WORKING PAPER Nº IDB-WP-1652

Assessing the Role of Tax-benefit Systems in Reducing the Gender Income Gap in Latin America

María Cecilia Deza
Mariana Dondo
H. Xavier Jara
David Rodríguez
Javier Torres

Inter-American Development Bank
Gender and Diversity Division

January 2025

Assessing the Role of Tax-benefit Systems in Reducing the Gender Income Gap in Latin America

María Cecilia Deza*
Mariana Dondo**
H. Xavier Jara***
David Rodríguez§
Javier Torres§§

* Inter-American Development Bank
** Universidad Nacional de Río Negro
*** London School of Economics
§ Universidad Externado de Colombia
§§ Universidad del Pacífico

Inter-American Development Bank
Gender and Diversity Division

January 2025

Cataloging-in-Publication data provided by the
Inter-American Development Bank
Felipe Herrera Library

Assessing the role of tax-benefit systems in reducing the gender income gap in Latin America / María Cecilia Deza, Mariana Dondo, H. Xavier Jara, David Rodríguez, Javier Torres.
p. cm. — (IDB Working Paper Series ; 1652)
Includes bibliographic references.
1. Cash transactions-Latin America. 2. Income distribution-Latin America. 3. Taxation-Latin America. 4. Gender mainstreaming-Mexico. I. Deza, María Cecilia. II. Dondo, Mariana. III. Jara H., Xavier. IV. Rodríguez Guerrero, David. V. Torres, Javier. VI. Inter-American Development Bank. Gender and Diversity Division. VII. Series.
IDB-WP-1652

http://www.iadb.org

Abstract[1]

This paper aims to assess the extent to which cash transfers, direct taxes, and social contributions help to reduce gender income inequalities in seven Latin American countries: Argentina, Bolivia, Colombia, Ecuador, Mexico, Peru, and Uruguay. We apply microsimulation techniques to household survey data and allocate incomes within the household, assuming that each person retains the income they receive (e.g., earnings, benefits targeting mothers) and pays taxes and social insurance contributions on an individual basis according to each country's rules. Then, we compare gender income ratios based on market (before taxes and benefits) and disposable (after taxes and benefits) income. Our results show that, at the bottom of the distribution, tax-benefit systems significantly reduce gender income disparities in most countries due to the effect of social assistance benefits received by mothers in poor households. Additionally, we find that women have substantially higher poverty rates than men based on individual disposable income. Gender differences in poverty fade away when income is pooled at the couple level and, even more so, at the household level.

JEL classifications: D31, J16, J7, H24, I32, I38
Keywords: Taxes, Benefits, Microsimulation, Gender gap, Latin America

[1] We are grateful to participants at the Inter-American Development Bank's Gender and Diversity Knowledge Initiative Workshop "Post-COVID-19 Employment Recovery for Women and Diverse Populations in Latin America and the Caribbean," in particular to Karen Martínez, Claudia Martínez, Raquel Fernández, and Jeanne Lafortune, for their helpful comments. Daniel Chávez provided excellent research assistance. The usual disclaimer applies.
Authors' contact information:
Deza: Inter-American Development Bank, MDEZA@iadb.org.
Dondo: Universidad Nacional de Río Negro, Argentina, mdbuhler@unrn.edu.ar
Jara: London School of Economics: h.x.jara-tamayo@lse.ac.uk.
Rodríguez: Universidad Externado de Colombia: david.rodriguez@uexternado.edu.co.
Torres (corresponding author), Universidad del Pacifico: J.TorresGomez@up.edu.pe.

1. Introduction

Despite improvements in terms of female labor force participation and the reduction in the gender wage gap over the last decades, gender disparities persist in Latin American labor markets. In 2019, the gap in labor force participation amounted to 21.6 percentage points (Güezmes, 2021), informal employment remained more prevalent among female workers (ILO, 2022b) and market pay remained lower for women, with a gap that represents, on average, 13.5 percent of the salary of men (Vaca, 2019).

The literature assessing the evolution and factors influencing the gender gap in work and wages in the region is vast (Blau and Kahn, 2017; Christofides et al., 2013; Olivetti and Petrongolo, 2008; Redmond and McGuinness, 2019, among others). However, less is known about the role played by the tax-benefit system in closing gender disparities; that is, when the analysis shifts from market income (pre-tax and benefits) to disposable income (post-tax and benefits). Tax-benefit systems could reduce gender disparities through two channels. On the one hand, some cash transfers are directly targeted to women or benefit them disproportionately. On the other hand, on average, women earn less than men and due to the progressivity of personal income tax, men might be liable to pay more taxes than women. Given the persistent gender disparities in earnings, closing the gender income gap through the tax-benefit system could provide women with economic freedom and decision-making power over household expenses. Evidence of the gendered effects of the tax-benefit system has so far focused on European countries and suggests that although taxes and transfers significantly reduce gender income inequality, they do not fully compensate for the initial gender earnings gap (Avram and Popova, 2021; Doorley and Keane, 2023).

The aim of this paper is to assess the extent to which tax-benefit systems contribute to closing the gender income gap in seven Latin American countries: Argentina, Bolivia, Colombia, Ecuador, Mexico, Peru, and Uruguay. These countries were selected to cover a wide range of cases in terms of female labor force participation, gender wage gap, and the redistributive role of tax-benefit systems in Latin America. Harmonized tax-benefit models have been recently developed for these countries, which are used in the analysis. In all these countries, personal income tax and social insurance contributions are assessed at the individual level, and in most of them the main social assistance programs are targeted to mothers with children.

Our approach consists of using tax-benefit microsimulation applied to household survey data to obtain the distribution of individual disposable income under a "no income sharing"

assumption; that is, income sources where entitlement is at the individual level (e.g., earnings or individual-level taxes, individual benefits) are assigned to the person receiving them, household benefits targeted to mothers according to the legislation are allocated to them, and other benefits assessed at the household level are split equally among household members. Using this measure of individual income, we assess the effect of tax-benefit systems by comparing the ratios of women's average income to men's average income based on market and disposable income, for individuals between 18 and 60 years of age. Two remarks are worth noting. First, the exercise assumes that legal incidence corresponds to economic incidence in the case of benefits. For social insurance contributions and personal income tax, the assumption is partly relaxed as the presence of informality is taken into account in the simulations, i.e., social insurance contributions and personal income tax are simulated only for individuals in formal employment. Second, in the case of benefits, our allocation rule focuses on the person who receives them according to the legislation, as we are unable to observe how the benefit is split within the household. As such, the total amount of benefits targeted to mothers is allocated to them, although we do not claim that the benefit will be used only for their own expenses.

Our results show that tax-benefit systems significantly reduce the gender gap at the bottom of the income distribution in most countries, due to the effect of social assistance benefits received by women with children. At the top of the distribution, we observe no effect of direct taxes in reducing gender disparities. Our analysis further highlights that poverty rates by gender vary widely depending on the unit of assessment used to aggregate income. In line with previous research, we find that female poverty rates are significantly larger than those of men when they are calculated at the individual level (see Amarante et al., 2022). Additionally, we show that gender differences in poverty decrease when income is pooled at the couple level and, even more so, at the household level. Traditional measures of poverty across genders might therefore hide gender disparities.

To the best of our knowledge, this is the first paper that assesses the role of taxes and benefits in reducing the gender income gap in Latin America. In particular, recently developed tax-benefit microsimulation models for Latin American countries are exploited to allocate taxes and benefits at the individual level according to the national rules governing these instruments. Our analysis complements existing efforts to measure the equalizing effect of fiscal policy in Latin

America (e.g., Lustig et al., 2023; Bargain et al., 2024) but from a gender perspective.[2] Our work also and extends recent studies focusing on European countries and shows the more limited role of taxes and benefits in reducing gender disparities in Latin America.

The paper is divided into six sections, with this introduction being the first. Section 2 presents a review of the literature on gender gaps and the role of tax-benefit systems. In Section 3, we provide an overview of the characteristics of tax-benefit systems in the countries under study. Section 4 presents the data and methodology used to assess the effect of taxes and benefits on the gender income gap. Section 5 showcases our main results, and Section 6 concludes.

2. Literature Review

2.1. The Gender Work and Wage Gap

Significant progress has been made towards convergence in participation and employment rates in Latin America in the last 30 years.[3] However, gaps in labor force participation remain. Between 2016 and 2018, women's labor force participation in the region averaged around 50 percent, contrasting with approximately 75 percent for men (Güezmes, 2021), with large differences across countries.[4] In 2019, the gender labor force participation gap ranged from 9pp in Jamaica to 48pp in Guatemala.[5] Moreover, women find employment in the informal economy more frequently than men (Güezmes et al., 2022).[6] Women are also more likely to work in small firms, in domestic work, and in unpaid family work.[7] As a result, women tend to perceive less income than men, i.e., women earn around 13.5 percent less than men (Bando, 2019; Vaca, 2019).

[2] The Commitment to Equity (CEQ) initiative uses information on taxes and transfers reported directly in survey data to perform incidence analysis (Lustig et al., 2023). If information is not reported, other methods are used to derive taxes and transfers (see Table B3 in Lustig et al., 2023). Contrary to Lustig et al. (2023) and in line with Bargain et al. (2024), we systematically simulate taxes and transfers according to their governing rules based on market income and demographic information from household surveys in each country under study.
[3] Women in Latin America increased their employment rates faster than in any other region in the last 30 years.
[4] The number comes from a weighted average of 24 Latin American and Caribbean Countries.
[5] Information from IDB's repository of social data: https://sociometro.iadb.org/es/public
[6] The informal economy refers to all economic activities by workers who are–in law or practice–not covered or insufficiently covered by formal arrangements.
[7] For instance, in Peru, more than 20 percent of occupied women work in unpaid housework or as domestic workers, compared to only 7 percent of men.

Even after controlling for factors such as economic sector, education and experience, a sizable gender wage gap remains unexplained.[8] The unexplained gender wage gap primarily arises from differences in the returns to human capital, not attributable to differences in productivity levels (Gallego-Granados and Geyer, 2015). Such unexplained wage gaps are prominent in high-, middle-, and low-income countries and might differ across the income distribution (ILO, 2018). The causes of the gender wage gap are complex and can be described by a wide range of factors, from pay and job task discrimination in the workplace at the top of the income distribution ("glass ceiling effect") to reasons related occupational choice, social preferences, and institutions; especially labor regulations (Bando, 2019), long-term penalization of motherhood, and premiums for fatherhood care (ILO, 2018).[9]

In Latin America, the gender gap not only impedes economic growth but also discourages women from participating in the labor market, thereby causing an inefficient allocation of talent resources (Agénor et al., 2018; Schober and Winter-Ebmer, 2009). Hence, understanding the role of tax-benefit systems in narrowing the gender income gap is critical.[10]

2.2. Tax-benefit Systems and the Gender Income Gap

Taxes and benefits can play an important role in reducing income poverty and inequality. For Latin America, recent studies show that direct taxes and cash transfers reduce income poverty and inequality but to different extents across countries and to a more limited extent than in European countries (Arancibia et al., 2019; Lustig, 2023; Bargain et al., 2017; Bargain et al., 2024).[11] Additionally, Rodríguez et al. (2022) show that the emergency tax-benefit policies implemented

[8] For instance, Ñopo (2012) studies the gender gap in Peru from 1997 to 2009. He finds that, when controlled by demographic characteristics such as age and education level, a large proportion of the gap remains unexplained. In another study, Urquidi and Chalup (2023) found that the unexplained gap (not explained by the components of the models, including education, experience, personal and family characteristics, occupation, and occupational category, economic activity, among others) accounts for most of the gap.

