2023 DINA UPDATE FOR LATIN AMERICA

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Income Inequality Series for Latin America*

Technical Note

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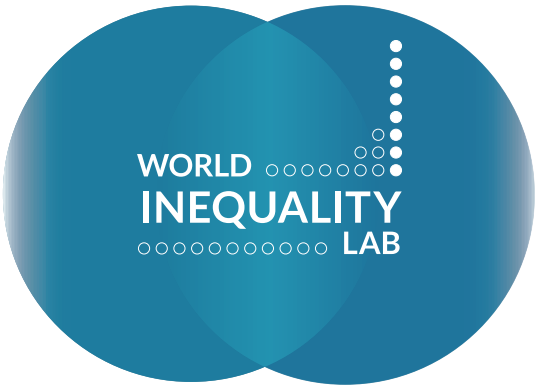
Update



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1 Introduction

This technical note provides a comprehensive account of the changes introduced to the Latin American and Caribbean income inequality series as part of the October 2023 update at the World Inequality Lab. We deliver an overview of the new data sources incorporated, encompassing the inclusion of data from new countries as well as additional data for countries featured in previous updates. The key innovations can be distilled into two primary categories: firstly, the extension of the pre-tax national income series, and secondly, the expansion of the post-tax national income series, which was initially introduced in the last update.

This update provides us with the first opportunity to scrutinize the repercussions of the COVID-19 pandemic on inequality in Latin America, marking the first instance in which we can utilize household surveys and administrative data from 2020 and 2021 for this purpose. However, it is essential to exercise caution and recognize the preliminary nature of these estimates, particularly as only Chile, Brazil, and Colombia presently possess administrative and National Accounts data for the specified period. While the effects of the COVID-19 pandemic are beyond the scope of this technical note, further analysis is warranted in this regard.

In our examination of our post-tax national estimates, we uncover a pattern of lower income concentration when compared to pre-tax income. Furthermore, we have identified instances where there is an acceleration in the decline of income inequality, primarily attributed to the significant increase in public expenditure, particularly in the form of in-kind transfers in the domains of healthcare and education. These findings provide insights into the evolving dynamics of income distribution. We also have incorporated new data and addressed various issues in the pre-tax series. However, the resulting adjustments offer only marginal changes in most of the overarching trends and levels when compared to previous updates. These are elaborated in greater detail in prior publications, specifically in De Rosa et al. (2021) and De Rosa et al. (2022b).

A pivotal development in this update revolves around Colombia. Notably, the DIAN, the Colombian tax administration, made a significant move by publicly releasing income tax tabulations for the first time in 2023, encompassing data from 2014 to 2020. This release marks a transformative moment for our Colombian estimates, as it unveiled extreme levels of inequality that were previously underestimated. Before this release, our Colombian estimates were primarily grounded in indirect access to administrative information through research papers like Alvaredo and Londoño-Vélez (2013), which presented results in summary form. Our previous Colombian estimates relied on such

limited information, which constrained our analysis to a small fraction of the adult population, namely, the top 1 per cent. Furthermore, these estimates only extended up to the year 2010. The new tabulations, however, encompass data for more than 7 per cent of the population in their most recent iteration. While providing valuable insights, these updated estimates are characterized as exploratory, and they remain susceptible to minor adjustments as we delve deeper into changes in tax legislation. Such adjustments are deemed necessary to enhance the consistency of data over time.

Another notable innovation introduced in this update pertains to the official Chilean Household Income Survey (CASEN), which experienced a shift in its weighting methodology following a methodological revision. Given the existence of new inputs based on the 2017 Census, the Ministry of Social Development and Family (MDSF), together with the CASEN Panel of Experts, defined the need to analyse possible adjustments to the calibration of the expansion factors. From this diagnosis, two steps were defined: (1) adjustment of the expansion factors, considering the population projections based on the 2017 Census and modifying the weight adjusted to population totals; and (2) adjusting the calibration method, so that it considers the main demographic characteristics that may affect the poverty estimate. These revised weights were seamlessly integrated into the new update. It is important to note that these modifications led to only marginal alterations in our inequality estimates.

