfactual of no-COVID-19, does <u>not</u> include any transfer that is expanded or created as a deliberate intervention to mitigate COVID-19.

Furthermore, Θ defines the allocation rule within each household h that aggregates all incomes generated by its members. We follow the widely-used unitary rule (for the lack of a rigorous alternative rule that can be applicable across the board or globally as argued by Browning, Chiappori and Weiss 2014). Under this cooperative intrahousehold allocation model, all income sources are pooled and shared to members according to their needs (on a per capita basis or adjusted by equivalence scales). This is a convenient assumption but not necessarily a realistic assumption given the well-established literature on non-cooperative intrahousehold allocation (Haddad, Hoddinott and Alderman 1997 for a seminal work and Brown, Ravallion and van der

Walle 2018 for a recent reference). To the extent that uncooperative relations take place within the household and that behavior exacerbates during the pandemic, we bias down the effects on poverty associated with the pandemic. However, these effects will not be strictly employment-related in nature but associated with household behavior reflecting social norms.

When the lockdown is declared, all workers whose employment status is affected see their labor income reduce. The microsimulation exercise considers the four sequential criteria described in figure 1 to determine whether an individual's labor condition is impacted by the pandemic. Based on that classification we generate simulated distributions of disposable incomes where the labor income for occupationally affected workers is reduced (to the baseline 50 percent or any other proportion one might want to simulate, L'), and public transfers (social transfers and/or economic recovery benefits) increase as the result of mitigation intervention. In other words, in simulated scenarios with COVID-19, S' includes all existing social transfers whose coverage or benefit have been extended and any new transfer created with the deliberate aim of mitigating the economic effects of COVID-19.

$$\Phi\ (Y)_{sim1} = \Sigma_h\ \Theta_h\ \Sigma_{i,j}\ (\ L' + P + N + S' + H)_{i,j} \quad (2)$$

In the case of Colombia, we simulate the consequences of introducing or expanding existing compensatory measures—additional payments of the already existing social programs, as well as new programs created to mitigate the socioeconomic effects created by the lockdown. The Government of Colombia has announced several measures to fight against the impacts of COVID-19. Announced policies consist of:

(a) Increased payments for social programs (Más Familias en Acción, Colombia Mayor and Jóvenes en Acción): specifically, two additional payments of COP 80,000 or USD 21.35[3] each for the current beneficiaries of the Colombia Mayor program; two additional payments averaging COP 145,000 (USD 38.70) each per family in the Más Familias en Acción program; and two additional payments of COP 365,000 (USD 97.43) each per youth in the Jóvenes en Acción program.

(b) VAT refund to 1,000,000 Colombian Families, involving a return equivalent to a bi-monthly transfer of COP 75,000 (USD 20.00), being accelerated so started in April 2020 rather than January 2021. The beneficiaries of the transfer are households currently part of the social transfer programs. The means-tested SISBEN IV score determines beneficiaries so that the benefit is given to households with the lowest scores and located in the municipalities prioritized according to the Multidimensional Poverty Index.

(c) Solidarity Income: the program includes a transfer for vulnerable and poor households that are not currently part of any social program. Two payments[4] of COP 160,000 (USD 42.71) each

[3] We use the nominal conversion rate as of 3,746 Colombian pesos per dollar (exchange rate of June 11, 2020).
[4] At the time of writing this article, the Government of Colombia is considering a third payment of COP 160,000. The impact of this additional payment on poverty is expected to be a reduction ranging from 0.2 to 0.4 pp. Additionally, the government considered including all the workers currently under unpaid leave or contract suspension in the program. However, we could not include this payment into the simulations as we could not identify those workers with the information reported in the GEIH household survey.

per family to all households that are considered poor and households considered vulnerable according to the SISBEN IV classification currently not part of any social program.
(d) Early Childhood Feeding Program: Nutrition is one of the components of the assistance provided by the Colombian Early Childhood Institution (ICBF for their acronym in Spanish). The average value of food delivered to children in community centers is estimated to be COP 79,334 per month. All the children who attended an ICBF community center before the start of the pandemic receive two food baskets during the lockdown, whose average monetary value is COP 225,759 (USD 60.26). The benefit accounted in this exercise is the difference between the value of the food baskets received during the lockdown and the value of the food children would have alternatively benefited from in the absence of the lockdown.

(e) Delivering food baskets to the most vulnerable population: The national government provides food baskets for 178,127 older adults who do not receive any institutional support. The cost of these food baskets averages COP 150,000 (USD 40.04) including the transport cost.

(f) Payroll subsidy: this is a payroll subsidy, for three months, equivalent to an average of COP 351,121 (USD 93.73) per employee per month. The transfer is made directly to employers. Only formal employers with three or more employees are eligible for the subsidy.

(g) Credit line: The government acts as a guarantor of credit granted to local enterprises, up 80 percent of the amount lent to companies. The sum of all the guarantees in the program will not exceed COP 400,000 million pesos (USD 106.78 million) for loans for SME and COP 600,000 million (USD 160.17 million) for large companies.

(h) Bonus Subsidy: The national government recently announced a subsidy to the salary bonus that all workers receive in June (the bonus is equivalent to half a monthly salary). The government will subsidy half of the bonus to all formal employees earning less than COP 1,000,000 pesos (USD 266.95) per month.

(i) Suspension of social security contributions: The national government suspended the payment of employees and the self-employed's contributions to social security for three months, more specifically, the payments into retirement funds. Employees will save 4 percent of their labor income, while self-employees will save 6.4 percent of their labor income because of the suspension of those contributions.

It is worth noting that payroll subsides, credit lines, bonus subsidies and the suspension of social security contributions are measures designed with the aim of fostering economic recovery. They seek to strengthen the position of firms to resist mounting lay-off pressures as the pandemic lingers as well as providing a line of liquidity to pay salaries, suppliers, rents and so forth as to keep business running. However, they are designed to benefit formal workers and businesses, keeping informal workers or firms from benefiting from such resources.

As a result, the proposed microsimulation exercise allows for the estimate of the impact of COVID-19 (against a counterfactual of no pandemic) and for the specific effect that mitigation policies have on the initial pandemic impact. In addition, we conduct robustness tests through alternative scenarios related to a gradual recovery (of three additional months), the impact on

incomes, and the reopening of the economy before three months. In the case of a three-month gradual recovery (after the three months of lockdown), the simulation randomly identifies a third of occupationally impacted workers each month and provides them the monthly earning levels prior to the pandemic. These alternative analyses allow us to provide a range of estimated impacts under the large uncertainties associated with COVID-19 and understand the effects of the length of the recovery and the magnitude of the income shock in poverty estimates. Table 1 below shows the different simulation scenarios to be analyzed.

Table 1: Simulated scenarios

		Recovery	
		Immediate	**Gradual**
Labor income loss	**50%**	**BASELINE**: Affected workers will see their labor income reduced to 50% compared to their Pre-COVID income for three months.	A third of the affected workers will see their income reduced to 50% compared to their Pre-COVID labor income for three months, another third will experience the reduction for four months, and for the remaining third, this reduction will last for five months.
	100%	Affected workers will see their labor income reduced to 0 for three months.	A third of the affected workers will see their labor income reduced to 0 for three months, another third will see their labor income reduced to 0 for four months, and for the remaining third, this reduction will last for five months.