[9] The impact of the motherhood penalty on gender wage gaps varies between developed and developing countries. In developed countries, it generally ranges from 0 percent to close to 20 percent, while in developing countries the range can exceed 40 percent (Grimshaw and Rubery, 2015). In Latin America, motherhood often leads to reduced labor supply and a higher likelihood of mothers adopting flexible job arrangements such as part-time jobs, self-employment, or informal employment, resulting in lower wages compared to non-mothers (Villanueva and Lin, 2020), although there is heterogeneity across countries (Piras and Ripani, 2005).

[10] Evidence for Morocco suggests that reducing the gender gap in employment by one quarter is associated with an increase in GDP per capita of about 10 percent (Bargain and Lo Bue, 2021).

[11] Our study focuses on the effect of the direct taxes and cash transfers on income earned in the labor market. It does not directly incorporate/monetize governmental services (such as education or health). However, we indirectly capture their (per country) effect, to the extent that these services (such as education) may lead to lower wage gaps.

by Latin American governments during COVID mitigated the effect of the economic crisis on household incomes, but only to a limited extent in most countries.[12,13]

Yet, evidence of the impact of the tax-benefit system on gender income differences remains scarce, and most of the work focuses on advanced economies. For instance, Avram and Popova (2022) use microsimulation techniques to individualize disposable incomes for men and women in eight European countries and find that fiscal policy significantly reduces the gender income gap, but it is not enough to compensate for the initial gender earnings gap.[14] Despite the higher burden of taxation in advanced economies, the equalizing effect of benefits is higher than the impact of taxes, but with important heterogeneity across countries. Doorley and Keane (2023) expand this line of research to all 27 European Union countries and the United Kingdom. Based on microsimulation techniques, they decompose differences between the gender gap in market income and in disposable income into the relative contribution of taxes and benefits, the gender wage gap and the gender work gap. Their results show that tax-benefit systems reduce gender disparities to varying degrees across welfare regimes and the effect is not directly linked to initial differences in gender gaps in market incomes.

The determinants of the impact of tax and benefit policies on gender gaps in income are complex. Regarding taxes, countries' tax codes for direct and indirect taxation might introduce both explicit and implicit gender biases (Almeida et al., 2021). While the former is relatively easier to identify, they are not common; within the LAC region, Argentina is the only country known whose tax code introduced an explicit gender bias (Rossignolo, 2018). However, implicit biases can also exist in direct and indirect taxes through deductions and exemptions that affect women disproportionately due to differences in occupations, ownership of assets, social arrangements (Astudillo et al., 2022), or conditions of social programs and transfers (e.g., mother with a minor). In the literature, gender relations in these analyses are proxied by household composition.

Somewhat related to this literature, Amarante et al. (2022) depart from the full income pooling (at the household level) assumption to assess differences in poverty rates across genders in Latin America. However, their focus is not on the role of taxes and benefits. Their findings

[12] Rodríguez et. al (2022) study Argentina, Bolivia, Colombia, Ecuador, Mexico, Peru, and Uruguay.

[13] For developed countries, there is evidence that without interventions, inequality would have increased significantly during the pandemic and other economic crises, such as the Great Recession of 2008-2009 (Doorley and Keane, 2023; Doorley et al., 2018).

[14] It is important to note that the majority of the literature in this topic uses well established tax-benefit models such as EUROMOD or SWITCH (Callan et al., 2010).

suggest that the choice of household or individual-based welfare measures leads to differences in the level of poverty and the incidence of the gender gap in poverty.[15]

Our research adds to the literature by focusing specifically on the effects of tax-benefit systems on gender inequality in Latin America, one of the most unequal regions in the world. We complement recent research making use of tax-benefit microsimulation to study the gender income gap and provide evidence on the implications of calculating poverty rates across gender under different pooling assumptions.[16]

3. Tax-benefit Systems in the Countries under Study

As previously mentioned, tax-benefit policies could reduce the gender gap in income through two main channels. On the one hand, some cash transfers might be explicitly directed to women (e.g., maternity leave or pregnancy benefits) and others might prioritize payment to mothers (e.g., social assistance benefits for families with children which are paid to mothers). On the other hand, progressive taxes might reduce the gender gap in income since personal income tax and social insurance contributions are assessed at the individual level in the countries under study, and men might be subject to paying more taxes because they have, on average, higher earnings.[17] Tables A1 to A4 in Appendix A summarize the main characteristics of the taxes and benefits simulated in the analysis.

In terms of personal income tax (Table A1), the level of the first tax threshold (i.e., lowest tax band limit) varies from 0.18 (Mexico) to 5 (Argentina) annualized minimum wages.[18] A larger variation is observed in terms of the threshold for the highest tax band (i.e., highest tax band limit),

[15] Amarante et. al. (2022) evaluate two alternative measures of income: "earned income" (form any source), that identifies as poor those who would not escape from poverty if they were living on their own earnings; and "Poverty with Minimal pooling," where they propose that each adult of the household contributes a proportional part of their income to the support of children, and the rest is kept for themselves. Their analysis considers 16 Latin American countries using household surveys around 2016 and restrict their sample to people between 25 to 69 years of age.

[16] In a companion paper we study disposable income gender gaps for five Central American countries (Deza et al., 2024).

[17] No explicit gender biases exist in the tax codes of the countries under study. The only exception was Argentina until 2021, where the tax for marital property corresponded to the husband. Although it may seem like a benefit for the woman (by allowing her not to pay a tax), it was really a sign of the lack of tax autonomy based on the naturalization of the economic dependence of women with respect to their husbands. After the tax reform in 2021, marital income is taxed individually for each asset that each of the spouses have acquired with their income and is declared based on the percentage that each one contributed for the purchase. Our analysis does not consider property tax due to lack of information in the data.

[18] Though Mexico also has a tax credit set up for the personal income tax.

which reaches 19.6 (Peru) and 107 (Colombia) annualized minimum wages (Jara et. al., 2023, find a similar pattern). However, the highest tax rates are relatively comparable across countries, ranging from 30 percent in Peru to 39 percent in Colombia. Tax deductions are available in the design of personal income tax in all countries and are mostly composed of expenditures in education, health, and housing.

Additionally, social insurance contributions for employees (Table A2) show a large variation in contribution rates from 1.1 percent in Mexico to 12.71 percent plus an additional 10 percent on income above 21 minimum wages in Bolivia. In all countries, formal employees need to pay social insurance contributions at least on the basis of the minimum wage, whereas maximum levels of payment (i.e., ceilings) exist only in Argentina, Colombia, Mexico and Uruguay. Finally, employee social insurance contributions are deducted from labor income for the purpose of personal income tax payments in all countries except Peru.

In terms of self-employed social insurance contributions (Table A3), some countries (Argentina, Peru and Uruguay) apply a fixed amount depending on the category of the worker, age, the retirement fund or the gross income, while in other cases contribution amounts vary with income. Contribution rates vary between 7.98 percent in Mexico to 28.5 percent in Colombia. In all countries, except Peru, formal self-employed workers need to pay social insurance contributions at least on the basis of the minimum wage, whereas maximum levels of payment (i.e., ceilings) exist in all countries except Bolivia and Ecuador. Self-employed social insurance contributions are deducted from labor income for the purpose of personal income tax payments in all countries except Peru.

Finally, all countries have conditional cash transfer programs focused on vulnerable households (measured either by their income level, by proxy means-tested indices, integration into the labor market or health coverage) with children, that either explicitly target women or prioritize payments to mothers (see Table A4). The beneficiaries are primarily minor children, pregnant women and children with disabilities regardless of age. The generosity of the transfers varies widely across countries, from the equivalent of 4 percent of the minimum wage in Bolivia to 41 percent of the minimum wage in Argentina. The payments usually vary according to the demographic composition of the household (number of children, and their ages) and are conditional on the completion of health controls or school attendance. Unlike the tax systems, cash transfer programs

do have a gender preference, either directly or through the composition of the family, with an emphasis on women living in vulnerable households with children.

4. Data and Methodology

Our study makes use of harmonized tax-benefit microsimulation models based on representative household survey data. This section begins by presenting the databases employed. Then, it describes the microsimulation models of taxes and benefits. Finally, it details the method used to allocate the different income sources to individuals, and to assess the effect of taxes and benefits on the gender income gap.

4.1. Data

Our analysis focuses on seven Latin American countries, for which harmonized tax-benefit microsimulation models have been recently developed: Argentina, Bolivia, Colombia, Ecuador, Mexico, Peru, and Uruguay. These countries represent a wide range of cases in terms of female labor force participation, gender wage gaps, and the redistributive role of tax-benefit systems. For instance, female labor force participation ranges from 46 percent in Mexico to 71 percent in Peru (ILO, 2022a); women earn on average between 29 percent (Mexico) and 14 percent (Colombia) less than men per month (SEDLAC, 2022); and tax-benefit systems reduce income inequality (the difference between the Gini from disposable income and market income) between 2.8 points in Bolivia and up to 10.6 points in Uruguay (Bargain et al., 2024). By covering a wide variety of cases, we aim for our results to serve as benchmarks for other Latin American countries.

We make use of official and publicly available household surveys, representative at the national level. The only exception is Argentina, for which the survey is representative at the urban level only. Our results use household survey weights to provide results representative of the population captured by the survey. All surveys contain detailed information on individual and household characteristics, employment, earnings, non-labor income (e.g., income from capital and property, private transfers), government cash transfers and public pensions. Income concepts have been harmonized in all datasets to achieve comparability in the analysis.

Two data years are used in each country to capture the situation before and during the pandemic, and our analysis focuses on individuals between 18 and 60 years of age. In Argentina, Bolivia, and Ecuador, data from 2019 correspond to the last quarter of that year. In Argentina, the

last quarter is used to avoid issues due to inflation adjustments when data from all quarters in 2019 are pooled together. In Ecuador, the last quarter of 2019 is chosen because it contains additional modules needed for the simulations of benefits. In Bolivia, the survey is conducted yearly and contains information from the last quarter of each year. In Colombia, Peru, and Uruguay, 2019 data from monthly (Colombia) or quarterly surveys (Peru and Uruguay) are pooled together. Finally, in Mexico the income and expenditure survey used is conducted every two years, and the 2018 survey is the last one available prior to the pandemic. The second data year corresponds to data from the last quarter of 2020 in all countries to capture the situation at the end of the first year of the pandemic and because survey collection was interrupted or disrupted in the first and second quarters of 2020 in most countries due to lockdown measures. Table 1 provides information about the surveys used in our analysis. The table shows that in all countries the sample size of the data used is sufficiently large.

