

The role of tax-benefit systems in protecting household incomes in Latin America during the Covid-19 pandemic

David Rodríguez,
Xavier Jara, Mariana Dondo, Cristina Arancibia,
David Macas, Rebeca Riella, Joana Urraburu,
Linda Llamas, Luis Huesca, Javier Torres, Rodrigo Chang

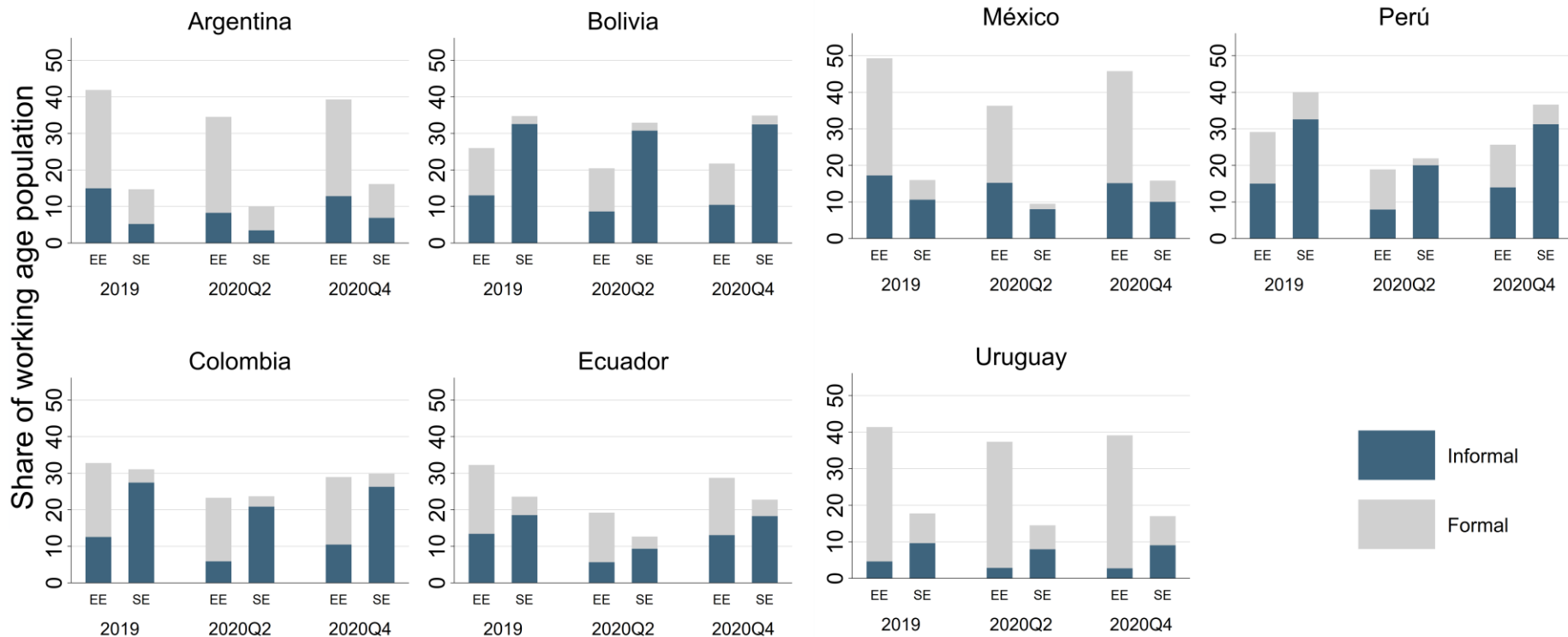
Tax-benefit microsimulation models and results

Universidad de Chile, Facultad de Economía y Negocios

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- This paper assesses the role of tax-benefit policies on the changes in the distribution of household income in seven Latin American countries: Argentina, Bolivia, Colombia, Ecuador, México, Perú, and Uruguay during the Covid-19 pandemic by means of tax-benefit microsimulation..
 - Before the crisis, most of these countries had low levels of social spending. Thus, when the crisis hit, it was likely that their benefit systems could not offer much protection.
- The pandemic brought a significant deterioration of labour market indicators in 2020: unemployment rate in the region reached 13 per cent, an increase of 4.9 pp percentage points compared to 2019 (ILO 2020) and participation rates decreased by 10 and 9.5 pp respectively (ECLAC, 2021)
- The total number of poor people in the region reached 209 million, 22 million more than the previous year. Of that total, 78 million people were in extreme poverty, 8 million more than in 2019. (ECLAC, 2021)

Changes in employment



Source: Authors' elaboration based on household survey data

Models' description

- We start from representative household survey data covering the pre-pandemic period (2019-Q4, México 2018-Q4)
- And nowcast the earnings distribution during the pandemic based on official surveys collected during 2020-Q2.
- We use nowcast data and actual data for 2020-Q4.
- We use the models to simulate tax-benefit policies and household disposable income before and during the pandemic.