The information presented herein represents a concise overview of our estimates. For a more comprehensive and in-depth analysis of our findings, as well as a detailed exposition of the sources, methodologies, and insights on the contributions of our results to the existing literature, we direct interested readers to consult (Alvaredo et al., 2022) and (De Rosa et al., 2022c).

The subsequent sections of this technical note are structured as follows: Section 2 provides an exhaustive examination of the new data sources, methodological enhancements, and shifts in the levels and trends characterizing our updated pre-tax series. On the other hand, Section 3 is dedicated to a focused exploration of the updated national post-tax estimates.

2 Updated pre-tax series

2.1 New data sources

Table 1, serves as a comprehensive summary of the fresh data sources introduced in comparison to the 2022 update. Among these updates, a notable shift has been the extension of new survey data, spanning from 2020 to 2021 for most countries. An exception to this trend is observed in Chile and Mexico, where the latest year for household surveys remains 2020, given that household surveys are run biannually. However, these nations have incorporated updated national accounts data for the year 2021. In addition to these changes, we have welcomed the inclusion of new administrative data for Brazil, Chile, and Colombia, dating up to the year 2020. This enhancement significantly bolsters the accuracy of our estimates, particularly in the context of a pivotal year such as 2020, which marked the onset of the COVID-19 pandemic.

In the Dominican Republic we now possess survey data spanning the years 2020 to 2021. However, neither the tax administration nor the Statistical Office has released updated tabulations or national accounts data. Consequently, our estimates for the Dominican Republic rely on the extrapolation of adjustment factors from the year 2019, as elaborated in De Rosa et al. (2022a). For other countries that do not report such data, the adjustment of top incomes is based on earlier years when tax data was available.[1]

2.2 Methodological improvements

As in previous updates, we follow the Distributional National Accounts Guidelines (WIL, 2021). However, in this instance, we propose an improvement of the theta coefficient in our methodology. The theta coefficient is the ratio of survey frequencies to administrative data frequencies for a given income level. It allows us to compare the top tails across data sources and forms the basis for the BFM correction (see (Blanchet et al., 2022)). Figure 1 displays theta coefficients for every country, at each point in time where both sources are available. The gradient colouring of the estimates, with darker lines representing more recent estimates, indicates that theta coefficients are progressively shifting to the left side of the panels in many cases. This suggests that surveys may be gradually less suited for studying the top tail, or that tax data is improving in capturing

[1] The imputation of missing years remains as in last year's update, following the general rule in the database. See Chancel and Piketty (2020)