Table 1. Data Sources

Country	Data sources used as input in the models	Microsimulation model	Time of data collection	Full Sample
Argentina	Encuesta Permanente de Hogares (EPH)	LATINMOD-Argentina	2019 Q4	58,519
			2020 Q4	43,766
Bolivia	Encuesta de Hogares (EH)	BOLMOD	2019 Q4	39,605
			2020 Q4	37,092
Colombia	Gran Encuesta Integrada de Hogares (GEIH)	COLMOD	2019 Q1-Q4	753,503
			2020 Q4	184,310
Ecuador	Encuesta Nacional de Empleo, Desempleo y Subempleo Urbana y Rural (ENEMDU)	ECUAMOD	2019 Q4	59,183
			2020 Q4	30,636
Mexico	Encuesta Nacional de Ingresos y Gastos de los Hogares (ENIGH)	MEXMOD	2018 Q4	269,206
			2020 Q4	174,549
Peru	Encuesta Nacional de Hogares (ENAHO)	PERUMOD	2019 Q1-Q4	116,493
			2020 Q1-Q4	115,718
Uruguay	Encuesta Continua de Hogares (ECH)	LATINMOD-Uruguay	2019 Q1-Q4	107,855
			2020 Q4	40,860

Source: Authors' formulation based on household surveys.

The data provided by these surveys are our main source of information for the study of gender income gaps and poverty. However, it is important to bear in mind that household survey data suffer from top income under-coverage, which could affect the analysis of the role of taxes in reducing gender disparities (Burkhauser et al., 2012; Blanchet et al., 2022). Several studies have attempted to adjust survey data for the under-coverage of top incomes (Bach et al., 2009; Burkhauser et al., 2012; Blanchet et al., 2022).[19] Nevertheless, such corrections rely on several assumptions and do not usually take into consideration gender differences in income at the top.[20] In our analysis, we opt to use household survey data as provided by the statistical offices. The next section discusses in further detail the implications of top income under-coverage for the simulation of social insurance contributions and personal income tax.

4.2. Tax-benefit Microsimulation

We use harmonized tax–benefit microsimulation models which have been recently developed for the countries under study.[21] Tax–benefit microsimulation models represent a series of arithmetic equations of country-specific tax-benefit rules applied to each individual in the household survey in order to compute taxes, social insurance paid, and benefits received based on their labor income and demographic characteristics.[22] All models are based on the EUROMOD software and its modeling conventions allowing for the harmonization of income concepts and ensuring cross-country comparability (see Sutherland and Figari, 2013; Decoster et al., 2019; UNU-WIDER, 2021).

[19] Administrative data offer a good alternative, especially for studying individuals with high incomes. However, in countries with a high prevalence of informal employment, administrative data covers only a fraction of the working population. Also, administrative data may not contain as much information as household surveys (e.g., gender or the presence of children). Lastly, for most countries in the region access to such data is restricted.

[20] Similarly, household surveys do not properly capture other income sources such as capital or property income; that is, individuals may significantly under-report capital and property income during their interviews. If men earn more capital (or property) income than women, then our estimates of gender disparities may be biased downward. A similar argument can be made for the share of corporate income, that in some countries the law requires it to be distributed among workers, if it goes disproportionately to men.

[21] For Bolivia, Colombia, Ecuador, and Peru, the SOUTHMOD simulation programs were taken as reference to build our tax-benefit simulation; for Mexico we employed the simulation program MEXMOD, which is developed and managed by the Regional Development Division at CIAD in Mexico. The models of Argentina and Uruguay are developed and maintained by independent researchers in these countries. For more information about the simulation program, see the country reports at the UN-WIDER portal of each SOUTHMOD country (Arancibia and Macas, 2023; Jara et al, 2023; Rodríguez et. al, 2023: Torres and Chang, 2023). In the Mexican case, see the country report of Llamas and Huesca (2020).

[22] See Appendix A of Jara et al. (2023) for a formal description of tax-benefit microsimulation models for Latin America.

The models are used to simulate the main components of disposable income in 2019 and 2020 in each country. Household disposable income is defined as market income net of social insurance contributions and direct taxes plus cash transfers and public pensions.[23] More precisely, the models take the information about market income and sociodemographic characteristics directly from the data and based on this information they apply the policy rules to calculate i) employee social insurance contributions, ii) self-employed social insurance contributions, iii) personal income tax, and iv) the main cash transfer programs in each country before and during the pandemic (see Tables in the Appendix A). Due to data limitations, some tax-benefit instruments cannot be simulated but they are included in disposable income if they are reported in the data. Such is the case of contributory benefits and public pensions which cannot be simulated due to the lack of data on contribution histories. In the case of COVID-related policies, benefit amounts or tax payments are simulated as a monthly average over the year, considering the duration of these instruments according to national legislation.[24] Importantly, the microsimulation models are also used to allocate household level benefits to specific individuals within the household to assess their effect on the gender income gap. The details of the specific allocation of different income sources are provided in the next section.

Assumptions and limitations. To account for the presence of informal employment in the analysis, we take a common approach to simulate social insurance contributions and personal income tax only for formal workers. Here, we follow the legalistic view of formality and consider that someone is in formal employment if they have labor income and report affiliation with social security in the survey. An important limitation of our study relates to the underestimation of social insurance contributions and personal income tax because of top income under-coverage in household survey data. Our estimates of the number of taxpayers follow the tributary rules of each country applied to the data available in household surveys (see Table A1). Although population totals are consistent in household surveys, this might not be the case for individuals identified as taxpayers in the simulations, and there might be heterogeneity across countries. In general, our

[23] Market income is defined as the sum of employment and self-employment income, bonuses, in-kind income, own consumption from self-employment activities, capital and property income, inter-household payments, private transfers, minus alimony payments. Imputed rent is not included as part of market income. Corporate income is not included because it is not available in the surveys.

[24] Appendix B provides a list of Covid Policies per country.

simulations show less than 10 percent of the population paying personal income tax.[25] Thus, as high earners are not well captured in the data, our simulations of social insurance contributions and personal income tax underestimate the effect of these instruments. As a result, there might be some bias in our analysis of the role of social insurance contributions and personal income tax in reducing gender disparities at the top of the income distribution. Ideally, analysis based on tax records data could complement the analysis presented in this paper. However, this is beyond the scope of our study.

4.3. Measurement of Individual Disposable Income and the Gender Income Gap

Our approach consists of comparing differences in market income (i.e., mainly earnings) and disposable income between men and women in each country. For this, we work under the assumption of "no income sharing" and therefore require measuring disposable income at the individual level. In this section, we describe the income splitting rules according to different income sources. As mentioned above, we focus on a sample of individuals between the ages of 18 and 60.

To measure individual disposable income, the following allocation rules are taken. First, earnings and other market incomes (e.g., capital and property income) where entitlement is defined at the individual level are assigned to the person receiving them. The same rule is applied to individual-level benefits such as public pensions, unemployment, disability or parental leave benefits. Second, according to the legislation of each country under analysis, personal income tax and social insurance contributions are assessed at the individual level. Therefore, we assign their own taxes and social insurance contributions payments to each individual in the household.[26] As previously mentioned, personal income tax and social insurance contributions are calculated only for formal workers.

The assignment of cash transfers within the household, however, deserves more attention. Some benefits are defined at an individual level (e.g., some non-contributory pensions), in which case they are assigned to the individual receiving them. However, some cash transfers are assessed

[25] The exceptions are Mexico (39 percent) and Uruguay (23 percent). It is important, however, to highlight that the figures estimate the number of people who actually have to pay income tax, and not the number of people who have to declare income taxes.

[26] In the simulations, only payments for a person's own affiliation with social security are calculated. Social security payments made by a person to cover other household members are not considered.

at the household or family level, and we must make some assumptions about how they are allocated among household members. Following the discussion in Section 3, for most cash transfers in the region the legislation stipulates that the benefit is preferentially paid to the mother in the family unit. In those cases, we assign the whole benefit amount to the mother. Finally, all other benefits assessed at the household level are assumed to be shared equally.[27]

Based on our measures of individual income, we are interested in assessing the effect of taxes and benefits on the gender income gap. For this, we will compare market income to disposable income, as the difference between the two reflects the effect of taxes and benefits. More precisely, we measure gender inequalities in income as the ratio of women's average income to men's average income, for market and disposable income. The difference between these two ratios reflects the effect of tax-benefit systems on the gender income gap. If the ratio of women to men disposable income is higher than that based on market income, this signals that the tax-benefit system decreases the income gap between women and men.

Two important points related to our analysis are worth mentioning. First, our analysis concentrates on the effect of taxes and benefits on the raw gender income gap, as we do not explore gender differences conditioned by any factors. Second, the gender gap in market income and the effect of taxes and benefits might vary across demographic and income groups. Therefore, in addition to providing results for the full sample, we also show income gender gaps across specific subgroups.

5. Empirical Results

The empirical results of our analysis are divided into three parts. First, we compare the relative importance of different income sources between men and women. Then, we assess the effect of taxes and benefits on the gender gap in incomes across countries. Finally, we analyze differences in poverty between men and women when income is measured at the level of the individual, the couple, or the household. As mentioned before, our estimations are representative at the national level.

[27] That is, we share "all the benefits among all the adults within the household." If there are more than two, the benefits are divided among the number of adults. Note that this is the case only for a limited number of benefits in the countries under study.