Country	Microsimulation model	Data sources used as input in the models	Periods of data collection
Argentina	LATINMOD-Argentina	Encuesta Permanente de Hogares (EPH)	2019, 2020Q2, 2020Q4
Bolivia	BOLMOD	Encuesta de Hogares (EH)	2019, 2020Q2, 2020Q4
Colombia	COLMOD	Gran Encuesta Integrada de Hogares (GEIH)	2019, 2020Q2, 2020Q4
Ecuador	ECUAMOD	Encuesta Nacional de Empleo, Desempleo y Subempleo de Hogares Urbanos y Rurales (ENEMDU)	2019, 2020Q2, 2020Q4
México	MEXMOD	Encuesta Nacional de Ingresos y Gastos de los Hogares (ENIGH) survey of 2020	2018, 2020Q2, 2020Q4
Perú	PERÚMOD	Encuesta Nacional de Hogares (ENAHO)	2019, 2020Q2, 2020Q4
Uruguay	LATINMOD-Uruguay	Encuesta Continua de Hogares (ECH)	2019, 2020Q2, 2020Q4

*For Argentina, the survey covers only the urban population in large agglomerates, which represent around 2/3 of the total population

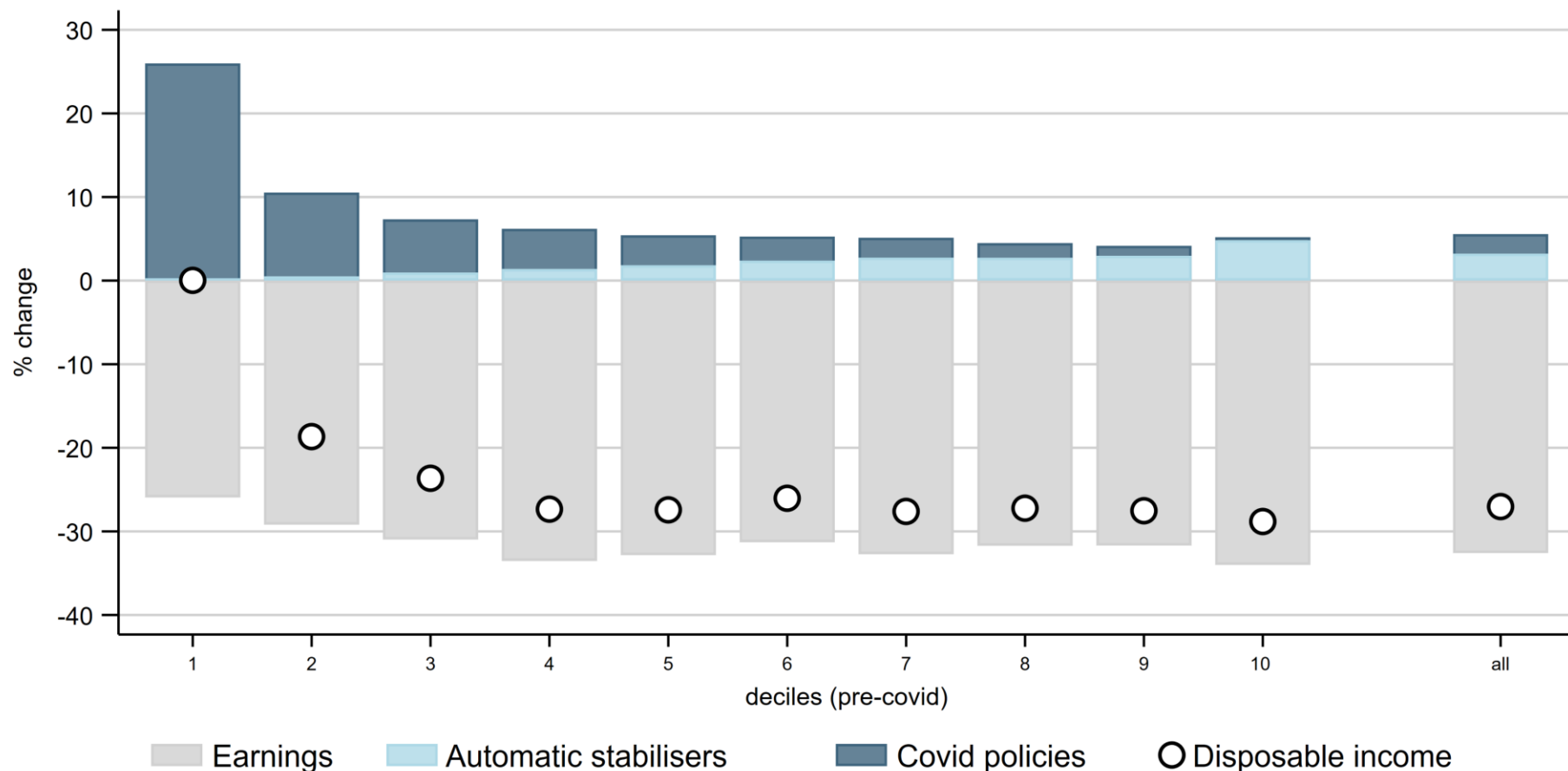
- The pandemic forced most countries to reduce the size of the survey questionnaire and/or to resort to telephonic interviews.
 - Data for 2019 contains detailed information on demographics, employment, earnings, income from capital and property, private transfers, pensions.
 - Data for 2020 Q2 only contains demographics and earnings information.
- To overcome this restriction, we use nowcasting techniques: we modify the 2019 information on earnings and labour market status to match the available information for 2020.
 - We estimate the probability of having earnings with 2020 data.
 - We predict the probability of having earnings in the 2019 data based on the probit estimations with 2020 data.
 - We adjust the number of earners by industry, employment type, and formality status in 2019 data to match the situation in 2020.
 - We adjust earnings based on the change in mean earnings between 2019 and 2020 by industry x formality status x employees vs self-employed.