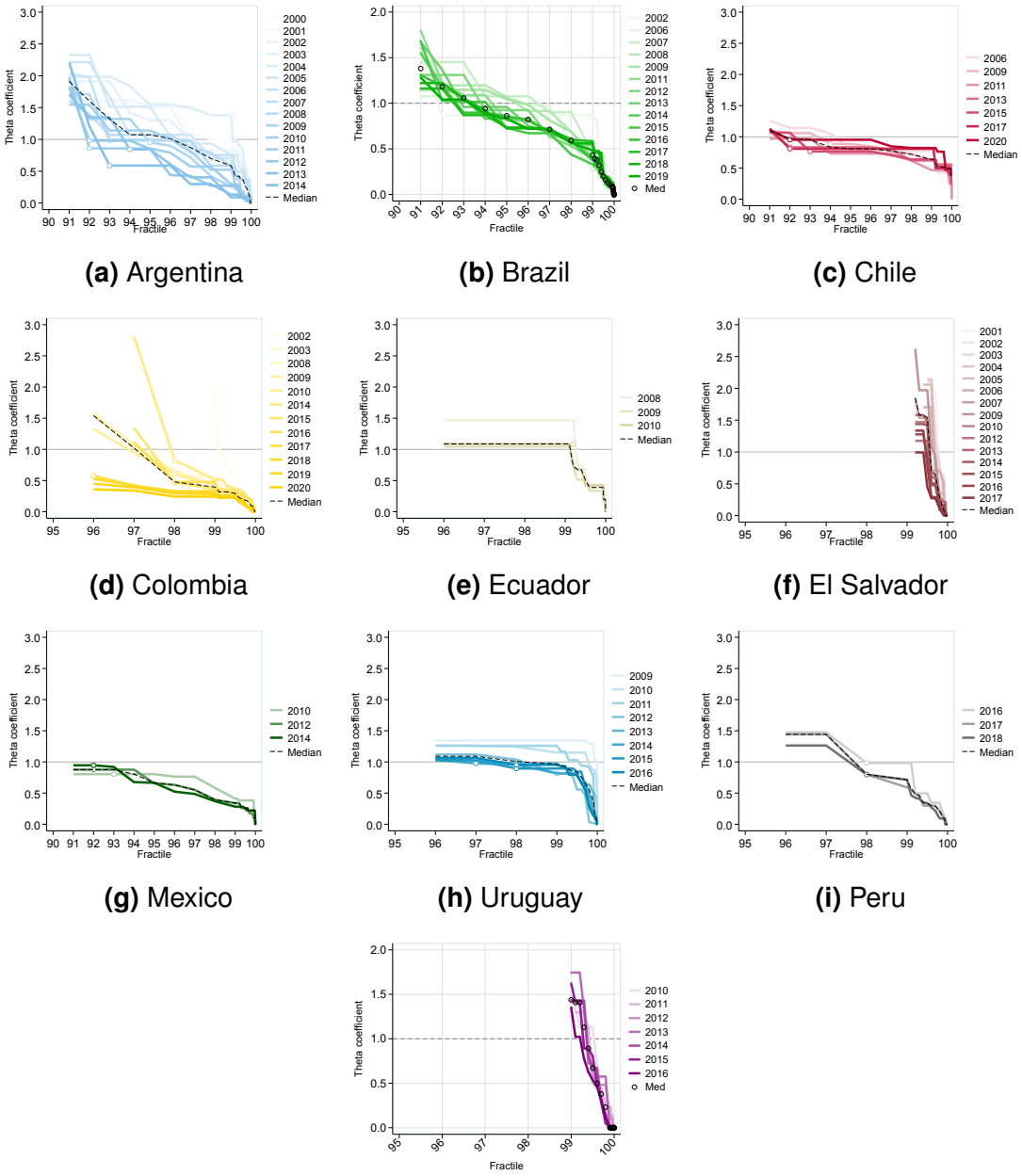
Table 1: New data sources used for pre-tax income series

			New data bases		
Region	Country	Last year available before the update	Detailed national accounts	Survey data	Administrative data
South America	Argentina	2020	-	2021	-
South America	Brazil	2020	2019-2020	2021	2020
South America	Chile	2020	2020-2021	-	2020
South America	Colombia	2020	2020-2021	2021	2014-2020
South America	Ecuador	2020	2020	2021	-
South America	Peru	2020	2021	2021	-
South America	Uruguay	2020	-	2021	-
Central America and the Caribbean	Costa Rica	2020	2018-2020	2021	-
Central America and the Caribbean	Dominican Republic	-	-	2020-2021	-
Central America and the Caribbean	El Salvador	2020	-	2021	-
Central America and the Caribbean	Mexico	2020	2020, 2021	-	-

Source: Own elaboration

them. In response to this observation, we have introduced a methodological change to our series, where extrapolated theta coefficients (for years with surveys but no tax tabulations) now consider the profile of the closest estimate instead of the median value for each percentile. This change explains the differences in some of the series (e.g., Brazil before 2006, Uruguay after 2016).