5.1. Relative Size of Income Sources by Gender

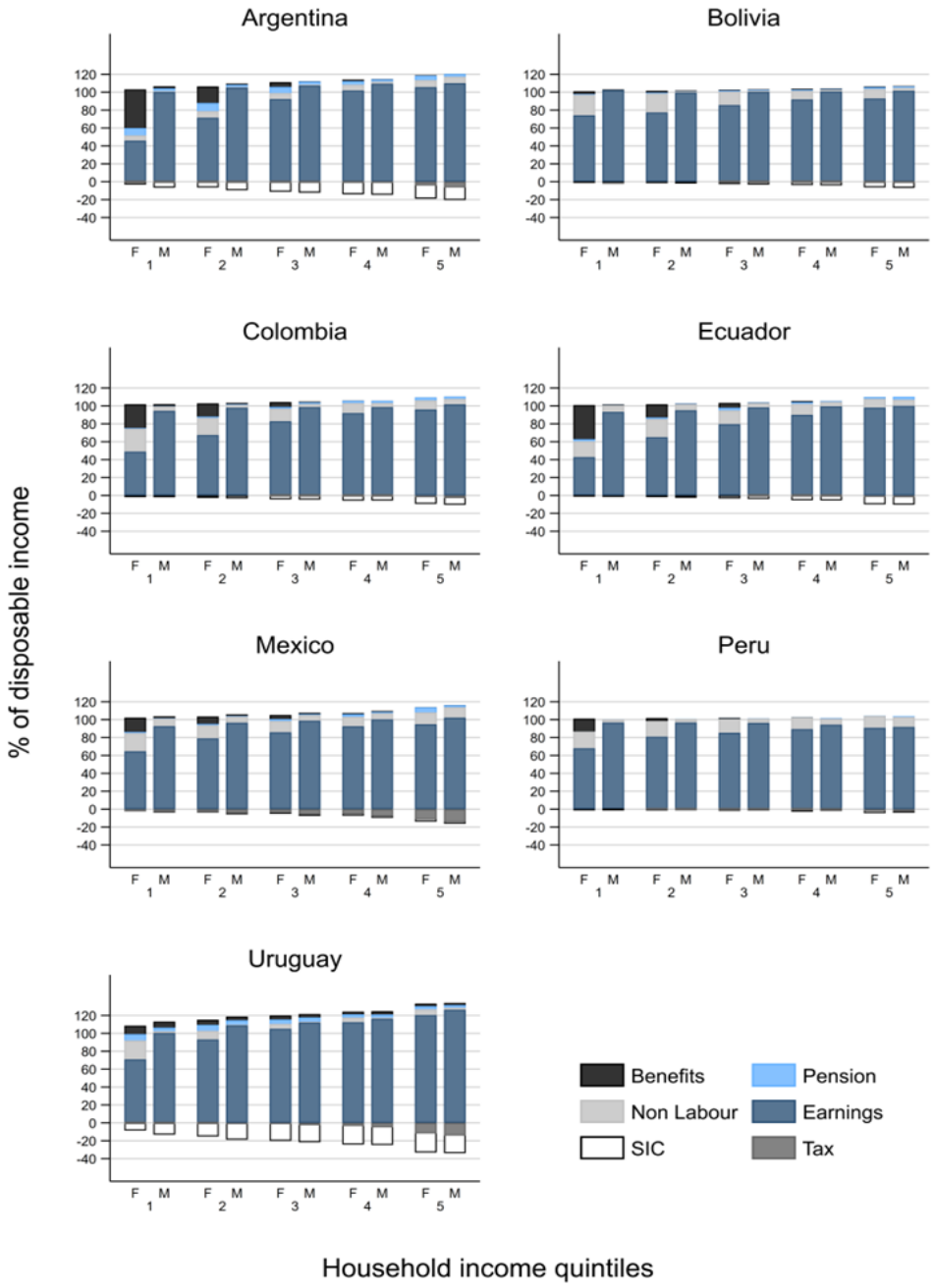
Figure 1 shows the contribution of different income components to individual disposable income, by quintile and gender in 2019 (see also Table C1 in Appendix C). The figure distinguishes among six income sources: i) earnings (dark blue bars), ii) non-labor market income (light gray bars), iii) social insurance contributions, SIC, (white bars), iv) direct taxes (dark gray bars), v) government cash transfers (black bars), and vi) public pensions (light blue bars). The relative size of each component is measured as a percentage of the average individual disposable income (e.g., mean individual earnings divided by mean individual disposable income). Direct taxes and social insurance contributions are shown as negative values, as they are subtracted in the calculation of disposable income. The results are presented for men and women separately and by quintiles of per capita household disposable income. The use of household income quintiles to split individuals is motivated by the fact that tax-benefit policies, cash transfers in particular, are assessed at the household level even if targeted to mothers. Results for 2020 are presented in Figure D1 in the Appendix.

In all countries, earnings is the component that weighs the most in individual disposable income for all quintiles, regardless of gender. In all cases, it is higher for men than for women, remains relatively stable between quintiles for men, but increases with household income for women, representing between 42.8 percent (Ecuador) and 74.2 percent (Bolivia) of individual disposable income for women in quintile 1 to reach proportions between 90.8 percent (Peru) and 120.4 percent (Uruguay) of disposable income for women in quintile 5.

In terms of benefits, their relative size is larger for women at the bottom of the distribution. They represent between 14 percent and 43 percent in the first quintile for Argentina, Colombia, Ecuador, Peru, and Mexico, whereas they account for less than 10 percent of women's income in Bolivia and Uruguay. Regarding pensions, in all countries we find that they weigh less for men than for women. In Bolivia, Colombia, Ecuador, and Peru, they account for less than 4 percent of individual disposable income in all quintiles. In Mexico, pensions increase with income for women, reaching 6 percent in the fifth quintile. In Argentina and Uruguay, the relative size of pension is larger than in other countries and decreases with income for women.[28]

[28] In Argentina, the pension component is not purely made of contributory pensions. The pension system is partially financed from contributions, but access was extended to workers who have not contributed the required years (*Moratoria previsional*). In addition, non-contributory pensions for older adults (PUAM), mothers of 7 or more

Figure 1. Relative Size of Income Sources by Gender and Household Income Quintiles, 2019



Source: Authors' formulation based on microsimulation models.
Note: Income quintiles are calculated based on per capita household disposable income. F stands for female, and M stands for male.

children and pensions for disability or invalidity are also part of the pension component in Argentina and cannot be disaggregated in the data.

In terms of Social Insurance Contributions (SIC), we observe that their relative size increases with income in all countries. Their incidence is smaller for women at the bottom of the distribution, but the relative size is more similar across genders at the top. These results can be explained by the presence of informal employment, which is more prevalent among women at the bottom of the distribution. In fact, Uruguay and Argentina stand out, where the relative importance of social insurance contributions is larger, which is also explained by the larger share of affiliation to social security (i.e., higher formal employment) in these countries relative to other countries under analysis. In the bottom quintile of Argentina, SIC represents 3 percent of individual disposable income for women and 6.5 percent for men. The relative size of SIC is larger in the bottom quintile of Uruguay, representing 8.6 percent for women and 13 percent for men. At the top, the relative size is similar across genders, reaching between 15 percent and 20 percent in Argentina and Uruguay, respectively.

Finally, the relative size of direct taxes is, in general, modest in all countries. Previous research has shown that in LAC, a low share of the population is liable to personal income tax compared to advanced economies (Arancibia et al., 2019; Lustig et al., 2017). The limited size of personal income tax (PIT) in Latin America has been explained by the high levels of informal employment in the region but also by the high exempted thresholds and generous deductions which are part of the design of this policy instrument in the region. As previously mentioned, the limited effect of PIT might also reflect the fact that high-income individuals are not properly covered by household survey data. Figure 1 shows that, in Argentina, Colombia, Ecuador, and Peru, PIT appears to play a role only for individuals in the top income quintile. In Uruguay and Mexico, the contribution of PIT is somewhat more generalized across the income distribution, but the higher quintiles pay more taxes due to the progressivity of this policy.[29]

5.2. The Gender Income Gap

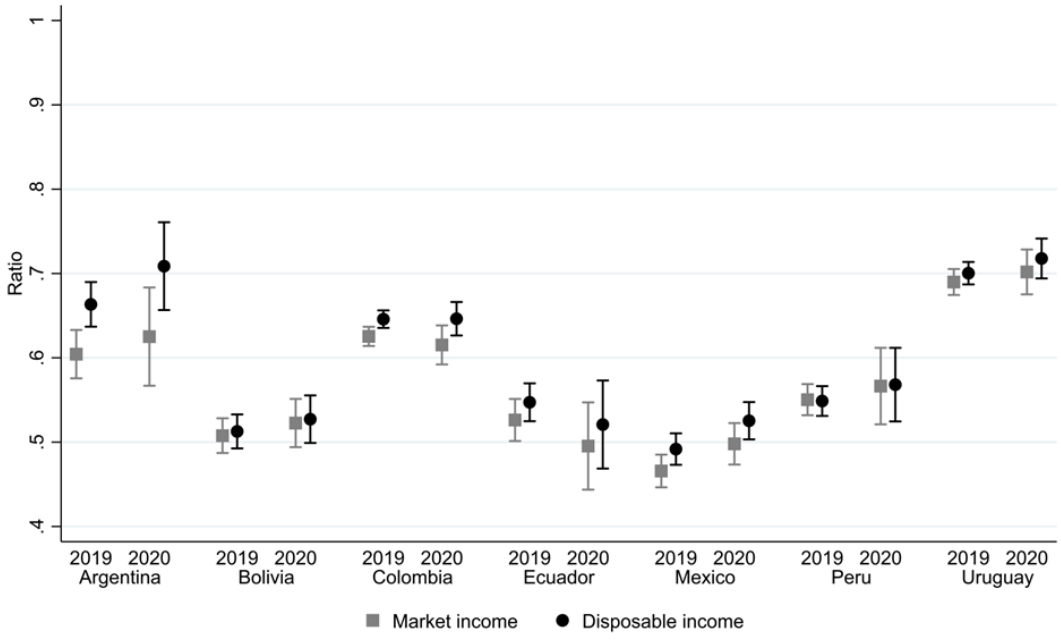
We now turn to the analysis of the effect of taxes and benefits on the gender income gap. Figure 2 compares market income and disposable income gender ratios in all countries for 2019 and 2020. As previously mentioned, the smaller the ratios, the larger the income of men compared to that of

[29] It is important to mention the weakness in the collection of income tax and social security contributions in Latin America relative to other regions (OECD, 2020). Personal income tax contributes an average of 8.6 percent of GDP in OECD countries, while it only reaches 2 percent of GDP, on average, in Latin America and the Caribbean. In the case of SIC, the percentages reach 9.2 percent in OECD countries and 3.9 percent in LAC. Thus, we expect them to have a smaller redistributive effect across genders.

women. Taxes and benefits reduce the gender income gap if the gender income ratio of disposable income is larger than that of market income. The average incomes for these ratios are only conditional on age (i.e., our sample considers all individuals aged between 18 to 60) and not on labor status. Therefore, the ratios are capturing simultaneously gender differences in earnings and gender gaps in employment; that is, differences in earnings among the working population and differences in earnings between people in work and people out work (i.e., women out of work are part of our sample). We come back to this point later in the next subsections.

We find that, for both 2019 and 2020, all countries face a marked gender income gap. Analyzing only market income, we find that the average income of women in 2019 represents between 47 percent (in Mexico) and 69 percent (in Uruguay) of the average income of men in our sample, though the precision of our estimates varies from country to country. In 2020, the gaps in market income in Ecuador and Colombia widen slightly, while those of the other countries close slightly. That year, the smallest gap was found for Uruguay, where the market income of women was equivalent to 70 percent of that of men.

Figure 2. Market Income and Disposable Income Gender Ratios (women's average income relative to men's average income)



Source: Authors' formulation based on microsimulation models.
Note: The sample considers individuals between the ages of 18 and 60 years old. 95% confidence intervals are presented.

Figure 2 further shows that the gender gap in disposable income is smaller than that of market income in all countries. The gender income ratio for disposable income in 2019 ranges between 0.49 in Mexico and 0.70 in Uruguay. This points to a positive effect of tax-benefit policies in closing the gender gap in income. However, with the exception of Argentina in 2019, the changes in the gender gap are not statistically significant; that is, we cannot assert whether the tax-benefit system reduces the gender income gap or not. The effect of the policy in Argentina can probably be explained by the broader coverage of the AUH (Asignación Universal por Hijo) program, which prioritizes mothers as beneficiaries.

As previously mentioned, our analysis relies on allocating income sources to individuals according to the legislation on tax-benefit instruments. In particular, benefits targeted to mothers are allocated to them in our simulations. However, it is possible that reported information of benefit receipt in the survey might differ from the simulations. To test this, Figure A3 in the Appendix compared disposable income gender ratios obtained with simulated and reported benefits. The results show that simulated and reported benefits provide similar information.