We use the *Gran Encuesta Integrada de Hogares* GEIH, in Spanish, produced by the national statistical office, the *Departamento Administrativo Nacional Estadístico*, DANE. The survey is collected monthly and the latest survey available with the corrections on the incomes, is the 2018 wave. The 2018 wave contains 231,128 households, a sample that is representative nationally, urban-rural, and for 24 departments and 13 capital cities (DANE 2018). Households report their incomes in detail. This is the official data used to compute poverty and labor income indicators, as unemployment rates.

4. Results for Colombia

4.1. Impacts of COVID-19 on employment

Out of the 22.44 million workers employed in Colombia pre-COVID-19, some 32 percent or 7.35 million were occupied in sectors or services considered essential during the pandemic; worked on jobs compatible with the pandemic because of their function or because of the work place, that is, can telework, work in open spaces or in companies where sufficient space and protection equipment to the pandemic are presumed to exist or be provided. This means that just 15.09 million workers are occupied in sectors disrupted by the lockdown. Out of these 15.09

million, 9.09 million are male workers, and 6.0 million are female workers. Also, the share of impacted male workers on male employment is larger than the share for women (64 percent of the occupied women were impacted, versus 69 percent of the men). See Table 2. This contrasts with the pre-COVID-19 higher unemployment and inactivity rates among women compared to men. [5] See Table 2.

Table 2: Affected workers per economic sector, by gender

Economic sector	Affected workers		Non affected workers		Total
	Male	Female	Male	Female	
Agriculture, Fishing, and Forestry	1,515,490	418,481	1,492,411	285,387	3,711,769
Mining and quarrying	38,775	8,531	135,744	25,013	208,065
Manufacturing	1,223,173	823,473	254,046	304,588	2,605,281
Electricity, gas and steam supply	0	0	54,258	16,534	70,793
Water supply; sewerage and waste management	0	0	84,600	29,052	113,653
Construction	1,396,354	76,815	15,552	12,598	1,501,320
Wholesale and retail trade; repair of motor vehicles and motorcycles	1,633,661	1,124,961	640,960	855,927	4,255,509
Transportation and Storage	1,308,774	107,038	95,360	24,765	1,535,937
Accommodation and food service activities	437,939	893,811	72,063	168,700	1,572,514
Information and communication	124,125	74,550	66,306	80,575	345,557
Finance and insurance activities	111,749	140,940	19,775	30,328	302,793
Real estate activities	82,330	36,678	126,365	51,691	297,064
Professional, scientific and technical activities	112,543	83,101	202,582	161,283	559,509
Administrative and support service activities	236,434	497,013	45,639	44,022	823,109
Public Administration and defense	0	0	396,426	284,844	681,271
Education	301,439	425,248	50,092	151,307	928,087
Human health and social work activities	0	0	198,728	724,575	923,304
Arts, entertainment and recreation	145,007	112,298	42,303	30,972	330,581
Other service activities	386,117	548,048	29,942	36,854	1,000,962
Activities of households as employers	33,824	629,573	5,451	3,223	672,072
Activities of extraterritorial organizations and bodies	0	0	3,088	1,898	4,987
Total	9,087,733	6,000,557	4,031,700	3,324,146	22,444,136

Source: Authors using GEIH 2018

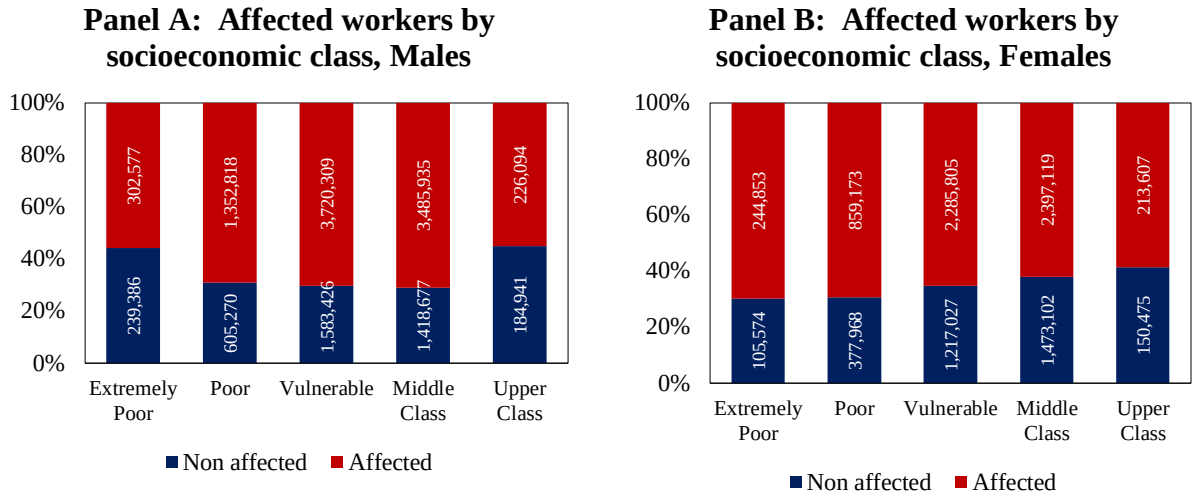
[5] Pre-COVID-19 women's unemployment rate is 12.7 percent, while the one for men is 7.4 percent. For inactivity rates, 46.2 percent of the working-age women are inactive, vis-à-vis 25.4 percent for men. Authors' estimates from GEIH 2018.

Women in affected sectors are disproportionally distributed among non-tradable sectors, that is 66.4 percent of all women in affected sectors (59 percent in the case of men in affected sectors).[6] See Table 2. Annex 1 disaggregates workers in affected sectors by gender and formality status. It shows that almost two thirds of affected workers among women are informal (3.90 million or 65 percent of all affected female workers). Annex 2 show that these women disproportionally work alone or microenterprises with less than 10 workers (94 percent of informal female workers) and earns about 22 percent of the average salary of formal women in large enterprises (100 workers or more). Instead, for men, 5.61 million or 61 percent of all affected male workers are informal. Only 17 percent of them work in microenterprises (earning on average a third of the formal male worker in large enterprises). See Annex 2.