Figure 1: Theta coefficients, by country and year



(a) Argentina **(b)** Brazil **(c)** Chile

(d) Colombia **(e)** Ecuador **(f)** El Salvador

(g) Mexico **(h)** Uruguay **(i)** Peru

(j) Costa Rica

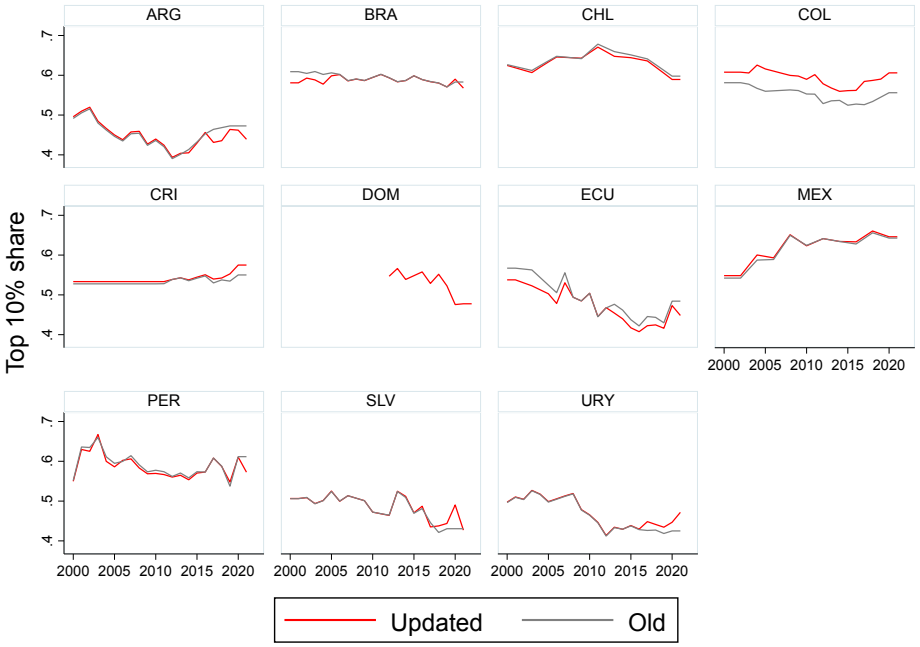
Note. Authors' elaboration based on Blanchet et al. (2022)

2.3 Changes in levels and trends

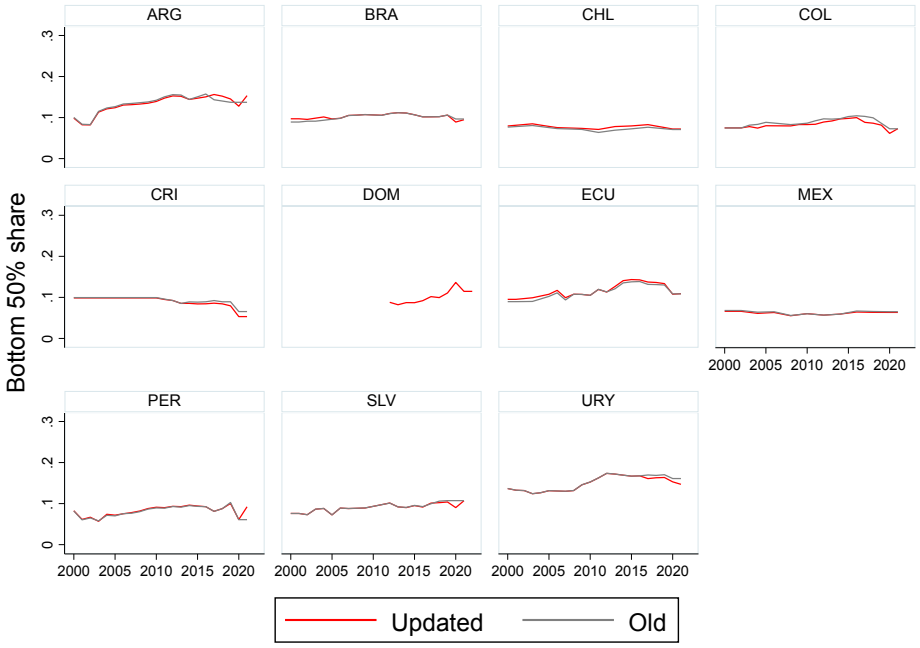
The newly updated results for the years 2020 and 2021 are visually presented in Figure 2, showcasing the revised series for both the top 10 per cent and the bottom 50 per cent income shares. Across most countries, there is a noticeable decrease in the share of income held by the bottom 50 per cent in 2020, followed by an increase in 2021. Conversely, many countries exhibit an increase in the share held by the top 10 per cent from 2020 to 2021, although this pattern is not universal. These conspicuous fluctuations in distributional metrics within our new estimates for 2020 and 2021 could signify the influence of the COVID-19 pandemic on income distribution dynamics. However, comprehensive analysis is imperative, especially as more data becomes available for additional countries and greater historical context is considered.