5.3. The Gender Income Gap by Household Income Deciles

The results presented in the previous section for the whole sample in each country might mask differences across population subgroups. In particular, the effect of cash transfers is expected to be more prevalent at the bottom of the income distribution, whereas social insurance contributions and personal income tax might have a higher incidence at the top. For this reason, Figure 3 presents gender income ratios by income decile groups for 2019, where deciles are based on per capita household disposable income. The analysis therefore aims to compare gender gaps between men and women living in households located in different parts of the income distribution. The gender composition across deciles is not entirely balanced. In the bottom decile, the share of women is between 53 percent and 57 percent in all countries. In the top decile the share of women is slightly lower, between 45 percent and 49 percent. Table C2 in the Appendix provides information about the gender composition deciles in each country. Figure D2 in the Appendix replicates the analysis for 2020, and the patterns of the effects are very similar.

Figure 3 shows that the "*market income gap*" displays, in general, similar behavior across deciles in all countries. The gender income ratio from market income remains roughly stable up to the fourth decile and increases afterward; although it always remains below 0.85 for the upper part

of the household income distribution (that is, on average, as even in the upper deciles women's income is never higher than 85 percent of men's income). This finding can be potentially explained by the changes in occupation profiles across the income distribution. For instance, women (and men) in the poorest deciles are employed in lower-skilled occupations; within them, women are more likely to work informally and have fewer hours than men to allow for non-paid home care work, or simply be paid less for the same job because of non-observable factors, such as biases and cultural patterns. As income grows, however, women might tend to work full-time in formal employment and professional occupations, as the household has the economic buffers to finance the necessary support for home duties. As such, the gender income gap decreases.

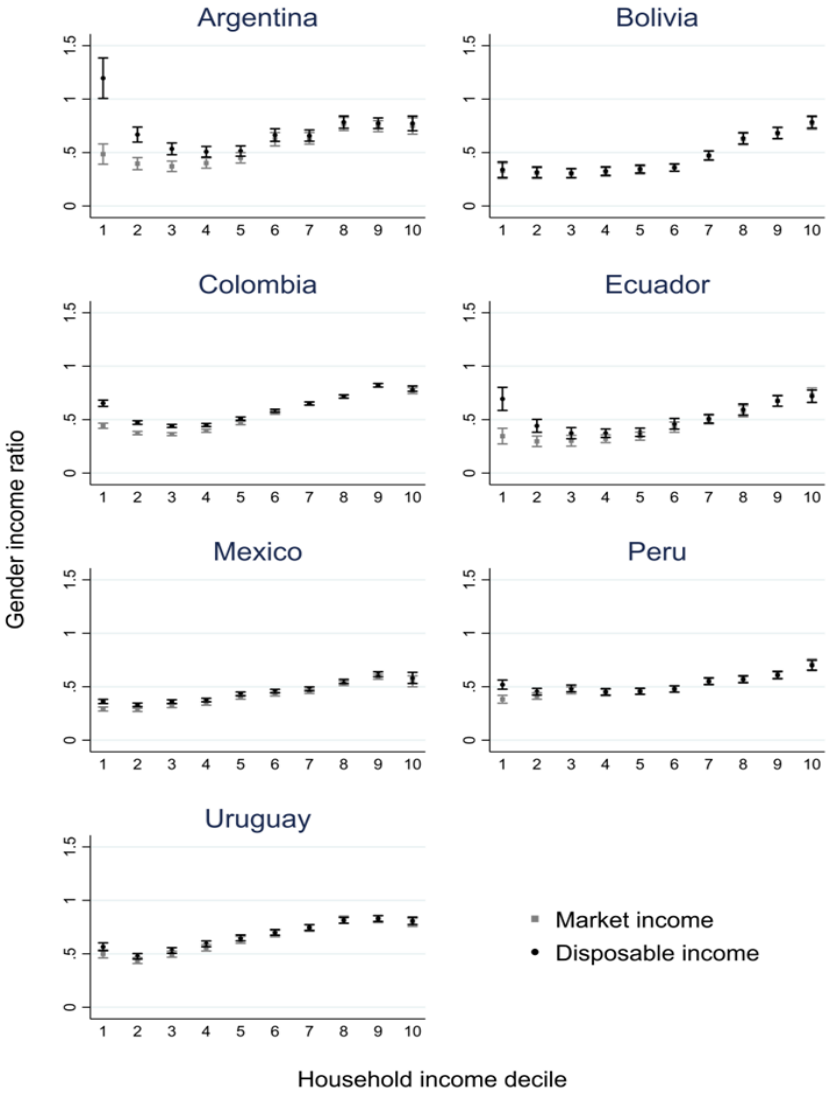
Figure 3 also shows that, in almost all countries, taxes and benefits reduce the gender gap in the lower income deciles; in particular in the first one, while the effect fades away progressively to become negligible in the highest deciles. To be specific, for the bottom decile of the income distribution we find that in Argentina, Colombia, Ecuador, Mexico, and Peru, the market income ratio and the disposable income ratios are statistically different. This reflects the role of social assistance targeted to low-income mothers with children. As discussed in Section 3, in most countries under analysis, cash transfer programs have a component destined for women with children and by default, the benefit is paid to the mother.

As previously mentioned, we have not restricted our samples to individuals in work. Therefore, our results are capturing simultaneously gender differences in earnings and gender gaps in employment. To disentangle between the two, Figure 4 replicates the analysis provided in Figure 3 but for a sample of individuals in work (those with positive labor income regardless of the number of hours of work), aged between 18 and 60. Although the patterns are similar to those based on the unrestricted sample (Figure 3), there is a visible increase in women's income relative to men's, particularly for Bolivia, Colombia, Ecuador, and Peru, and for the first deciles. That is, a proportion of the gender income differences observed in Figure 3 for the poorest population is due to differences in the share of men and women who are out of work. Interestingly, the reduction in the gender income gap (from Figure 3 to Figure 4) is not marked for people in the middle of the distribution (deciles 5 and 6).

Additionally, the role of tax-benefit systems in reducing the gender income gap is smaller in Figure 4 and only significant, at the bottom of the distribution, in Argentina, Colombia, and

Mexico.[30] This means that the effect observed in Figure 3 is mainly driven by the role of cash transfers in reducing the income gender gap for women out of work (rather than reducing the gender gap in earnings for women in work.

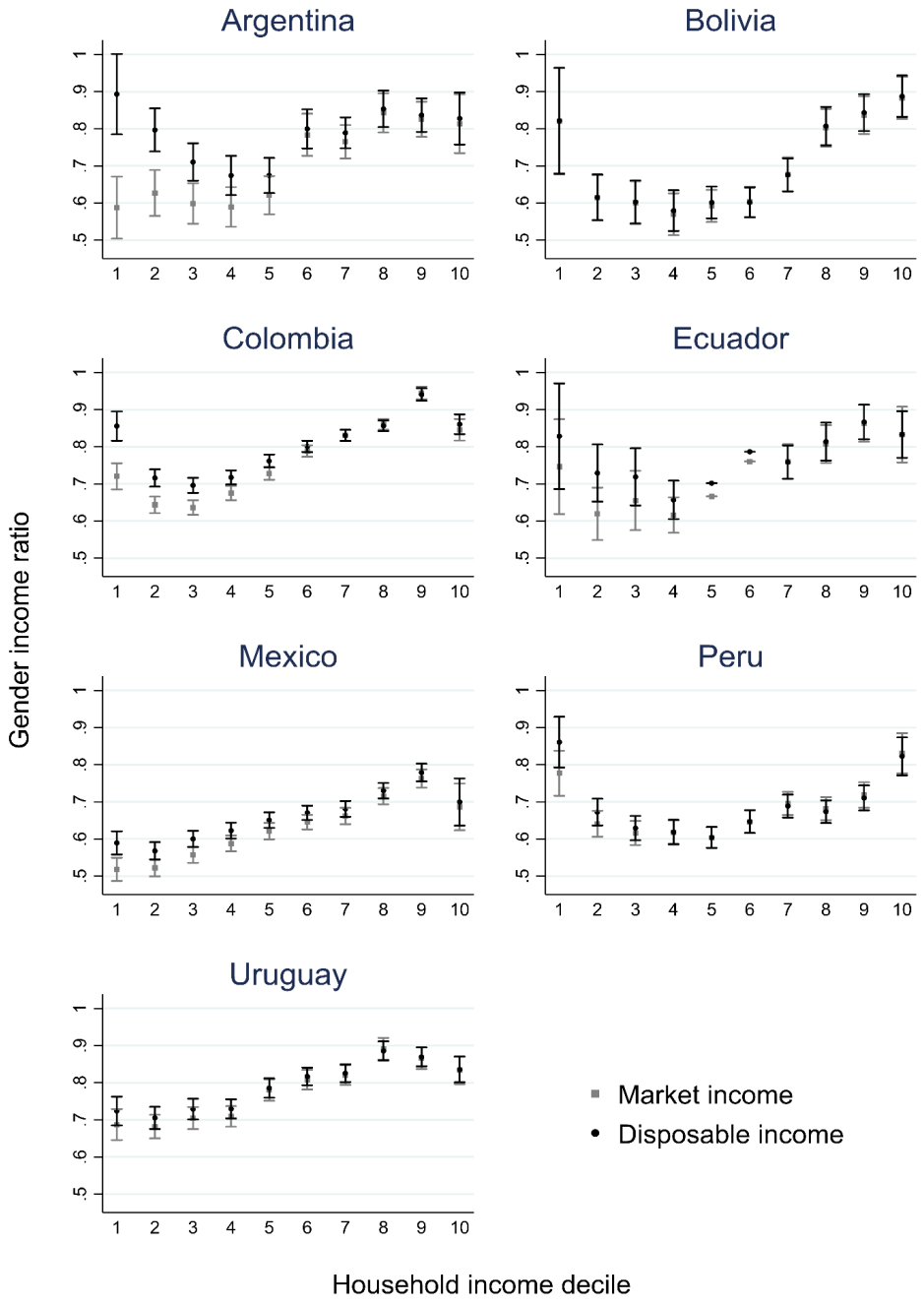
Figure 3. Market Income and Disposable Income Gender Ratios, (women's average income / men's average income) by Household Disposable Income Deciles, 2019



Source: Authors' formulation based on microsimulation models.
Note: The sample considers individuals between the ages of 18 and 60 years old. 95% confidence intervals presented.

[30] To be specific, the difference between Figures 3 and 4 is that Figure 3 includes people who are out of work (either unemployed or not looking for a job).