- Three income distributions are simulated:
 - (A) 2019 policies simulated on pre-COVID data
 - (B) 2019 policies simulated on COVID data
 - (C) 2020 policies simulated on COVID data
- We decompose changes in the income distribution into the contribution of:
 - COVID emergency policies (C)-(B)
 - Automatic Stabilisers (B)-(A)
 - Earnings changes (B)-(A) for market incomes

2020-Q2 results

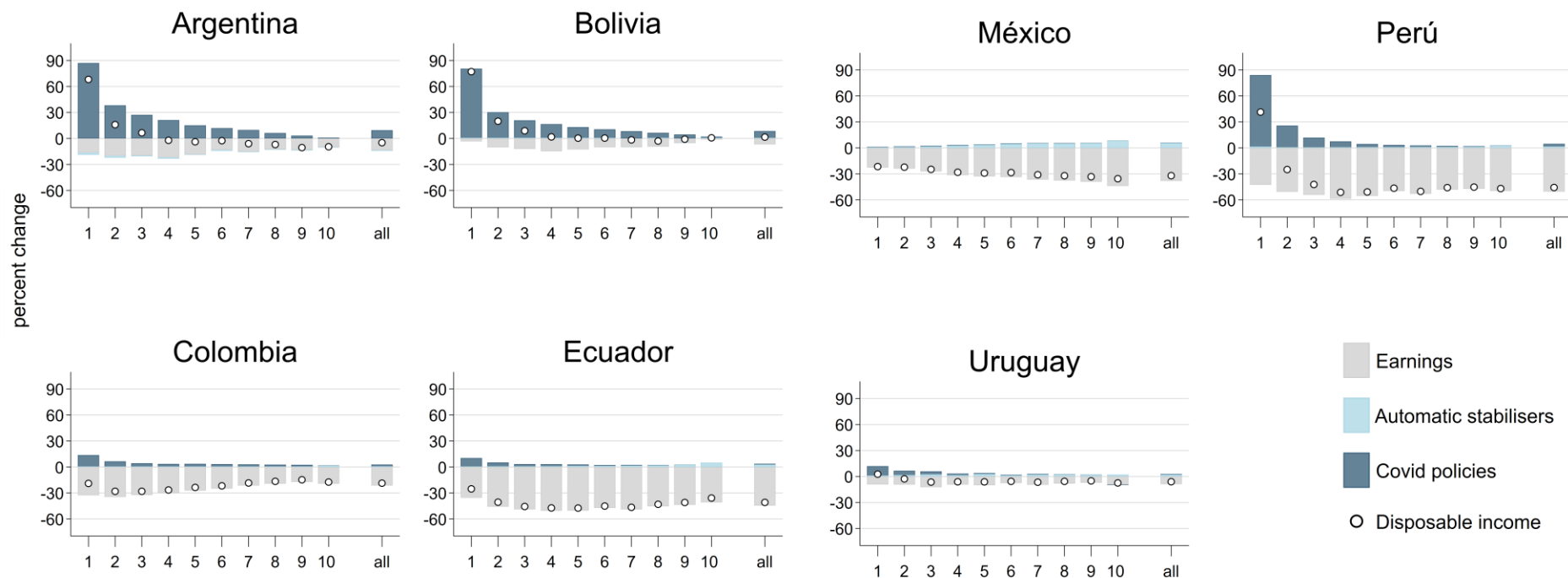
Decomposition of changes in household disposable income