Another way to gauge the scope of the socioeconomic impact of the pandemic is to look at its effects by socioeconomic class. Figure 2 shows the distribution of workers in affected and nonaffected sectors, by gender, across socioeconomic class, namely, the extremely poor (with monthly household per capita incomes below national extreme poverty line of COP 117,805 (USD 31.44); moderately poor (below the total poverty line of COP 257,433 or USD 68.72); the vulnerable (between COP 257,444 and 609,029, that is, between USD 68.72 and USD 162.58); the middle class (between COP 609,030 and 3,045,174 COP, that is between USD 162.58 and USD 812.91); and the upper class (above COP 3,045,175 COP, that is, USD 812.91). For all socioeconomic classes, the number of workers in affected sectors exceeds that of workers in unaffected sectors. This is also true for the middle and upper classes. In relative terms, some 61.3, 69.2, 68.2, 67 and 56.7 percent of workers in each of the socioeconomic classes are affected, respectively. This does not change much by gender, with very similar percentages across both sexes and across socioeconomic class. In absolute numbers, the largest group of women in affected sectors belong to the middle class—almost 1.5 million—, closely followed by vulnerable women (over 1.2 million). Some 482,000 women occupied in affected sectors are extremely poor, while some 150,000 belong to the upper class (see Figure 2).

[6] Non- tradable sectors include electricity, water and sanitation, construction, transportation and storage, accommodation and food services, retail and wholesale commerce, real estate, scientific activities, administrative services, public administration, education, human health, arts and recreation, and activities of households as employers.

Figure 2: Workers in sectors affected by COVID-19, by socioeconomic class and gender



Source: Authors' simulations using GEIH 2018

The pandemic also causes sizeable downward transitions across socioeconomic class. About 3 million women see their socioeconomic class downgrade, roughly half in a transition from vulnerable to poor classes and the other half from middle class to vulnerable class (these results apply to the baseline). The numbers and directions involved in class transitions for women closely mimic those for men. Over 3 million occupied men before COVID-19 downgrade their pre-lockdown socioeconomic status. See Table 3.

Table 3: Socioeconomic class transitions due to COVID-19 by gender

Panel A: Socioeconomic class transition due to COVID-19, Males

		Simulation (baseline scenario)			
		Poor	**Vulnerable**	**Middle Class**	**Upper Class**
Pre- COVID	**Poor**	6,297,947	0	0	0
	Vulnerable	720,854	8,836,168	0	0
	Middle Class	1,878	661,248	6,786,427	0
	Upper Class	0	0	50,374	521,196

Panel B: Socioeconomic class transition due to COVID-19, Females

		Simulation (baseline scenario)			
		Poor	**Vulnerable**	**Middle Class**	**Upper Class**
Pre- COVID	**Poor**	6,774,645	0	0	0
	Vulnerable	734,260	8,963,520	0	0
	Middle Class	224	649,027	6,802,223	0

	Upper Class	0	0	49,752	540,806

Source: Authors' simulations using GEIH 2018

4.2. Impacts of COVID-19 on poverty

The impact of COVID-19—without any compensation measure—ranges between increases of 3.0 to 9.1 percentage points (pp) in headcount poverty rates. This means that between 1.5 to 4.4 million additional people become poor as a result of COVID-19. The baseline scenario—of a three-month lockdown; 50 percent drop in labor incomes among impacted workers, immediate recovery after COVID-19, and no mitigation policies—reports increases in extreme poverty of 0.9 pp and 3.0 pp in total poverty (see table 4 below). Allowing for a larger income loss of 100 percent of pre-COVID-19 labor incomes will increase the poverty headcount by 2.1 pp and 6.4 pp for extreme and total poverty, respectively. Allowing for a gradual recovery of three months will increase the poverty headcount by 1.3 and 4.1 pp for extreme and total poverty respectively (assuming a 50 percent income loss; and 3.5 and 9.1 p.p. increases in extreme and total poverty respectively if the income loss reaches 100 percent of pre-covid earnings). See Table 4. Annex 3 shows that the aggregated poverty reduction effects are larger in urban areas than in rural areas, this being true for women and men across all simulated scenarios.

Table 4: The Impacts of COVID-19 on Extreme and Total Poverty (At Baseline and scenarios involving no policies)

	No COVID-19 counterfactual	Baseline scenario with Covid	Larger income loss impact	Gradual recovery	
		50% income loss; immediate recovery	100% income loss; immediate recovery	50% income loss	100% income loss
Extreme poverty headcount	**7.2**	**8.1**	**9.3**	**8.5**	**10.7**
Impact on extreme poverty headcount		+ 0.9	+2.1	+1.3	+3.5
Number of new extreme poor	3,508,285*	415,166	1,001,457	602,100	1,656,607
Total Poverty headcount	**27.0**	**30.0**	**33.4**	**31.1**	**36.1**
Impact on total poverty headcount		+3.0	+6.4	+4.1	+9.1
Number of new total poor	13,072,592*	1,457,215	3,105,649	1,981,653	4,428,811

Source: Authors' simulations using GEIH 2018.
Note: (*) pre-COVID-19 number of extreme and total poor assumed to remain constant through 2020.

There are no sizeable differences in the impacts of COVID-19 between men and women. For both women and men, we observe an increase of 3.0 pp on the baseline and 4.1 pp on the gradual recovery case on total poverty with respect to the counterfactual of no COVID-19 (see Table 5 below). This leads to higher poverty headcount rates for women than men after factoring in COVID-19 impacts. However, this small difference (disaggregated by sex) on the COVID-19 poverty impact reflects that: (i) poverty is measured at the household level and by definition all household members are classified as either poor or non- poor; and (ii) the ratio of males to

females is roughly 50/50 in both poor and non-poor households (Munoz et al 2020).

Table 5: Gender Impacts of COVID-19 on Poverty

	No COVID-19 counterfactual		Baseline: Immediate recovery (50% income loss;)		Gradual recovery (50% income loss)	
	Female	Male	Female	Male	Female	Male
Extreme poverty headcount	**7.5**	**7.0**	**8.4**	**7.8**	**8.8**	**8.2**
Impact on extreme poverty headcount			+ 0.9	+ 0.8	+ 1.3	+ 1.2
Number of new extreme poor	1,840,557*	1,667,728*	211,634	203,532	303,319	294,144
Total Poverty headcount	**27.6**	**26.4**	**30.6**	**29.4**	**31.7**	**30.5**
Impact on total poverty headcount			+ 3.0	+ 3.0	+ 4.1	+ 4.1
Number of new total poor	6,774,646*	6,297,947*	734,484	722,732	1,003,075	985,737

Source: Authors' simulations using GEIH 2018
Note: (*) pre-COVID-19 number of extreme and total poor assumed to remain constant through 2020.

The effect of COVID-19 on total poverty is about three times stronger among informal than formal female workers. Table 6 shows that in the baseline some 1 pp more formal female workers will become poor with respect to the counterfactual of no COVID-19. However, this effect is 3.08 pp of increased poverty among informal female workers. Assuming a gradual recovery does not change the scale of the gap in the impacts of formal and informal female workers. When looking at extreme poverty, COVID-19 rises it between 0.8 and 1.2 pp, depending on the length of recovery. See Table 6. These effects are similar yet slightly lower than the results found for informal and formal males (see Annex 4).