Figure 4. Market Income and Disposable Income Gender Ratios (women's average income / men's average income) by Household Disposable Income Deciles for Individuals in Work, 2019



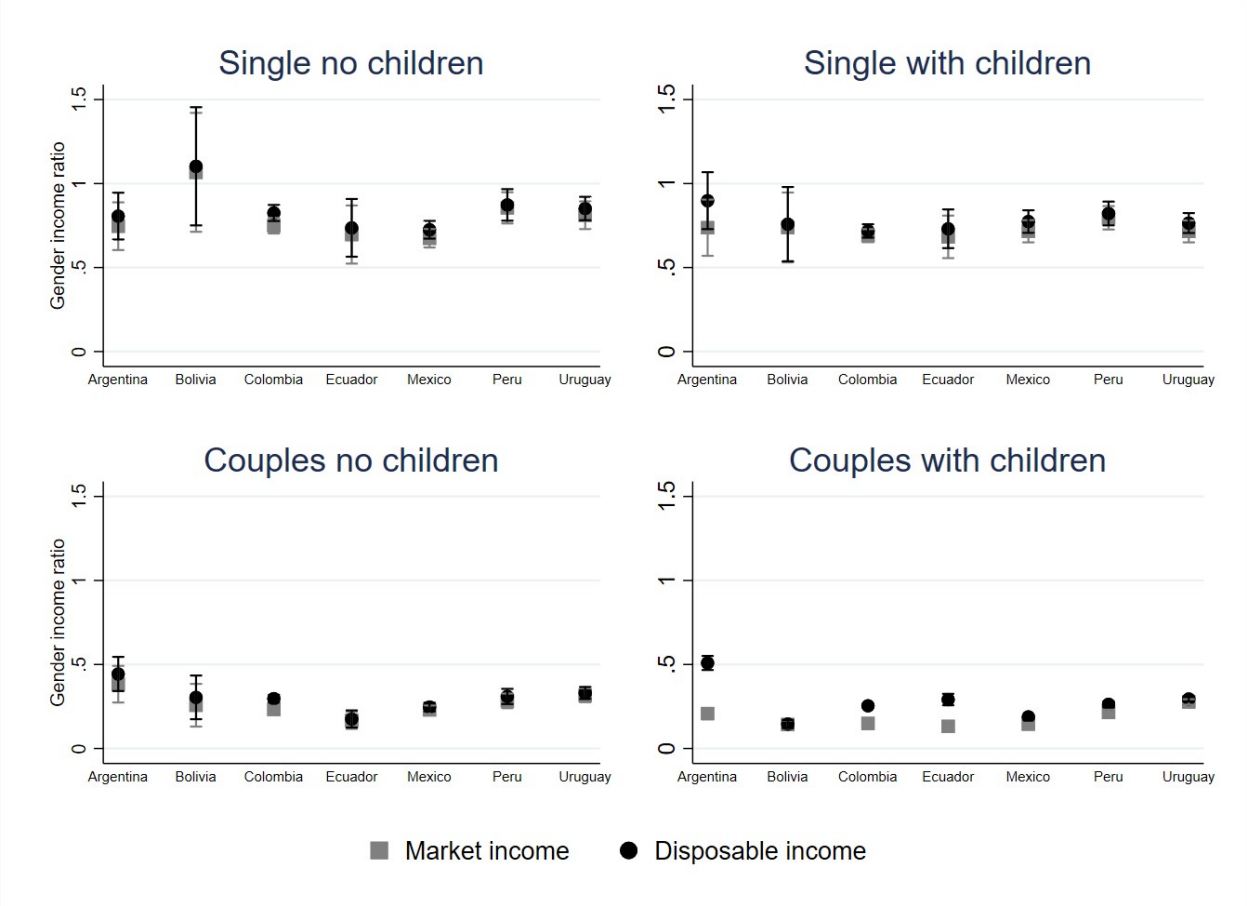
Source: Authors' formulation based on microsimulation models.
Note: The sample considers individuals between the ages of 18 and 60 years old in work (those with positive labor income regardless of the number of hours of work). 95% confidence intervals presented.

As discussed in the literature review, the motherhood penalty is also a factor explaining the gender income gap. To look closer at this issue, Figure 5 compares market and disposable income gender gaps for individuals who are part of four different types of family units and who belong to the bottom three deciles of the household income distribution. Panels A and B present results for singles without and with children, respectively. Panels C and D present the same information for individuals who are in a couple. We focus on the bottom of the distribution because that is where social assistance programs play a larger role and because there might be a prevalence of single parents. Note that the analysis still makes use of individual incomes.

For market income, Figure 5 shows that the income gap between genders is smaller among singles than in couples. The differences are statistically significant for all countries, whether or not they have children. Among couples, having children increases the gender income gap significantly in Argentina, Colombia, Mexico, and Peru. Among singles, having children or not does not significantly modify the gap.

The figure further shows that the tax-benefit system significantly closes the gender income gap only for couples with children in Argentina, Colombia and Ecuador. In other countries and for other types of family units, disposable income ratios do not show statistically significant changes with respect to market income ratios.

Figure 5. Market Income and Disposable Income Gender Ratios (women's average income / men's average income), for the First Three Deciles, for Singles and Couples without and with Children, 2019



Source: Authors' formulation based on microsimulation models.
Note: The sample considers individuals between the ages of 18 and 60 years old. 95% confidence intervals presented.

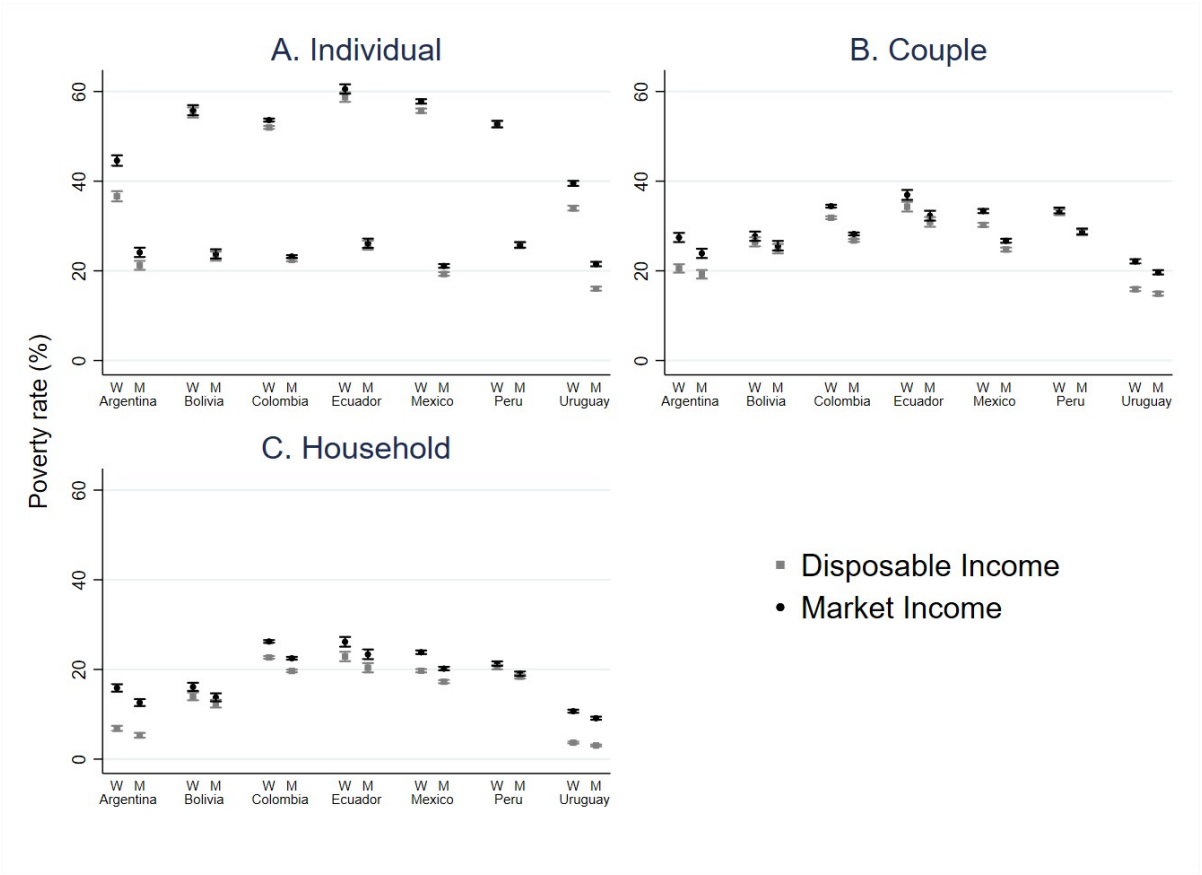
5.4. Poverty Rates

In this last section, we look at the consequences of having different types of income sharing rules on income poverty by gender. More precisely, Figure 6 compares poverty rates by gender when market or disposable income is aggregated across different units in 2019. Poverty rates are calculated under three scenarios. The first scenario (Panel A) uses individuals as the unit of analysis. This means that income has been fully split between individuals in the household under the assumption of "no income sharing" to obtain measures on individual poverty rates That is, it uses individual income to calculate poverty. The second scenario (Panel B) takes the "couple" as a unit of analysis. This means that we identify couples in the data, and if an individual is part of a

couple, then we aggregate disposable income within couples ("income sharing within the couple"). Individuals who do not have couples represent a "couple" unit with only one person. Finally, scenario (Panel C) uses the household as the unit of analysis, as is traditionally done in most of the literature. This means that "full income sharing" is assumed within the household. Then poverty is measured for men and women based on their household disposable income. As an example, consider a household with three adult individuals: a couple (a man and a woman) and a single woman. Our first scenario would view them as three separate individual units each with their respective individual income. Our second scenario would view two couple units. One couple unit made of two people (of a man and a woman), and a second couple unit made of one person (a single woman). Disposable income would be aggregated within each couple unit. Lastly, our third scenario would recognize one household unit with three members and income would be aggregated at the household level.

To be consistent with the poverty literature, for each scenario we take into account the unit size (number of members in each unit) and calculate measures of per capita income (at the individual, couple, or household unit level). Consider our previous example and assume that now the single woman in the household has three children below the age of 18 with no income. That is, the household is composed of a couple without children and a single mother with three children. In our first scenario, the income of the single mother with children will be divided by 4, and the income of the other two adults will be attributed to each of them separately. In the second scenario, the income of the single mother will also be divided by 4 and the income of the two other individuals will be aggregated (as they are a couple) and divided by two. In the third scenario, the income of all three adults will be aggregated and divided by 6 (the total number of people in the household). In all cases, the poverty line is kept fixed at 5.5 US dollars per day in PPP in each country.

Figure 6. Poverty Rates by Gender at Individual, Couple, and Household Unit Level, 2019



Source: Authors' formulation based on microsimulation models. 95% confidence intervals
Note: Panel A presents individual level poverty rates; Panel B presents poverty rates using the "couple" as a unit of analysis; Panel C shows poverty rates at the household level. W stands for women, and M stands for men. Poverty lines are set at 5.5 US dollars per day in PPP in each country for the analysis.

At first glance, we find noticeable and statistically significant differences in men's and women's poverty rates based on their individual market income, from 18-20pp differences in Uruguay and Argentina to differences between 27 to 37pp in Bolivia, Colombia, Ecuador, Mexico and Peru. Women always have a higher poverty rate than men, which is consistent with our findings on income disparities.