Decomposition of changes in mean household disposable income in 2020Q2 by disposable income decile in 2019 Weighted average of all countries



Notes: Changes in income are based on per capita household disposable income before the pandemic. The results for all countries are equivalent to the changes in each decile for each country weighted by the country's population. Source: Authors' elaboration based on microsimulation models.

Decomposition of changes in household disposable income



Notes: Changes in income are based on per capita household disposable income before the pandemic. Source: Authors' elaboration based on microsimulation models.

Changes in income inequality and poverty, 2020-Q2 (with and without Covid policies) and 2019 (baseline).

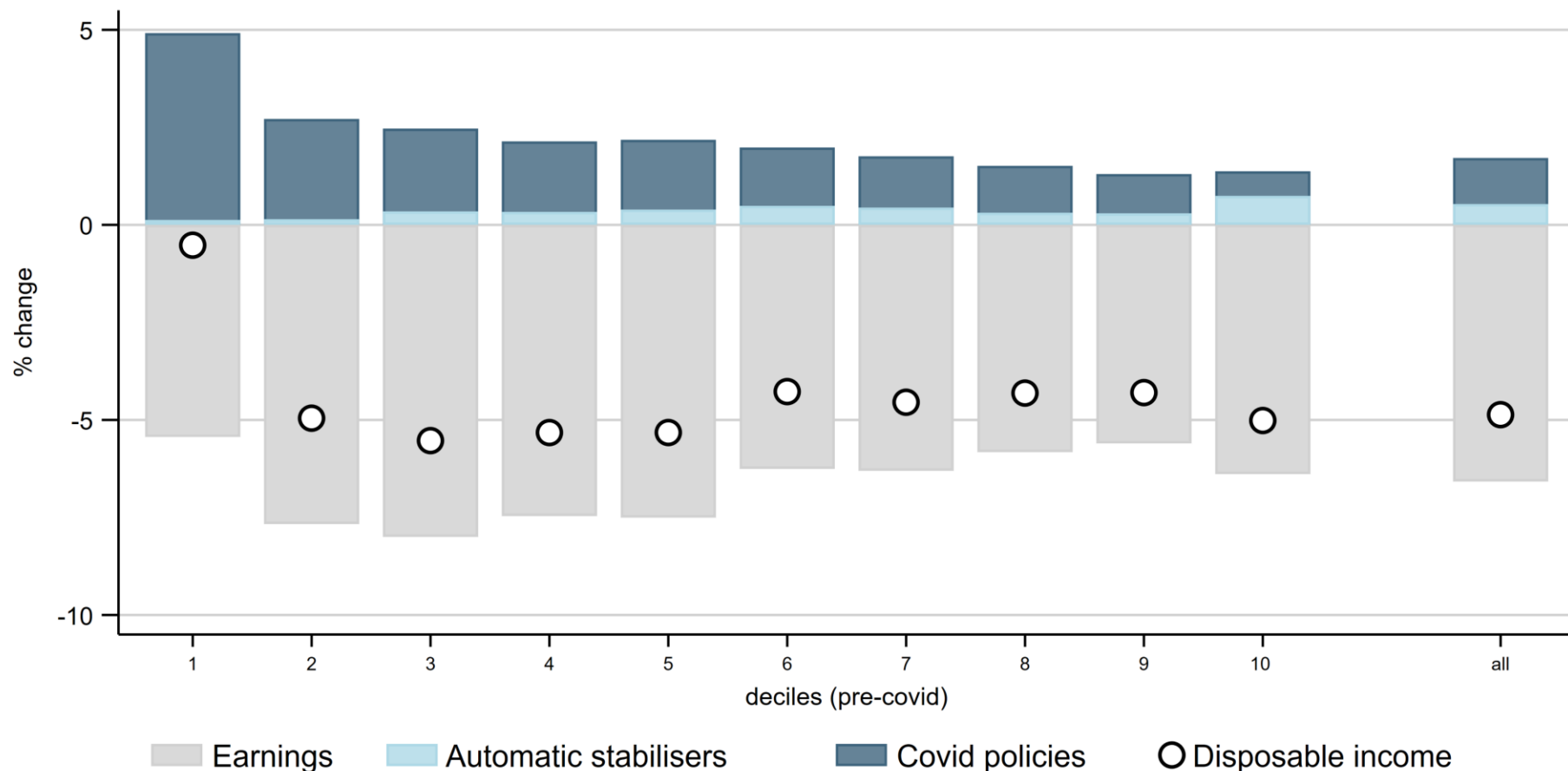
Country	Scenario	Inequality		Poverty		Extreme poverty	
		Gini	Theil	FGT0 (%)	FGT1 (%)	FGT0 (%)	FGT1 (%)
Argentina	Baseline	0.437	0.460	5.7	2.8	1.9	1.7
	No Covid Policies	0.490	0.537	14.8	7.6	5.3	4.3
	With Covid Policies	0.423	0.444	4.3	1.9	1.3	1.2
Bolivia	Baseline	0.432	0.324	15.4	7.0	4.4	2.3
	No Covid Policies	0.490	0.409	23.1	13.6	10.4	7.8
	With Covid Policies	0.445	0.346	17.1	7.8	3.9	1.7
Colombia	Baseline	0.508	0.500	26.8	10.9	5.4	2.2
	No Covid Policies	0.580	0.597	42.6	24.4	18.8	11.2
	With Covid Policies	0.570	0.568	41.2	22.8	17.1	9.8
Ecuador	Baseline	0.458	0.389	26.0	9.5	3.1	1.3
	No Covid Policies	0.593	0.598	59.0	35.2	26.0	16.5
	With Covid Policies	0.581	0.585	58.4	33.6	24.5	14.3
México	Baseline	0.470	0.476	19.2	6.6	2.6	1.0
	No Covid Policies	0.523	0.557	40.0	20.2	14.2	8.6
	With Covid Policies	0.522	0.553	39.6	20.0	14.0	8.5
Perú	Baseline	0.458	0.375	22.1	10.5	6.7	3.2
	No Covid Policies	0.597	0.575	56.0	36.4	30.0	20.3
	With Covid Policies	0.562	0.527	52.1	31.4	24.3	15.0
Uruguay	Baseline	0.420	0.325	2.1	0.7	0.2	0.5
	No Covid Policies	0.437	0.346	4.5	2.2	1.0	1.9
	With Covid Policies	0.427	0.332	3.4	1.7	0.8	1.6