Table 6: Impacts of COVID-19 on Poverty on Females, by formality

	No COVID-19 counterfactual		Baseline: Immediate recovery (50% income loss;)		Gradual recovery (50% income loss)	
	Female		Female		Female	
	Formal	Informal	Formal	Informal	Formal	Informal
Extreme poverty headcount	**0.21**	**6.02**	**0.25**	**6.84**	**0.26**	**7.24**
Impact on extreme poverty headcount			+0.04	+0.82	+0.05	+1.22
Number of new extreme poor	7,609*	343,154*	1,444	46,945	1,903	69,308
Total Poverty headcount	**2.52**	**26.26**	**3.51**	**29.33**	**3.91**	**30.59**
Impact on total poverty headcount			+0.99	+3.08	+1.39	+4.34
Number of new total poor	91,471*	1,496,583*	35,787	175,365	50,404	247,284

Source: Authors' simulations using GEIH 2018
Note: (*) pre-COVID-19 number of extreme and total poor.

About 50.4 percent of the new poor are women although only a third of the emerging poor from COVID-19 belong in households headed by females (table 7). The new poor are mostly individuals from vulnerable households (prior to COVID-19) that are impacted by the impossibility of continuing working and earning a labor income. The profile of the new poor also includes over six years of education; 80 percent are informal workers: belong with relatively large households with more than four members; and are mostly urban households. About two thirds have less than secondary education. Three quarters are informal and over 40 percent used to work in agriculture, manufacturing and retail. A third of them concentrate in Bogota, Antioquia and Valle del Cauca. Annex 5 provides a detailed geographical analysis of the poverty impacts of COVID-19.

Table 7: Socioeconomic characteristics of the new poor

	Characteristics of the new poor (After COVID)
Individual characteristics	
Age (years)	26.2
Female (%)	)50.4
Years of education	6.4
Household head characteristics	
Age (years)	43.8
Female household head (%)	29.6
Years of education	7.2
Household characteristics	
Household size	4.1
Living in urban areas (%)	81.6
Dependency ratio (%)	61.4
Education (%)	

Non educated	7.36
Education level: Basic Primary	37.31
Education level: Basic Secondary	23.74
Education level: Middle school	23.26
Education level: Higher education	8.31
Labor market (%)	
Formal	21.27
Informal	78.73
Top three employment sector pre-covid (%)	
Agriculture, Fishing, and Forestry	15.1
Manufacturing	12.2
Wholesale and retail trade	20.0
Top three departments (%)	
Bogotá	13.32
Antioquia	12.53
Valle del Cauca	8.89

Source: Authors' simulations using GEIH 2018

4.3. The poverty effects of mitigation policies

Mitigation policies are expected to reverse initial poverty impacts to a substantive extent. The overall impact of all measures considered together is 2.16 pp (total poverty) with respect to the baseline of a 3-month lockdown, immediate recovery and 50 percent income loss per impacted worker. See Table 8. The impact of each compensation policy varies. Más Familias en Acción and solidarity income reduce poverty by between 0.3 and 0.8 pp each. By contrast, the other two cash transfers, food baskets and ICBF programs have a less marked impact, mostly as a result of the limit on the duration of the program, the size of the compensation or both. When the assumptions of the baseline are changed, the overall impact of the compensation package remains 2.16 pp when the income loss is 100 percent with immediate recovery); 2.23 pp when the recovery is assumed gradual with income loses are 50 percent; and 2.20 pp with gradual recovery and 100 percent income loss). Table 8 reports the aggregated results of the compensation package.

By gender, the differences in the total reduction effect on both extreme and moderate poverty are virtually the same. Figure 3 describes both the total effect and the contribution of each social mitigation effect to poverty reduction. It shows that those contributions do not vary substantively across gender. Both VAT refund and solidarity income remain the largest contributors to poverty reduction across women while food baskets and cash transfers, the least. These results hold for extreme poverty as well (see Annex 6).

Figure 4 reports the total effects of the economic recovery measures, that is, credit lines and guarantees to SME and large enterprises, payroll subsidies, bonus subsidies and the suspension of retirement contributions. It reports an overall effect of 0.86 points, divided in 0.04 points from credit benefits, 0.65 points from payroll subsidies, 0.06 points from bonus subsidies and 0.11 from the suspension of retirement contributions. For women, these transfers contribute to poverty reduction virtually in the same magnitudes as for men.

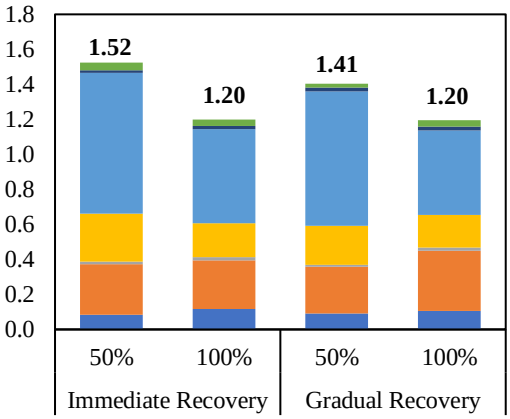
Table 8: The Poverty Reduction Effects of COVID-19 Compensation Policies in Colombia

	No COVID-19 counterfactual	Baseline: immediate recovery and 50% income loss	Immediate recovery and 100% income loss	Gradual recovery and 50% income loss	Gradual recovery and 100% income loss
Extreme poverty headcount	**7.2**	**6.8**	**7.7**	**7.1**	**8.9**
Reduction in extreme poverty headcount		-1.35	-1.62	-1.43	-1.86
Number of people exiting extreme poverty		650,907	783,116	695,706	900,128
Total Poverty	**27.0**	**27.9**	**31.3**	**28.9**	**34.0**
Impact on total poverty headcount		-2.16	-2.16	-2.23	-2.20
Number of people exiting total poverty		1,042,557	1,044,747	1,080,540	1,061,428

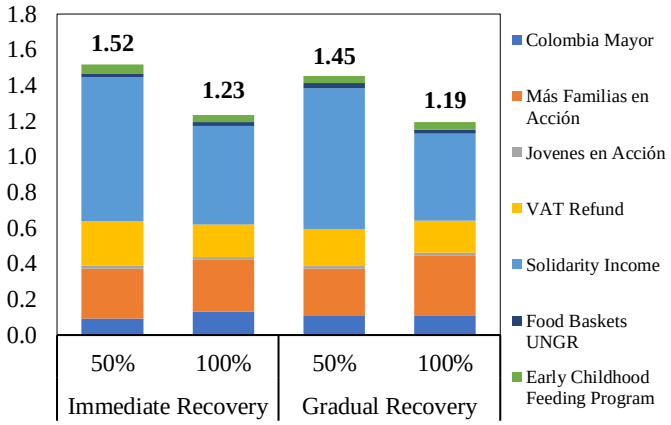
Source: Authors' simulations using GEIH 2018

Figure 3: Poverty reduction due to COVID-19-specific social mitigation policies by intervention and gender