It is also interesting to note that, in regard to individual income, the poverty rate of men is relatively similar across countries, between 21 percent and 26 percent. Women's poverty rate, however, varies widely. from around 39 percent in Uruguay to 60 percent in Ecuador. This wider range is most likely related to differences in the share of women in work across countries but also to gender income differences for women in work (see Figures 3 and 4).

In all countries, fiscal policy reduces poverty for both genders, although the effect is more marked for women. In Argentina and Uruguay, the decrease in women's poverty between market income and disposable income is 8pp and 5.5pp, respectively. In Colombia and Mexico, it decreases approximately 2pp. In the other countries, Bolivia, Peru and Ecuador, the decrease is minor. Fiscal policy also reduces poverty among men in Uruguay (5.5pp), Argentina (2.9pp), Mexico (1.8pp) and Colombia (0.8pp).

Assuming income pooling at the couple level, instead, largely reduces gender differences in poverty. As mentioned before, this intermediate scenario differs from the common one (household income pooling) by defining the unit only as a couple and their children (aged below 18) and assigning other members to different units. The incidence of poverty in women decreases significantly in this scenario, compared to individual measurement. The incidence varies between 22 percent in Uruguay and 37 percent in Ecuador. For men, the incidence measured in this way only decreases in the case of Uruguay and increases in Colombia, Ecuador, Mexico and Peru. For Argentina and Bolivia, the differences are not statistically significant. Fiscal policy has the effect of reducing the incidence of poverty, when moving from market income to disposable income, for all countries and both genders. The effect continues to be greater for women than for men and reaches the greatest differences in Argentina and Uruguay.

Lastly, following the standard assumption of income pooling at the household level, poverty rates further decrease in all countries compared to the previous scenarios, measured by both market and disposable income. Moreover, differences in poverty rates across genders are reduced markedly. Indeed, for most of the countries, there is almost a total closure of the gender poverty rate gap.[31] The difference in poverty rates between women and men would mostly come from single-member households, where individual income and household income are the same.[32] Fiscal policy also reduces poverty under this scenario. Poverty rates based on per capita household market income range between 10.6 percent and 26 percent, whereas they range between 3 percent and 23 percent when they are measured based on disposable income. The effect is especially marked in Argentina and Uruguay.

[31] Taken as a whole, this result relates to implicit intra-household decisions, where women sacrifice personal earnings by focusing on home-related tasks but gain income from their couples and other household members, with a result of similar poverty rates across genders.

[32] Differences may also arise from the demographic composition of the households. Indeed, households with a higher share of females may have a lower "*pooled income*" than households with a smaller share of females; this could in could affect their probability of being categorized as poor.

5.5. Policy Implications

Based on the analysis presented in this paper, we draw some policy implications related to gender disparities and the role of taxes and benefits in reducing the gender income gap in Latin America. A first clear result is the marked gap in market income between men and women when considering all those aged 18 to 60 years, regardless of labor status. Therefore, although our analysis focuses on the role of tax-benefit policies in reducing gender disparities, it is important to highlight the need to consider policies to reduce gender disparities in the labor market.

A second important result is that tax-benefit policies reduce gender income disparities. Their effect is larger and significant at the bottom of the household income distribution. Yet, the different socio-fiscal instruments show widely varying effects. For instance, cash transfers have a larger impact on the lowest income deciles and, if allocated to mothers, they have the effect of closing the gender gap. From a policy perspective, the results highlight the importance of expanding cash transfers with a gender perspective. On the contrary, we find that SIC and income taxes have a limited contribution to reducing the gender gap in LAC countries, as a result of low levels of coverage (i.e., informality and high exempted thresholds (see Jara et al., 2023).

It also seems advisable to consider different ways of measuring poverty according to gender. In particular, our results show that large gender differences in poverty are observed when different income pooling assumptions are used. The assumption of full income sharing does not allow for a precise measurement of the phenomenon. For example, in cases where there is no equitable distribution within the household, if the woman has no income, she would be poor but would not be detected under the assumption of full income pooling.

While mitigating the gender income gap is a desirable policy objective, a significant gap is expected to remain even if the tax-benefit system is strengthened to reduce both the wage and the employment gap. In the case of the latter, the problem of low female labor force participation relative to men, is multifaceted in nature and goes beyond the scope of fiscal policies. As mentioned in Section 2, socioeconomic, cultural and structural factors are important contributors to the decision taken by women to participate in the labor force. Women's decision to participate in the labor market is influenced by observable personal and family decisions (such as investing in education or having children), household characteristics and composition (how many children, elderly, or members with a disability live in the household), the economic environment that influence employment opportunities and returns, access to care services, financial inclusion, access

to social protection and affordable childcare (Gontero and Vezza, 2023). Additionally, unobservable factors play a role, such as social and cultural norms that influence preferences, values, customs, perceptions of opportunities and gender roles.

While the abovementioned considerations are important, we argue that fiscal policies can have a direct influence on the economic environment through the tax and benefit system, as is the case in advanced economies. An effective tax system could create incentives that encourage women's participation in the workforce, and a well-targeted benefit system can complement women's income and reduce the gender income gap without disincentivizing, and sometimes while encouraging, participation in the labor force. For instance, the provision of inclusive government services, such as quality education, training and employability services focused on women, and affordable childcare can be considered, as well as in-kind transfers that can be incorporated in further analysis of the impact of a broad range of fiscal policies on the gender income gap. Therefore, fiscal policies can constitute potential levers for change that could complement broader societal efforts.

6. Conclusions

This paper assesses the extent to which tax-benefit systems contribute to reducing the gender income gap in Latin America. Closing it, could provide women with economic freedom, and more agency over household expenses. Using a novel set of microsimulation models for Latin America and nationally representative household surveys, we calculate distributions of individual disposable income assuming "no income sharing" within the household. The role of taxes and benefits is assessed by comparing gender income ratios (female over male) from market to disposable income for individuals between the ages of 18 and 60, and by income subgroups.

We find that women's market incomes represent on average between 47 percent (Mexico) and 69 percent (Uruguay) of men's market incomes. Interestingly, the analysis by income deciles shows that gender market income ratios tend to decrease between the first and second (sometimes third) decile. Gender disparities start to visibly reduce after the fourth decile, reaching a minimum for the top deciles (ninth or tenth). The gender market income ratio is around 0.85 for the top deciles. Furthermore, we find that the tax-benefit policies significantly reduce gender income disparities in the lower income deciles in Argentina, Colombia, Ecuador, Mexico and Peru. The reduction in the gender income gap at the bottom of the distribution is due to the role of social

assistance benefits received by mothers in poor households. Moreover, our results show that this reduction in the gender income gap is explained by the effect of cash transfers in reducing income differences due to the gender gap in employment, rather than by the income gender gap among the employed population. At the top of the distribution, we observe no effect of direct taxes in reducing the gender income gap. The latter might be due to the fact that household survey data suffer from under-coverage of high incomes and, therefore, the role of personal income tax might be underestimated in case the simulations of the number of taxpayers may not match administrative information. Still, our findings offer valuable insights, and the under-coverage of high incomes most likely does not affect our results regarding the effects of tax-benefit policies in the lower income deciles.

Lastly, we find large differences in poverty rates by gender calculated using individual disposable income, with women always having higher poverty rates than men. The poverty rate of men is relatively similar across countries (between 21 percent and 26 percent); whereas women's poverty rate varies widely (from around 39 percent to close to 60 percent). Assuming income pooling at the couple or household level, instead, reduces gender differences in poverty. As such, we argue that using total household income to determine members' economic well-being may hide economic gender disparities.

References

Agénor, P., Ozdemir, K. K., Moreira, E. P. (2021). Gender Gaps in the Labor Market and Economic Growth. Economica, 350(88), 235-270. https://doi.org/10.1111/ecca.12363

Almeida, V., Barrios, S., Christl, M. & De Poli, S., 2021. The impact of COVID-19 on households. *The Journal of Economic Inequality,* Issue 19.

Alon, T., Coskun, S., Doepke, M., Koll, D., & Tertilt, M. (2022). From mancession to shecession: Women's employment in regular and pandemic recessions. NBER Macroeconomics Annual, 36(1), 83-151.

Amarante, V., Colacce, M., & Scalese, F. (2022). Poverty and gender in Latin America: How far can income-based measures go? Journal of International Development, 34(1), 109– 129. https://doi.org/10.1002/jid.3584

Arancibia, C. , Macas, D. (2023) SOUTHMOD country report Bolivia - BOLMOD v2.0. Helsinki: UNU-WIDER. Helsinki: UNU-WIDER.

Arancibia, C., M. Dondo, H. X. Jara, D. Macas, N. Oliva, R. Riella and J. Urraburu (2019). "Income Redistribution In Latin America: A Microsimulation Approach". WIDER Working Paper 2019/1. Helsinki: UNU-WIDER.

Attanasio, O., and Lechene, V. (2002) "Tests of income pooling in household decisions" *Review of Economic Dynamics*, 5(4), 720 - 748

Avram, S and Popova, D. (2021). "Do taxes and transfers reduce gender income inequality? Evidence from eight European welfare states", Social Science Research, 102644, https://doi.org/10.1016/j.ssresearch.2021.102644

Bach, S., Corneo, G. and Steiner, V. (2009). "From bottom to top. The entire income distribution in Germany, 1992–2003". *Review of Income and Wealth*, 55, 303–30.

Bando, (2019). "Evidence-based gender equality policy and pay in Latin America and the Caribbean: progress and challenges". *Latin American Economic Review.*

Bargain, O., Jara, H. X. and Rodriguez, D. (2017) "Learning from your neighbour: swapping tax-benefit systems in Latin America", *Journal of Economic Inequality*, 15(4), pp.369-392. https://doi.org/10.1007/s10888-017-9367-5

Bargain, O., & Lo Bue, M. C. (2021). "The economic gains of closing the employment gender gap: Evidence from Morocco", (No. 2021/79). WIDER Working Paper.

Bargain, O., Jara, H. X. and Tasseva, I. (20204). “Automatic stabilization: the missing welfare dimension in Latin America”, LACIR, June 2024

Berniell, I., Berniell, L., de la Mata, D., Edo, M., & Marchionni, M. (2023, July). Motherhood and flexible jobs: Evidence from Latin American countries. *World Development*, *167*, 106225. https://doi.org/10.1016/j.worlddev.2023.106225

Blanchet, T., Flores, I. & Morgan, M. (2022). “The weight of the rich: improving surveys using tax data”. *Journal of Economic Inequality*, 20, 119–150. https://doi.org/10.1007/s10888-021-09509-3

Blau, F. D., & Kahn, L. M. (2017). The Gender Wage Gap: Extent, Trends, and Explanations, Journal of Economic Literature, 55(3), 789-865.