Notes: Poverty lines are based on USD 5.5 and USD 1.9 converted to LCU using PPP USD.
Source: Authors' elaboration based on microsimulation models.

2020-Q4 results

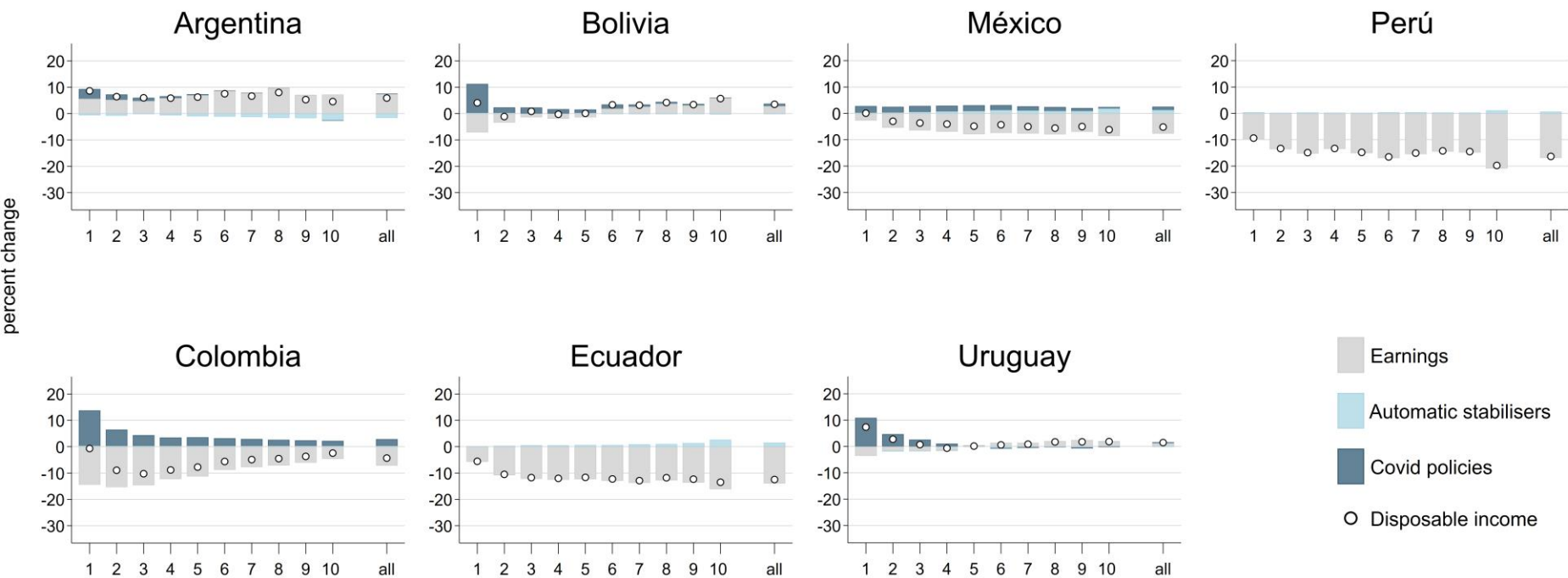
Decomposition of changes in household disposable income