Panel A: Poverty reduction due to social mitigation policies, Males



Panel B: Poverty reduction due to social mitigation policies, Females

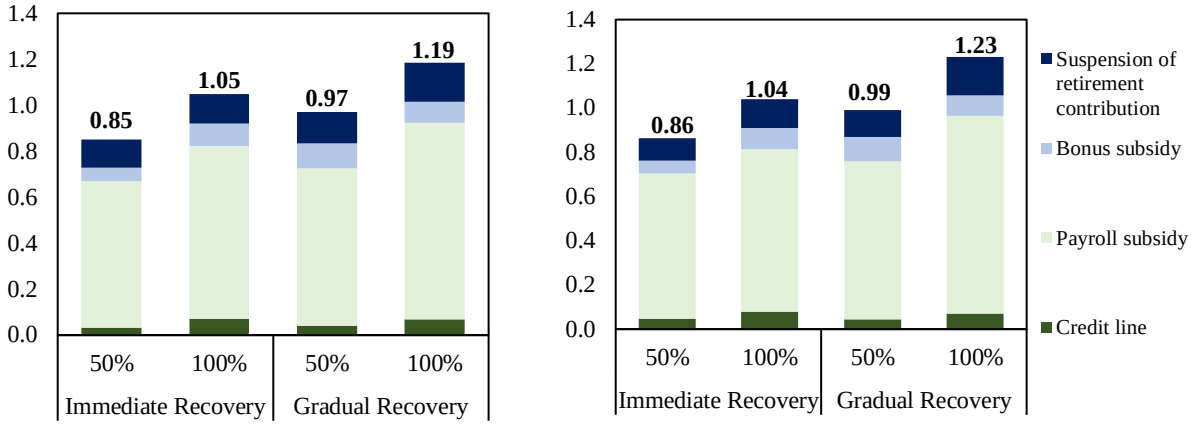


Source: Authors' simulations using GEIH 2018

Figure 4: Poverty reduction due to COVID-19-specific economic recovery policies by intervention and gender

Panel A: Poverty reduction due to social mitigation policies, Males

Panel B: Poverty reduction due to social mitigation policies, Females



Source: Authors' simulations using GEIH 2018

We assess the efficiency of all mitigation interventions, social and economic recovery, based on their cost effectiveness. We estimate first the fiscal cost needed for each intervention to deliver a 1 pp reduction in poverty—based on their current poverty impact and fiscal cost. Then, we report the number of women lifted of out poverty during COVID-19 that can be traced directly to each intervention. Results in Table 9 indicate that the fiscal cost varies significantly across interventions. We report a range that captures the best and worst case scenario considered (based on length of recovery and impact on earnings). Looking at the fiscal costs in the best case, solidary income and food baskets are the most efficient in reducing poverty: that is, requires less fiscal resources to bring the poverty headcount down by 1 pp. Their cost to reduce the poverty headcount by 1 pp or some 483,905 people out of poverty is COP 1.2 billion or USD 0.32 million. IVA refund and early childhood transfers, ICBF, have similar efficiency and require less than COP 2 billion or USD 0.53 million to reduce poverty by 1 pp. And the expansion of the three current cash transfer programs, Más Familias en Acción, Adulto Mayor and Jóvenes en Acción require around or above COP 2 billion or more to deliver the 1 pp poverty reduction.

All social interventions require less resources to reach a 1 pp poverty reduction than economic recovery programs. In fact, the most costly interventions, both in absolute costs but also in terms of its efficiency, are the credit lines and suspension of social security contributions. Around COP 13 billion or USD 3.47 million, best case scenario, it is close to ten times more expensive to achieve a 1 pp poverty reduction than the most effective interventions. This is explained by the large cost of the programs and the fact that they only benefit formal workers, usually less likely to be poor than the informal. In the case of payroll subsidies, this is the most costly program of all considered—both economic and social measures—and, in the simulations considered, they benefit is transferred to all firms regardless of whether they experienced revenue loses as the Decree establishes. By reaching the largest number of beneficiaries possible, the impact on poverty reduction lowers.[7]

The intervention that leads to most women out poverty is the payroll subsidy, followed by the solidarity income. See Table 9. These results are not surprising as those are the policies with the

[7] We simulate a payroll subsidy that replaces a substantive share of payrolls (40 percent) of a large population of beneficiaries (formal workers).

most significant impacts on poverty reduction—but not necessarily the largest programs in overall budgets. By contrast, interventions as Jóvenes en Acción and food baskets only contribute to taking women out of poverty by a magnitude of less than 5,000 women.

Table 9. Cost Benefit analysis of mitigation interventions and women out of poverty

Mitigation Measures	Total cost (millions COP) of current intervention	Actual poverty reduction of intervention (best and worst cases)	Cost for a 1 pp poverty reduction (billions)	Number of women out of poverty
Más Familias en acción	589,506	[0.27 ; 0.34]	[1,749 ; 2,216]	[65,183 ; 81,189]
Colombia Mayor	205,796	[0.10 ; 0.12]	[1,701 ; 2,144]	[23,098 ; 32,011]
Jóvenes en acción	67,985	[0.01 ; 0.02]	[3,777 ; 5,230]	[3,446 ; 4,230]
VAT Refund	374,965	[0.19 ; 0.22]	[1,744 ; 2,027]	[44,719 ; 60,933]
Solidarity Income	959,796	[0.49 ; 0.80]	[1,194 ; 1,979]	[119,305 ; 197,768]
Food Baskets UNGR	22,762	[0.02 ; 0.03]	[910 ; 1,186]	[4,942 ; 7,431]
Early Childhood Feeding Program	108,123	[0.03 ; 0.05]	[2,253 ; 3,379]	[9,757 ; 12,963]
Credit line	1,000,000	[0.05 ; 0.07]	[13,514 ; 22,222]	[10,948 ; 19,129]
Payroll subsidy	5,309,077	[0.65 ; 0.87]	[6,077 ; 8,193]	[161,646 ; 219,254]
Bonus subsidy	381,699	[0.06 ; 0.11]	[3,534 ; 6,638]	[13,682 ; 26,410]
Suspension of retirement contribution	2,199,447	[0.13 ; 0.17]	[12,728 ; 17,224]	[24,768 ; 42,779]

Source: Authors' simulations using GEIH 2018

4.4. Gradual reopening

At the time of writing, the government of Colombia has started to reopen the economy. The reopening is to happen gradually according to two criteria: economic sector and territory. Decree 636, approved on May 6, 2020, details the sectors of the economy that were allowed to reopen first, as they contribute a large share to GDP. So does for territories based on their number of COVID-19 cases: those with fewer COVID-19 cases are the first allowed to reopen. The epidemiological criterion looks at the absolute number of cases reported by department first, and then, the cases of within-department municipalities. Municipalities that had not reported any case are treated preferentially. The Decree defines an interval of a month to this first of the economy and foresees at least another month to reopen the rest. Despite departments are used to define the intervention, the implementation is at municipal level. In other words, mayors of municipalities within selected departments are given the discretion to decide whether they reopen.

In our simulations, we consider two phases of reopening, separated by a month. In the first month, we allow economic sectors and territories ready to reopen to go back to a normal lelve of economic activity prior to COVID-19. The remaining sectors are open a month later. For simplicity, we consider that all municipalities in a given department defined as ready to open do in fact open in the first month. Table 10 shows that poverty reduction accelerates when the economy is allowed to reopen and regain normal activity. This additional effect on poverty reduction varies from 1.27 and 2.39 pp for total poverty, hinging on the simulated scenario against which is compared to—that is, whether with immediate or gradual recovery scenarios.