The adjustments to our estimates are more prominent at the top 10 per cent of the income distribution than at the bottom 50 per cent. This pattern is particularly evident in countries such as Colombia, Costa Rica, Ecuador, El Salvador, and Uruguay. This phenomenon is closely tied to administrative data, which tends to be more reliable and comprehensive at the upper end of the income distribution. Conversely, our estimates for the lower end of the distribution heavily rely on household surveys, even though they are adjusted and rescaled using the BFM method, as outlined in Blanchet et al. (2022). The differential accuracy and completeness of data sources across income percentiles contribute to the varying degrees of adjustments observed.

Figure 2: Pre-tax national income: new vs. old series.



(a) Top 10 % share.



(b) Bottom 50 % share.

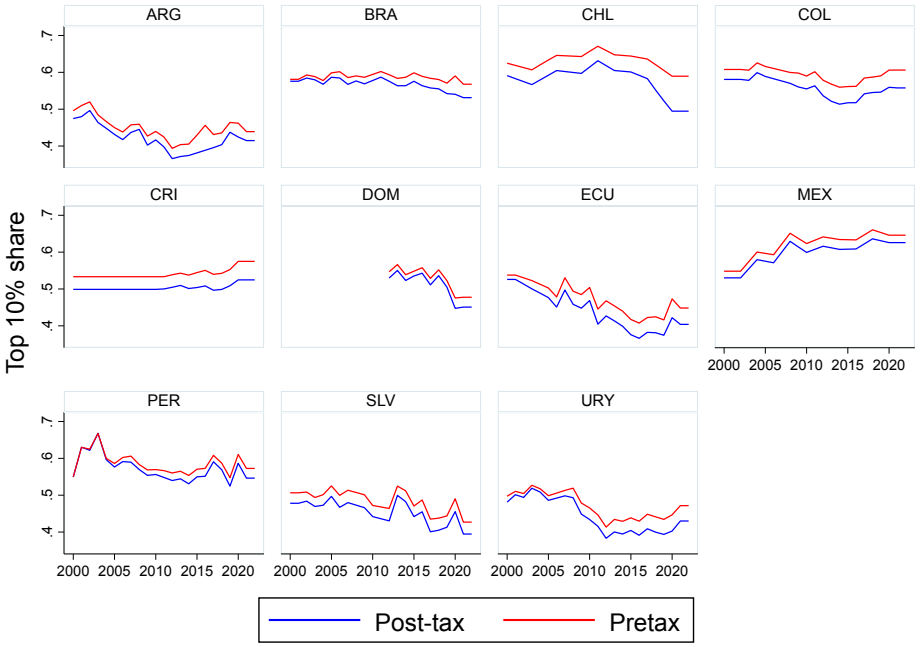
3 National post-tax income series

In this section, we delve into the continued estimation of national post-tax income series for Latin America, building upon our previous update in 2022 as detailed in De Rosa et al. (2022b). To maintain consistency in our approach, we adhere to the methodology outlined in the Distributional National Accounts (DINA) guidelines (WIL, 2021), as well as the framework presented in De Rosa et al. (2022c). The substantial improvements in these series can be attributed to the availability of updated tax data from the Organisation for Economic Co-operation and Development (OECD) up to the year 2020.

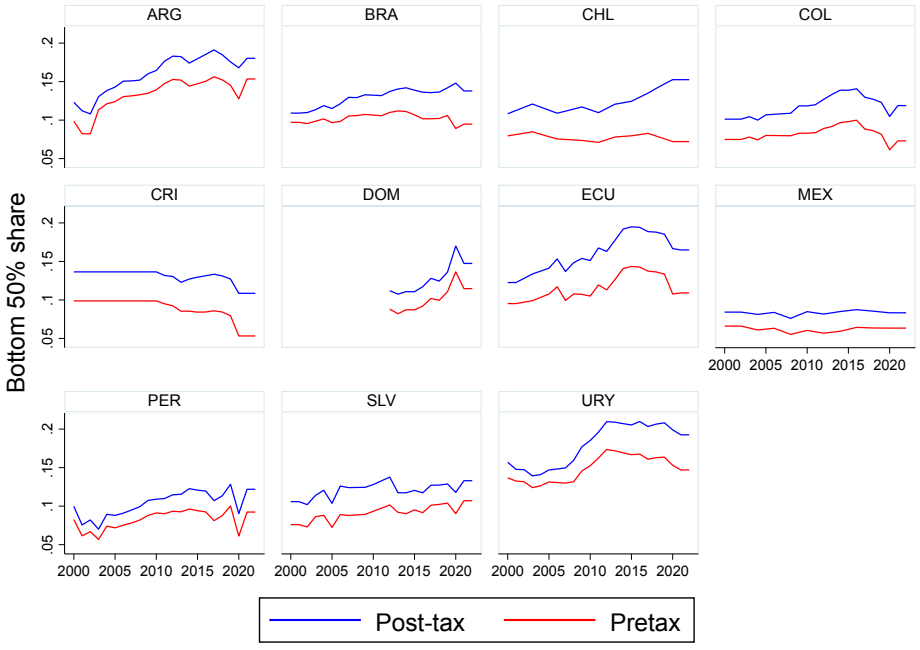
We highlight the prominent role of in-kind public transfers in terms of income redistribution in the region. While monetary redistribution facilitated through taxes and transfers tends to be somewhat neutral or even regressive (see Figure A.1 in the Appendix), the dynamic shifts when considering in-kind transfers. The data reveals a significant expansion in in-kind spending over recent decades, making it a crucial component for redefining the landscape of income distribution (see Figure A.2 in the Appendix).