Decomposition of changes in mean household disposable income in 2020Q4 by disposable income decile in 2019 Weighted average of all countries



Notes: Changes in income are based on per capita household disposable income before the pandemic. The results for all countries are equivalent to the changes in each decile for each country weighted by the country's population. Source: Authors' elaboration based on microsimulation models.

Decomposition of changes in household disposable income



Notes: Results based on nowcasting, changes in income are based on per capita household disposable income before the pandemic. Source: Authors' elaboration based on microsimulation models.

Changes in income inequality and poverty, 2020-Q4 (with and without Covid policies) and 2019 (baseline).

Country	Scenario	Inequality		Poverty		Extreme poverty	
		Gini	Theil	FGT0 (%)	FGT1 (%)	FGT0 (%)	FGT1 (%)
Argentina	Baseline	0.437	0.460	5.7	2.8	1.9	1.7
	No Covid Policies	0.436	0.318	10.6	4.8	2.6	2.2
	With Covid Policies	0.433	0.313	10.3	4.5	2.6	2.2
Bolivia	Baseline	0.432	0.324	15.4	7.0	4.4	2.3
	No Covid Policies	0.473	0.405	20.0	9.6	6.8	3.6
	With Covid Policies	0.429	0.335	12.1	4.3	1.5	0.4
Colombia	Baseline	0.508	0.500	26.8	10.9	5.4	2.2
	No Covid Policies	0.538	0.550	33.7	15.1	9.0	4.1
	With Covid Policies	0.532	0.538	31.9	13.8	7.4	3.4
Ecuador	Baseline	0.458	0.389	26.0	9.5	3.1	1.3
	No Covid Policies	0.486	0.448	34.9	14.3	6.0	2.5
	With Covid Policies	0.486	0.448	34.9	14.3	6.0	2.5
México	Baseline	0.470	0.476	19.2	6.6	2.6	1.0
	No Covid Policies	0.440	0.403	17.9	5.7	1.6	0.6
	With Covid Policies	0.436	0.396	17.0	5.3	1.6	0.6
Perú	Baseline	0.458	0.375	22.1	10.5	6.7	3.2
	No Covid Policies	0.499	0.459	31.9	14.9	9.2	4.7
	With Covid Policies	0.499	0.459	31.9	14.9	9.2	4.7
Uruguay	Baseline	0.420	0.325	2.1	0.7	0.2	0.5
	No Covid Policies	0.412	0.312	2.2	0.8	0.3	0.3
	With Covid Policies	0.408	0.309	1.8	0.6	0.2	0.3

Notes: Results based on actual 2020-Q4 Data Poverty lines are based on USD 5.5 and USD 1.9 converted to LCU using PPP USD. Source: Authors' elaboration based on microsimulation models.

Conclusions

- Tax-benefit models for Latin America were used to decompose changes in the distribution of disposable household income into the effects of (i) earning losses, (ii) COVID-related policies and (iii) automatic stabilizers.
- Our results show that average household disposable income fell dramatically in the second quarter of 2020 compared to the last quarter of 2019: around 30% for the entire region.
- Decomposition results show that COVID policies mitigated the impact of the pandemic at the bottom of the distribution
 - In some countries, households in the first decile increased their disposable income relative to 2019
 - In other countries emergency transfers did not completely offset earnings drop
- Automatic stabilisers had a reduced effect , cushioning the income shock at the top of the distribution due to automatic reductions in social insurance contributions and income tax payments.
 - Most benefits are not means tested in the region, therefore no important effect of benefits as automatic stabilisers
 - This is evidence of the unfitness of the tax-benefit system to face negative income shocks