In absolute numbers, this reduction implies between 631,735 and 1.19 million people lifted faster from poverty. See Table 10. These reported effects refer to the first phase of reopening, that is, the first month. If the remaining sectors and territories are allowed to fully reopen the following month, the reduction in poverty becomes larger both in absolute and relative terms. For the total poor, the reduction might reach 1.66 to 4.36 pp, or 818,193 to 2.14 million people leaving poverty behind. Both scenarios, however, assume that no epidemiological setback takes places following the lifting of the lockdown—an assumption that is highly uncertain at this point.

When the numbers are analyzed by gender, we found that the effects on poverty reduction are virtually the same in the baseline scenario. When the gradual recovery scenario is considered, on average, the numbers of men lifted from poverty exceed those on women between 0.15 and 0.2 p.p., which implies that the re-opening will lead to exiting poverty between 10,000 and 36,000 more men than women exiting poverty.

Table 10: The effects on poverty of an early (and safe) selective reopening of the economy, by gender .

	Reopening on the decree 636 of May 6, 2020, first month, compared with:		Reopening on the decree 636 of May 6, 2020, two months to reopen, compared with:	
	BASELINE: Immediate recovery (100% loss)	Gradual Recovery (100% loss)	BASELINE: Immediate recovery (100% loss)	Gradual recovery (100% loss)
Panel A: National				
Total Poverty	**32.1**	**33.7**	**31.7**	**31.7**
Impact on total poverty headcount	-1.27	-2.39	-1.66	-4.36
Number of people exiting total poverty	631,735	1,186,796	818,193	2,141,356
Panel B: Males				
Total Poverty	**31.5**	**33.1**	**31.1**	**31.1**
Impact on total poverty headcount	-1.33	-2.56	-1.71	-4.5
Number of people exiting total poverty	318,023	611,874	408,817	1,075,362
Panel C: Females				
Total Poverty	**32.7**	**34.3**	**32.3**	**32.3**
Impact on total poverty headcount	-1.28	-2.35	-1.67	-4.35
Number of people exiting total poverty	313,711	574,922	409,376	1,065,994

Source: Authors' simulations using GEIH 2018

4.5. An alternative mitigation strategy: Universal Basic Income

We simulate a mitigation policy alternative that has been widely—and hotly—debated before the pandemic and during COVID-19 but not yet implemented anywhere. This policy is a universal basic income (UBI). A UBI is a program to be delivered in cash, unconditionally, and to everyone (Gentilini et al 2020). Several recent academic works have put forward the advantage and disadvantages of these programs: Aiyar (2017), Arnold (2018), Banerjee, Niehaus, and Suri (2019), Bardhan (2017), Calnitsk (2017), Coady and Prady (2018). Drèze (2017), Francese, and Prady (2018), Hanna and Olken (2018), Lowrey (2018), Piketty (2016), Ravallion (2018), and Yang (2018). Gentilini et al (2020) summarizes the benefits as follows. Universality gets rid of exclusion and inclusion errors associated with targeting. It also eliminates stigma affecting beneficiaries. Transaction costs linked to applying or monitoring disappear and so do potential perverse effects in terms of discouraging labor supply to still qualify for some conditional transfers. It is also expected that political support is vast as beneficiaries draw from all segments of society. On the disadvantage side, the key is one that these programs are very costly given their universal coverage. And negative distributional considerations may arise based on how they are financed (for example, if reducing existing progressive social protection spending or through eliminating regressive subsidies). In practical terms, only two countries so far have ever implemented a full scale national UBI program, Iran and Mongolia, although short-lived (see Tabatabai 2012 and Yeung and Howes 2015 for assessments of each program, respectively).

In the case of Colombia, the Government of Colombia has not officially announced or indicated any intention to adopt a UBI, although the payroll subsidy is a step in the direction of a massive cash transfer programs. It has been, however, part of the debate among some intellectual and government circles. As such, we simulate the effect of a full-fledged UBI in the context of COVID-19 in Colombia. We estimate the impact on poverty reduction of an alternative UBI that would provide a flat, unconditional cash transfer across all the population. This would mean an annual COP 231,846 or USD 61.89 transfer. This results from dividing all the approved mitigation package, social and economic recovery, of COP 11,219 billion or USD 2.99 billion being equally divided over the entire population.

The results, reported in table 11, compares the aggregate poverty impact of all existing programs vis-à-vis an UBI. It shows that, for all scenarios considered, UBI provides a higher reduction in the poverty headcount than the full set of current programs, 3.58 pp vs 2.16 pp in the baseline scenario of 50 percent income reduction and immediate recovery. The gap is similar when compared with other scenarios.

When looking at the number of beneficiaries by gender, the UBI exceeds the number of women taken out of poverty with respect to the current package. Similarly, the number of beneficiaries—lifted or not from poverty—is also larger for UBI than the whole package of current interventions. This is true both for men and women. Given the nature of the program, UBI benefits all 24.5 million women and 23.9 million men in the country, compared to 14.7 million women and 15.3 million men of the current mitigation package.

Table 11: The effects on poverty of an UBI in Colombia.

	BASELINE: 50% income loss; immediate recovery	100% income loss; immediate recovery	50% income loss; gradual recovery	100% income loss; gradual recovery
Panel A: Existing mitigation measures				
Total Poverty	**27.9**	**31.3**	**28.9**	**34.0**
Impact on total poverty headcount	-2.16	-2.16	-2.23	-2.20
Number of people exiting total poverty	1,042,557	1,044,747	1,080,540	1,061,428
Number of total people benefited	30,030,245	29,898,240	29,943,400	29,882,393
Number of men benefited	15,258,426	15,172,771	15,203,229	15,162,155
Number of women benefited	14,771,820	14,725,470	14,740,171	14,720,238
Panel B: Universal Basic Income (UBI)				
Total Poverty	26.5	29.9	27.5	32.5
Impact on total poverty headcount	-3.58	-3.51	-3.57	-3.72
Number of people exiting total poverty	1,732,760	1,701,836	1,729,083	1,800,755
Number of total people benefited	48,390,548	48,390,548	48,390,548	48,390,548
Number of men benefited	23,876,091	23,876,091	23,876,091	23,876,091
Number of women benefited	24,514,457	24,514,457	24,514,457	24,514,457

Source: Authors' simulations using GEIH 2018

5. Conclusions

Women worldwide are more exposed to the negative consequences of COVID-19. They are more exposed to gender-based violence when locked down with their victimizers. They spend more *additional* time to domestic and care activities within the household, increasing their already larger burden of those activities before the lockdown. They disproportionally work in precarious jobs without social protection and in sectors highly exposed to the epidemiological consequences of COVID-19. And, contrary to previous major economic downturns, women cannot compensate for employment losses of their spouses or household members.