As illustrated in Figure 3, the nations with the most developed tax systems, such as Chile and Uruguay, demonstrate a two-fold impact on inequality measures. Firstly, the post-tax series exhibits lower levels of inequality, particularly evident in the Top 10 per cent share. Secondly, a discernible trend towards decreased inequality is observable in these countries, reflecting the effectiveness of post-tax redistribution strategies. Notably, the changes are most pronounced in the series concerning the Bottom 50 per cent share, emphasizing that post-tax redistribution primarily targets the lower end of the income distribution spectrum, showcasing a marked effort to uplift the less affluent segments of society.

Figure 3: Post-tax national income: new vs. old series.



(a) Top 10 % share.

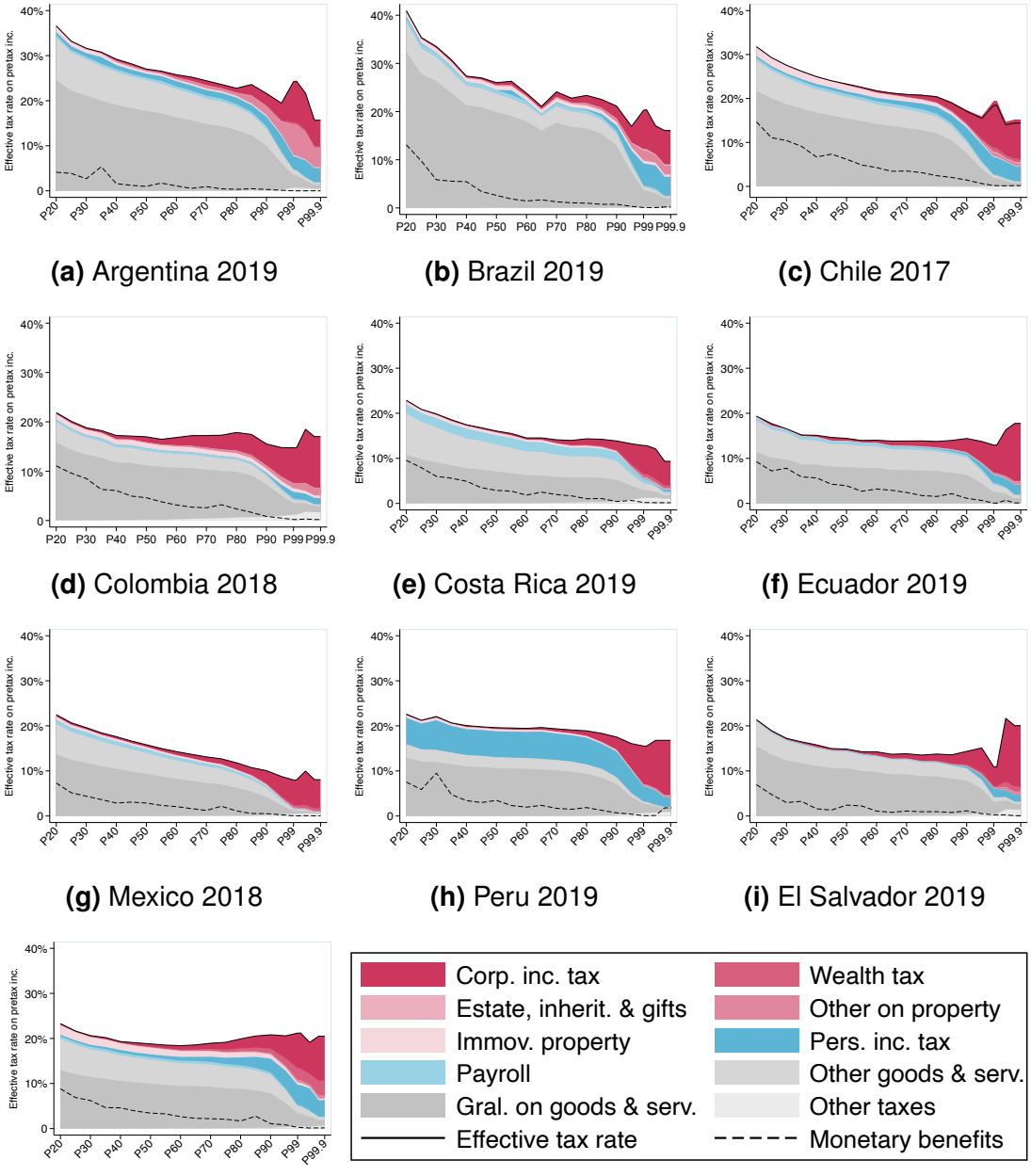


(b) Bottom 50 % share.

Appendix

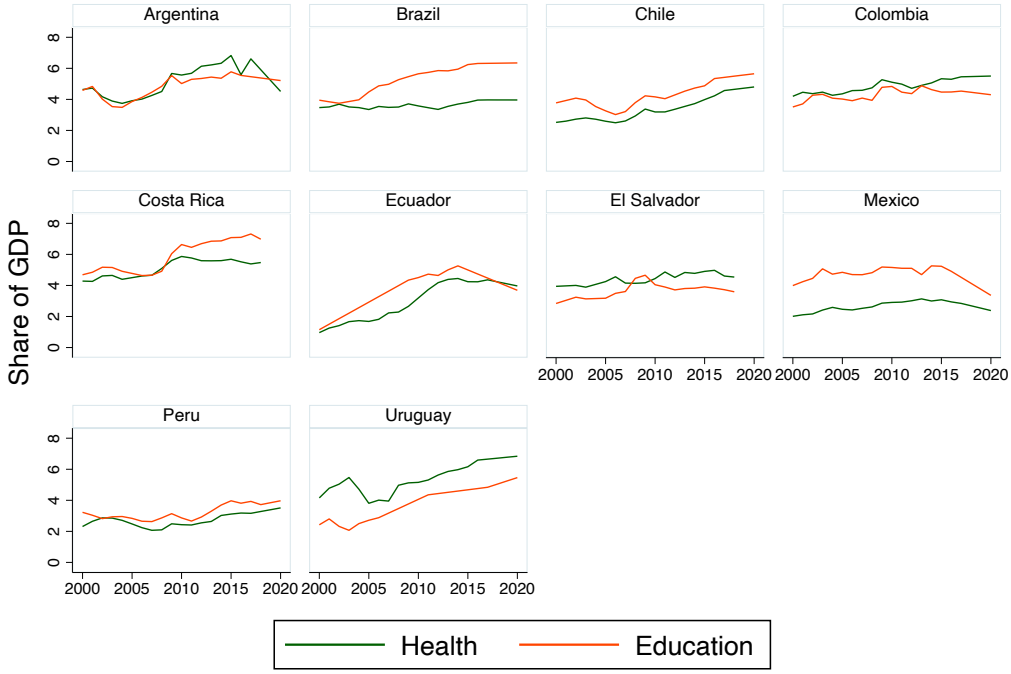
A Supplementary Tables and Figures

Figure A.1: Incidence of taxes and transfers



Note. Authors' elaboration. The Pre-tax per capita household income.

Figure A.2: The evolution of in-kind social expenditures



Note: The graphs show the evolution of government expenditures on health and education as a share of GDP. Source World Bank (https://data.worldbank.org/).

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