- The pandemic is inequality increasing in all countries: in the no emergency policies scenario the Gini coefficient increases everywhere.
- This is the case because in most countries formal workers were more likely to keep their jobs than their informal peers.
 - However, emergency policies are only able to prevent inequality from increasing in Argentina.
- The pandemic increased moderate poverty incidence in all countries.
 - However, emergency policies made poverty lower than before Covid-19 in Argentina, and also have a poverty reducing effect in other countries.
- The pandemic increased extreme poverty in all the region: from 0.9 pp in Uruguay to 17.6pp in Perú.
 - Emergency policies reduced the incidence of extreme poverty in all countries: ranging from 6.5 pp in Bolivia to 0.2 pp in Uruguay, relative to the pre-covid tax-benefit system
- For 2020-Q4 earnings are mostly above 2020-Q2 and therefore the effect of automatic stabilisers is even more reduced than before. On the other hand, for countries such as Perú and Ecuador there are no emergency policies for the last quarter, and therefore almost all the change in disposable income corresponds to changes in earnings.

Thank you!

Full paper at

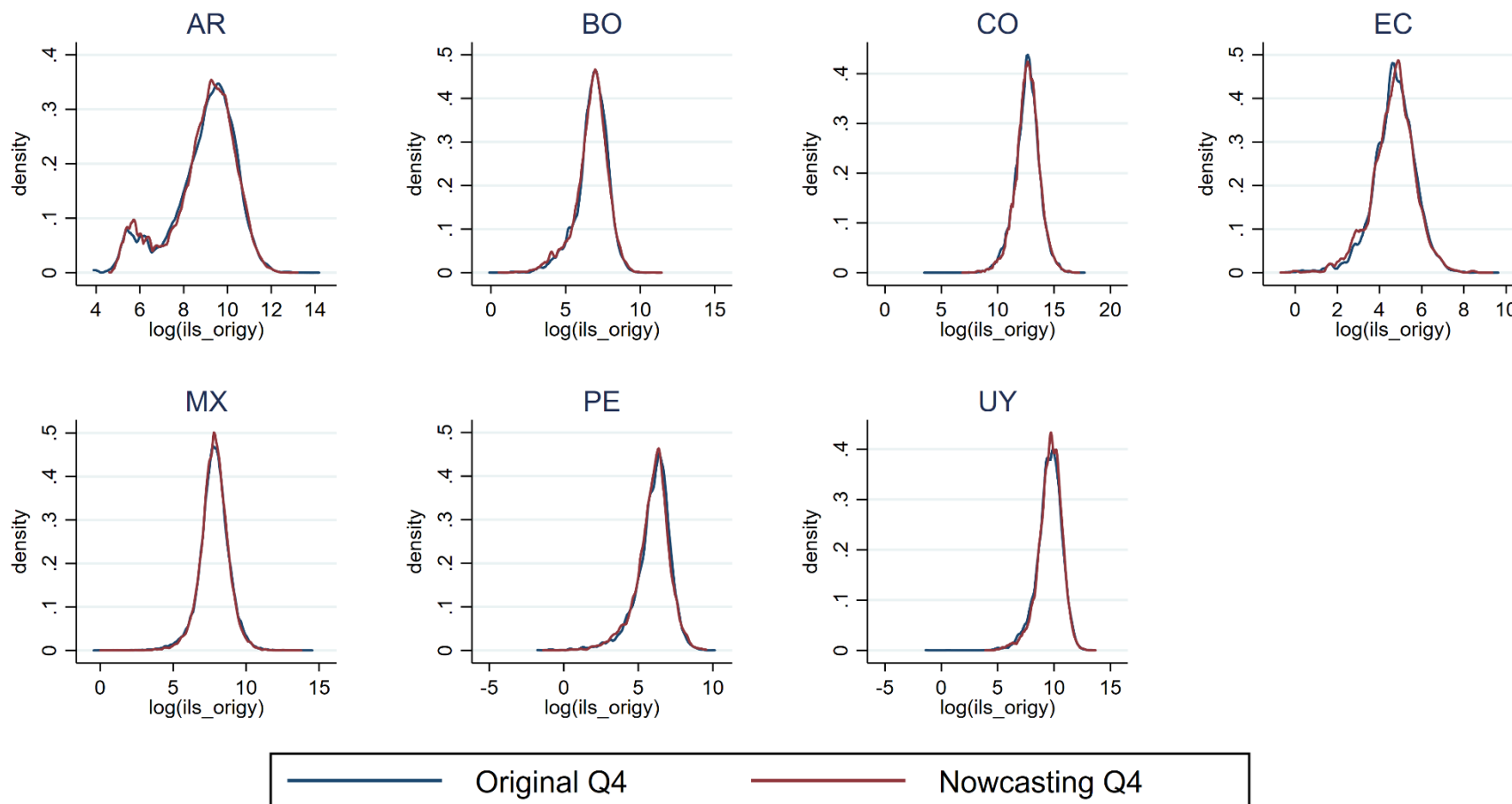
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Comments to