It should be therefore expected that women will fare worse than men in terms of labor from COVID-19. We review this proposition by focusing on the labor—employment—impact of the pandemic for women vis-à-vis that of men. We focus on the employment impact as this is one the first and fundamental socioeconomic transmission channel of the pandemic, thus impacting the ability to work and generating income. We aim at understanding the poverty impact of the

pandemic, the impact of mitigating interventions and, ultimately, if COVID-19 increases the existing welfare gap between men and women through the labor and income generation channel.

Admittedly, the focus of the analysis is narrow. We define impact in terms of poverty headcount rates and numbers. We define labor market impacts in terms of employment impacts alone. We narrowly define labor as retributed and waged labor. We focus solely on monetary poverty effects. We, simplistically, define a household as a cooperative mechanism where all members share their earnings for the collective good of each of them. And we define the lockdown as a period where waged labor is not possible so incomes are not generated. These decisions respond to the aim of making simulations traceable and while incomplete, capable of providing a picture where meaningful impacts can be compared by gender. A complete labor assessment of COVID-19 should clearly go beyond this narrow approach. In concrete, the use of savings to cope with the consequences of pandemic; the value of non-waged labor at home; the earnings from emerging activities during the lockdown; the effects on wellbeing dimensions other than income—for example on food security and nutrition—are some of many relevant considerations our analysis does not address. As information on these aspects become more available from increasingly implemented telephone surveys frequently monitoring the effects of COVID-19 in Colombia and globally (see IPSOS, Sistemas Integrales and World Bank, forthcoming), some of these issues not covered by the current analysis will surface.

Despite the limitations of our work, three conclusions stand out. First, the poverty impact of the lockdown is a whooping increase of 3.0 to 9.1 pp, or 1.5 to 4.4 million people falling into poverty. Second, the current set of mitigation policies are able to reverse this poverty surge by about 2.16 and 2.23 pp. This is the effect resulting from aggregating all measures being implemented in Colombia at a cost of COP 11,219 billion or USD 2.99 billion. The poverty reduction effect of each intervention varies considerably and does its cost. Broadly speaking, the solidarity income and the payroll subsidy are the interventions bringing the largest poverty impact. But these largest reductions are better explained by the intervention budget—especially in the case of payroll subsidy—than by a high efficiency. In fact, using the same total budget currently spent on mitigating COVID-19 on an UBI would reduce poverty by a larger extent, about 1.5 pp additional poverty reduction.

Third, there are no large differences by gender when it comes to impacts of the pandemic and mitigation interventions on poverty headcounts. Women fare very similar to men in terms of the share of occupied female workers affected; the share of the new poor that are women; and the number of women that all mitigation polices benefit to. Three reasons contribute to these results. None of the interventions are designed specifically for women. They might not worsen them by design but certainly they do not include any feature that disproportionally benefit them. Additionally, the lockdown has such a massive and unprecedented effect across sectors, services, tasks and workplaces than wiping effects materialize for both males and females. Finally, the measurement of poverty takes place at the level of the household with optimistic cooperative assumptions about its intrahousehold functioning.

These results should not be taken as to lessen the importance of a gender perspective on the design of COVID-19 responses. Responses go beyond simply labor employment considerations. Women are more exposed; are at the center of the response; and are critical for an efficient

solution. We should not revert but continue to demand the closing of gendered welfare gaps in also during the pandemic.

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Annex 1: Workers by sector, gender and formality status

Economic sector	Affected workers				Non affected workers				Total
	Male		Female		Male		Female		
	Formal	Informal	Formal	Informal	Formal	Informal	Formal	Informal	
Agriculture, Fishing, and Forestry	288,622	1,226,868	61,206	357,275	75,801	1,416,610	12,166	273,222	3,711,769
Mining and quarrying	37,035	1,741	8,301	230	57,169	78,575	4,234	20,779	208,065
Manufacturing	695,560	527,613	342,131	481,342	105,075	148,971	68,013	236,576	2,605,281
Electricity, gas and steam supply	0	0	0	0	51,708	2,550	13,609	2,925	70,793
Water supply; sewerage and waste management	0	0	0	0	63,524	21,076	19,086	9,967	113,653
Construction	443,222	953,131	62,625	14,190	12,857	2,695	11,191	1,408	1,501,320
Wholesale and retail trade; repair of motor vehicles and motorcycles	523,832	1,109,828	327,690	797,271	195,464	445,496	191,185	664,743	4,255,509
Transportation and Storage	451,334	857,440	72,640	34,397	29,028	66,332	15,351	9,414	1,535,937
Accommodation and food service activities	116,982	320,957	133,483	760,328	14,715	57,349	23,853	144,847	1,572,514
Information and communication	108,908	15,217	61,478	13,071	37,280	29,027	18,833	61,743	345,557
Finance and insurance activities	88,244	23,506	130,880	10,060	14,804	4,971	24,324	6,005	302,793
Real estate activities	64,019	18,311	28,737	7,941	111,646	14,719	39,582	12,109	297,064
Professional, scientific and technical activities	79,856	32,687	68,976	14,124	118,572	84,011	99,368	61,915	559,509
Administrative and support service activities	154,761	81,674	153,661	343,352	21,813	23,826	21,584	22,439	823,109
Public Administration and defense	0	0	0	0	389,679	6,748	276,089	8,756	681,271
Education	273,673	27,766	387,943	37,305	33,561	16,531	88,199	63,109	928,087
Human health and social work activities	0	0	0	0	177,064	21,664	570,185	154,391	923,304
Arts, entertainment and recreation	52,756	92,252	52,975	59,323	18,555	23,749	10,335	20,637	330,581
Other service activities	76,112	310,005	79,631	468,417	13,497	16,445	17,315	19,539	1,000,962
Activities of households as employers	16,309	17,515	126,429	503,144	995	4,457	259	2,964	672,072
Activities of extraterritorial organizations and bodies	0	0	0	0	2,594	495	1,883	15	4,987
Total	3,471,222	5,616,511	2,098,786	3,901,771	1,545,403	2,486,297	1,526,644	1,797,502	22,444,136

Source: Authors' simulations using GEIH 2018

Annex 2. Distribution of workers in affected sectors by company size and formality, by gender

Company size	Male		Female	
	Formal	**Informal**	**Formal**	**Informal**
Panel A: Number of Workers				
Microenterprise or alone (up to 10 workers)	817,634	5,273,023	388,661	3,680,694
Small enterprise (11-50 workers)	481,292	227,716	163,909	107,856
Medium enterprise (51 – 100 workers)	247,195	28,031	156,267	17,118
Large enterprise (more than 100 workers)	1,920,801	92,041	1,387,395	98,657
Panel B: Average Monthly Salary				
Microenterprise or alone (up to 10 workers)	1,298,943	683,996	1,046,492	435,371
Small enterprise (11-50 workers)	1,303,422	889,064	1,301,687	715,328
Medium enterprise (51 – 100 workers)	1,554,388	965,891	1,862,226	698,583
Large enterprise (more than 100 workers)	1,969,054	1,089,170	1,976,312	726,784

Source: Authors' simulations using GEIH 2018

Annex 3: Impacts on poverty by geographic area and gender

	NO COVID-19 counterfactual poverty rates		Immediate recovery (50% income loss)		Gradual recovery (50% income loss)	
	Urban	**Rural**	**Urban**	**Rural**	**Urban**	**Rural**
Panel A: National						
Total Poverty headcount	24.4	36.1	27.5	38.7	28.7	39.5
Impact on total poverty headcount			+3.1	+2.6	+4.3	+3.4
Number of new total poor	9,123,741*	3,948,851*	1,169,202	288,014	1,601,452	380,201
Panel B: Males						
Total Poverty headcount	23.8	34.5	27.0	37.0	28.1	37.8
Impact on total poverty headcount			+3.2	+2.5	+4.3	+3.3
Number of new total poor	4,302,170*	1,995,777*	577,305	105,427	787,696	191,632
Panel C: Females						
Total Poverty headcount	24.9	37.8	28.0	40.6	29.1	41.5
Impact on total poverty headcount			+3.1	+2.8	+4.2	+3.7
Number of new total poor	4,821,572*	1,953,074*	591,896	142,587	813,755	188,570

Source: Authors' simulations using GEIH 2018

Annex 4: Impacts of COVID-19 on Poverty on Males, by formality

	No COVID-19 counterfactual		Baseline: Immediate recovery (50% income loss;)		Gradual recovery (50% income loss)	
	Male		Male		Male	
	Formal	Informal	Formal	Informal	Formal	Informal
Extreme poverty headcount	**0.21**	**6.56**	**0.25**	**7.62**	**0.30**	**8.04**
Impact on extreme poverty headcount			+0.05	+1.06	+0.10	+1.48
Number of new extreme poor	10,334*	532,390*	2,305	85,707	4,795	120,085
Total Poverty headcount	**4.96**	**27.77**	**6.74**	**31.32**	**7.47**	**32.53**
Impact on total poverty headcount			+1.78	+3.55	+2.51	+4.76
Number of new total poor	248,860*	2,253,688*	89,365	287,968	126,021	385,883

Source: Authors' simulations using GEIH 2018
Note: (*) pre-COVID-19 number of extreme and total poor.

Annex 5: Impacts of COVID-19 on poverty by *Departamento*

As expected by the geographical distribution of poverty in Colombia, the geographical impact of Covid is highly diverse. This is to be expected from differences in population density, economic development and, critically, the prevalence of the virus in each department. The departments for which the impact is worst include Bolivar, Cesar, La Guajira, Quindío and Sucre, with impacts of the order of magnitude of 4.0 pp with respect to the period prior to Covid. By contrast, in Cauca, Boyacá, Caquetá, Chocó and Huila the estimated impacts range from 0.9 to 1.9 pp These are ranges for the best-case scenario (Table A5.1). When looking at the worst-case scenarios, the composition of regions among the worst do not change much and the best five remains the same, but the range worsens from 12.1 to 13.4 pp. These estimates amount to approximately 1.5 million people becoming poor as a result of covid-19.

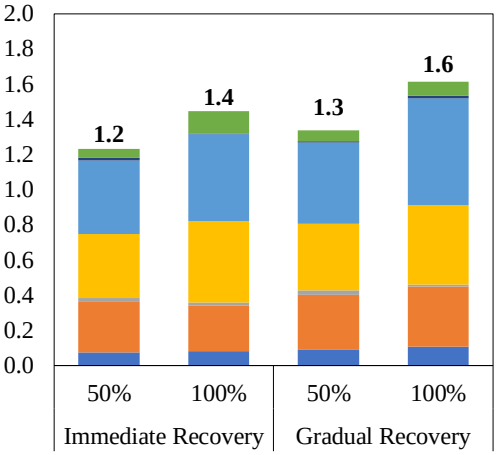
Table A5.1. Impacts on poverty by *Departamento*

Departamento	Total Poverty headcount in NO COVID-19 counterfactual	Best case scenario (50% loss income- Immediate recovery)		Worst case scenario (100% loss income- Gradual recovery)	
		Total poverty headcount	Increase on total poverty headcount	Total poverty headcount	Increase on total poverty headcount
Antioquia	21.24	24.43	3.20	29.75	8.51
Atlántico	24.19	27.95	3.76	37.23	13.04
Bogotá D.C.	12.42	14.77	2.35	19.60	7.18
Bolívar	36.16	40.79	4.63	48.56	12.40
Boyacá	26.63	28.97	2.34	33.93	7.30
Caldas	22.08	25.57	3.49	34.25	12.17
Caquetá	40.10	42.70	2.60	47.46	7.36
Cauca	50.52	52.57	2.05	56.54	6.02
Cesar	42.94	47.40	4.45	54.02	11.08
Córdoba	44.17	48.52	4.35	55.57	11.40
Cundinamarca	16.39	18.72	2.33	25.71	9.32
Chocó	61.11	63.15	2.04	67.09	5.99
Huila	37.03	39.57	2.54	43.69	6.65
La Guajira	53.74	57.93	4.20	63.88	10.14
Magdalena	46.56	49.95	3.39	57.54	10.98
Meta	25.40	28.46	3.06	35.25	9.85
Nariño	41.38	44.42	3.04	49.76	8.38
Norte de Santander	41.69	45.14	3.44	52.13	10.43
Quindío	24.06	28.26	4.20	35.11	11.06
Risaralda	17.74	21.61	3.87	29.90	12.16
Santander	20.14	22.25	2.11	28.64	8.50
Sucre	41.03	45.37	4.35	53.90	12.87
Tolima	30.99	34.05	3.06	40.37	9.39
Valle del Cauca	20.40	23.37	2.97	29.08	8.68

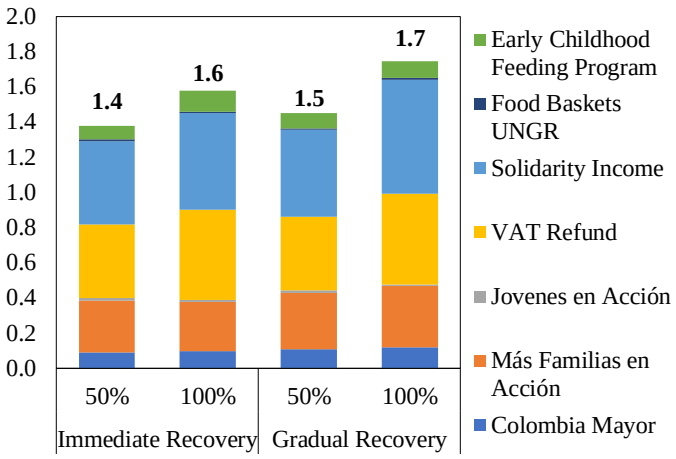
Source: Authors' simulations using GEIH 2018

Annex 6: Poverty reduction due to COVID-19-specific social mitigation policies by intervention and gender (Extreme poverty)

Panel A: Reduction on extreme poverty due to social mitigation policies, Males



Panel B: Reduction on extreme poverty due to social mitigation policies, Females



Source: Authors' simulations using GEIH 2018