david.rodriquez@uexternado.edu.co

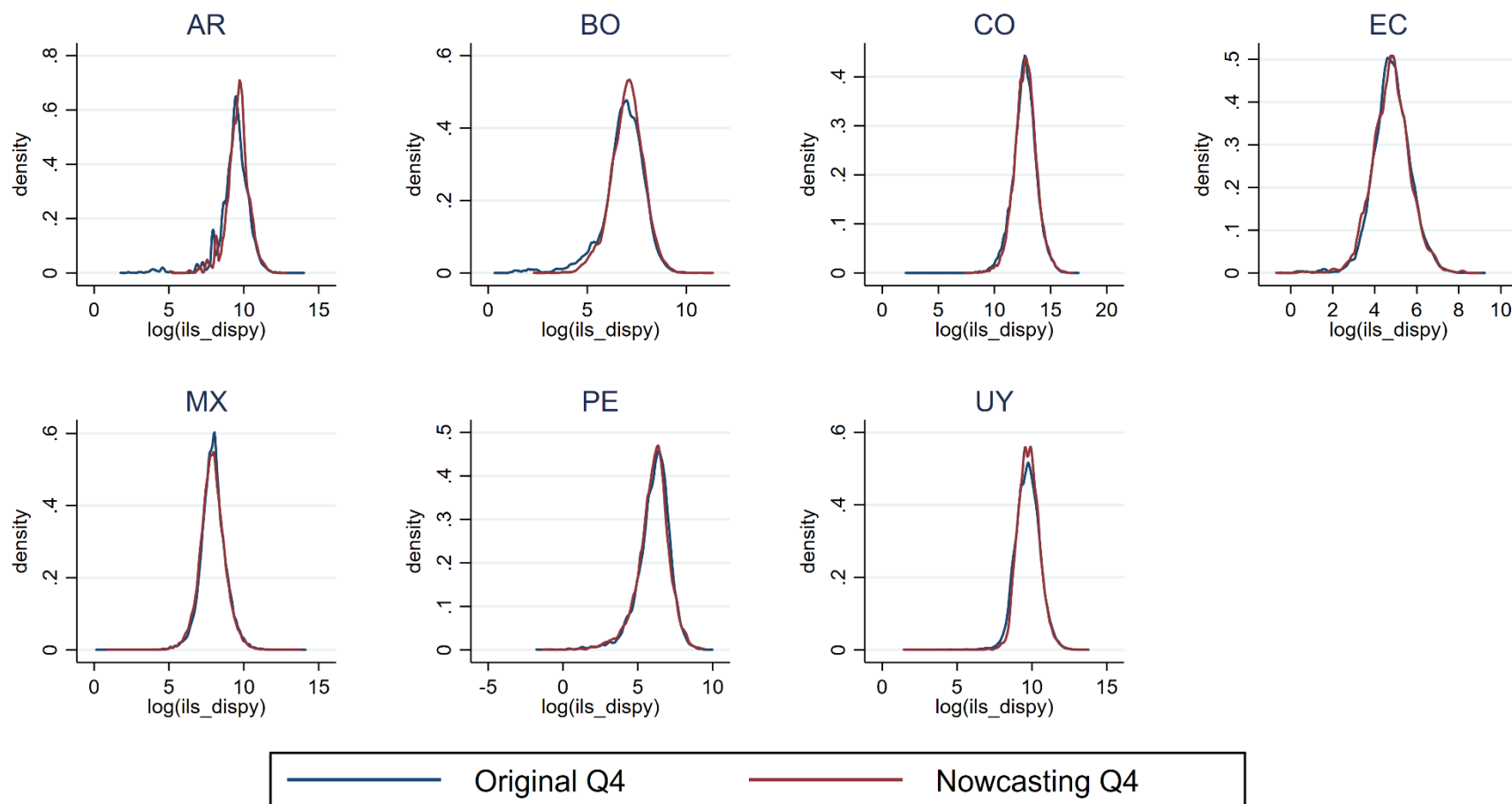
Robustness checks for nowcasting exercise

Market income distribution, actual 2020Q4 data and nowcast data



Source: Authors' elaboration based on household survey data

Disposable income distribution, actual 2020Q4 data and nowcast data



Source: Authors' elaboration based on household survey data