Bourguignon, F. and P.A. Chiappori (1992). "Collective Models of Household Behavior: An Introduction." European Economic Review, 36 (2-3):355-64

Bourguignon, F., Browning, M., Chiappori, P.-A., & Lechene, V. (1993). Intra Household Allocation of Consumption: A Model and Some Evidence from French Data. *Annales d’Économie et de Statistique*, *29*, 137–156. https://doi.org/10.2307/20075899

Browning, M., Bourguignon, F., Chiappori, P.-A., & Lechene, V. (1994). Income and Outcomes: A Structural Model of Intrahousehold Allocation. *Journal of Political Economy*, *102*(6), 1067–1096. http://www.jstor.org/stable/2138780

Brown, Caitlin, Rossella Calvi, and Jacob Penglase (2021). "Sharing the pie: An analysis of undernutrition and individual consumption in Bangladesh." *Journal of Public Economics*, 200: 104460.

Browning, M. (1995). Saving and the Intra-household distribution of income: An Empirical Invetigation Ricerche Economiche, 49(3), 277-292.

Burkhauser, R. V., Feng, S., Jenkins, S. P. and Larrimore, J. (2012). “Recent trends in top income shares in the USA: reconciling estimates from March CPS and IRS tax return data”. *Review of Economics and Statistics*, vol. 94, pp. 371–88.

Calvi, Rossella. (2020). "Why are older women missing in India? The age profile of bargaining power and poverty." *Journal of Political Economy* 128, no. 7, 2453-2501.

Calvi, Rossella, Jacob Penglase, Denni Tommasi, and Alexander Wolf (2023). "The more the poorer? Resource sharing and scale economies in large families." *Journal of Development Economics*, 160: 102986.

Casal, M. & Barham, B.. (2013). Motherhood wage penalties and labor market segmentation: Evidence from argentina. CEPAL Review. 2013. 57-78. 10.18356/2e1a4924-en.

Chiappori, P. A. (1992): "Collective Labor Supply and Welfare", *Journal of Political Economy*, 100, 437-467.

Christofides, L. N., Polycarpou, A., & Vrachimis, K. (2013). "Gender wage gaps, 'sticky floors' and 'glass ceilings' in Europe". Labor Economics, 21(C), 86-102.

Dang, H.-A. H. & Nguyen, C. V., (2020). Gender Inequality during the COVID-19 Pandemic: Income, Expenditure, Savings, and Job Loss. *IZA Discussion Papers.*

Deza, M. C., Gélvez, T, Gutierrez, D., Jara, H. X., & Rodriguez, D. (2024). Assessing the Effect of Fiscal Policies on the Gender Income Gap in Central America, Panama and the Dominican Republic. TECHNICAL NOTE No IDB-TN-2892

Doorley, K., Bercholz, M., Callan, T., Keane, C. & Walsh, J. (2018), The gender impact of Irish budgetary policy 2008-2018. *Economic and Social Research Institute (ESRI)*

Doorley, K., Keane, C. (2023) "Tax-benefit systems and the gender gap in income". *Journal of Economic Inequality*. https://doi.org/10.1007/s10888-023-09594-6

Dunbar, G., A. Lewbel and K. Pendakur (2013): "Children's Resources in Collective Households: Identification, Estimation and an Application to Child Poverty in Malawi", American Economic Review, 103,438-471

European Commission, Eurostat, Ponthieux, S. (2013). Income pooling and equal sharing within the household: what can we learn from the 2010 EU-SILC module? Publications Office. https://data.europa.eu/doi/10.2785/21993

Gallego-Granados, Patricia and Geyer, Johannes, Distributional and Behavioral Effects of the Gender Wage Gap (April 2015). DIW Berlin Discussion Paper No. 1469.

Gontero, S y E. Vezza, (2023) "Participación laboral de las mujeres en América Latina: contribución al crecimiento económico y factores determinantes", Documentos de Proyectos (LC/TS.2023/88), Santiago, Comisión Económica para América Latina y el Caribe (CEPAL).

Grimshaw, D. & Rubery, J. (2015). The motherhood pay gap: a review of the issues, theory and international evidence. (ILO - Conditions of Work and Employment Series No. 57) https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_348041.pdf

Güezmes, A., Scuro, L., & Bidegain, N. (2022). Gender equality and women's autonomy in the thought of ECLAC. El trimestre económico, 89(353), 311-338.

Güezmes Ana., (2021). "Brechas de género en el mercado laboral y los efectos de la crisis sanitaria en la autonomía económica de las mujeres". Revista CEPAL-Edición Especial.

Hupkau, c. & Petrongolo, B. (2020). Work, Care and Gender during the COVID-19 Crisis. *IZA Discussion Paper Series,* Issue 13762.

IDB (2013). "Recaudar no basta: Los impuestos como instrumento de desarrollo". Interamerican Development Bank: Washington, DC.

ILO (2018). Global Wage Report 2018/19. What lies behind gender pay gaps. Geneva, Switzerland: International Labor Organization.

ILO (2022a). "Proportion of informal employment in total employment by sex and sector (%), Annual, Series Id: SDG_0831_SEX_ECO_RT_A". Available via ILOSTAT explorer at: https://ilostat.ilo.org/data/#.

ILO (2022b). "Labor Force Participation Rate by Sex and Age (%), Annual, Series Id: EAP_2WAP_SEX_AGE_RT_A". Available via ILOSTAT explorer at: https://ilostat.ilo.org/data/#. (accessed on December 2021)

Jara, X. , Martín, F. , Montesdeoca, L. , Vera, L. , Colmenarez, M.G.(2023) SOUTHMOD country report Ecuador - ECUAMOD v4.2. Helsinki: UNU-WIDER. Helsinki: UNU-WIDER.

Jara, H. X., Deza, M. C., Oliva, N., and Torres, J. (2023). "Financial Disincentives to Formal Employment and Tax-Benefit Systems in Latin America", International Tax and Public Finance, 30, 69-113, https://doi.org/10.1007/s10797-021-09724-8

Quisumbing, A. R., & Maluccio, J. A. (2000). Intrahousehold Allocation and Gender Relations: New Empirical Evidence From Four Developing Countries., 84. https://doi.org/10.22004/ag.econ.16460

Lustig, N. (2017). "El impacto del sistema tributario y el gasto social en la distribución del ingreso y la pobreza en América Latina. Una aplicación del marco metodológico del Proyecto Compromiso con la Equidad (CEQ)". *El Trimestres Económico*, vol. LXXXIV (3), núm. 335, pp. 493-568.

Lustig, N., Martinez Pabon, V., and Pessino, C. (2023). Fiscal policy, income redistribution, and poverty reduction in Latin America. III Working Papers (115). International Inequalities Institute, London School of Economics and Political Science, London, UK.

Marchionni, M., Gasparini, L., & Edo, M. (2019). Brechas de género en América Latina. Un estado de situación. Caracas: CAF. Retrieved from https://scioteca.caf.com/handle/123456789/1401

Ñopo, H. (2012). New Century, Old Disparities: Gender and ethnics earning gaps in Larin America and the Caribbean. Inter-American Development Bank and The World Bank. doi:10.1596/978-0-8213-8686-6

OECD et al. (2021). "Revenue Statistics in Latin America and the Caribbean 2021", OECD Publishing, Paris, https://doi.org/10.1787/96ce5287-en-es.

Olivetti, C., & Petrongolo, B. (2008). "Unequal Pay or Unequal Employment? A Cross-Country Analysis of Gender Gaps". Journal of Labor Economics, 26(4), 621-654.

Ostry, J.D., J. Alvarez, R.A. Espinoza, and C. Papageorgiou. (2018). "Economic Gains From Gender Inclusion: New Mechanisms, New Evidence". IMF Staf Discussion Note.

Piras, C. & Ripani, L. (2005). The Effects of Motherhood on Wages and Labor Force Participation: Evidence from Bolivia, Brazil, Ecuador and Peru. BID Sustainable Development Department Technical papers series ; WID-109

Redmond, P., & McGuinness, S. (2019). "The Gender Wage Gap in Europe: Job Preferences, Gender Convergence and Distributional Effects". Oxford Bulletin of Economics and Statistics, 564-587.

Rodríguez, D. , Rojas, S. , Paredes, A. , Zapata, M. (2023) SOUTHMOD country report Colombia - COLMOD v2.3. Helsinki: UNU-WIDER. Helsinki: UNU-WIDER.

Rodríguez, D. et al. (2022) The role of tax–benefit systems in protecting household incomes in Latin America during the COVID-19 pandemic. WIDER Working Paper 2022/125. Helsinki: UNU-WIDER.

Rossignolo, D. (2018). "Equidad de género del sistema tributario en la Argentina: estimación de la carga fiscal desglosada por tipo de hogar". *Revista de la CEPAL,* Issue 124.

Torres, J. , Chang, R. (2023) SOUTHMOD country report Peru - PERUMOD v2.4. Helsinki: UNU-WIDER. Helsinki: UNU-WIDER.

Schober, Thomas & Winter-Ebmer, Rudolf (2009). "Gender Wage Inequality and Economic Growth: Is There Really a Puzzle?", IZA Discussion Papers 4323, Institute of Labor Economics (IZA)

Sutherland, H., & Figari, F. (2013). “EUROMOD: the European Union Tax-benefit Microsimulation Model”. International Journal of Microsimulation, 6(1), 4-26.

UNU-WIDER (2021) SOUTHMOD Modelling Conventions. WIDER Technical Notes 2021. Helsinki: UNU-WIDER.

Urquidi, M. & Chalup, M. (2023). The gender earning gaps in Latin America and the Caribbean: An analysis of its components. Technical Note IDB-TN-2650.

Vaca, I., (2019). “Indicadores que visibilizan las brechas de género en el mercado laboral”. Revista CEPAL-Edición Especial. Santiago, Chile.

Villanueva, A., & Lin, K. H. (2020, September). Motherhood Wage Penalties in Latin America: The Significance of Labor Informality. *Social Forces*, *99*(1), 59–85. https://doi.org/10.1093/sf/soz142

Xu, Z. (2007). “A survey of intra-household models and evidence”. Munich RePEc Archive, MRPA No. 3763

Appendix A.

Table A.1. Main Characteristics of Personal Income Tax in the Countries under Analysis (2019)

Country	Tax Unit	Lowest tax band limit	Highest tax band limit	Lowest tax rate (%)	Highest tax rate (%)	Taxpayers (% of Population)	Tax deductions
Argentina	individual	5	31	5	35	6.67	Family charges (children and partner not earning incomes); general deductions (expenditures in health, housing rental, among others); special deductions for labor income
Bolivia	individual	-	-	13 (flat)	-	1.13	All billed expenditures
Colombia	individual	3.75	107	0	39	1.95	Expenditures in education, health, mortgage payments, expenditures on dependent relatives
Ecuador	individual	2.4	24.4	0	35	2.95	Expenditures in food, clothing, education, health, and housing
Mexico	individual	0.18	93.1	1.92	35	38.97	Expenditures in education, health, funeral, expenditures on dependent relatives
Peru	individual	2.6	19.6	8	30	6.27	Billed expenditures in rent, and specific services (up to a limit)
Uruguay	individual	1.9	382	0	36	22.84	Children charges

Source: Authors' formulation based on the 2019 legislation of personal income tax, the legal minimum wages in each country, each country dataset, and the SOUTHMOD country report for Bolivia (see Arancibia, C., and Macas, D. (2023))

Note: Tax bands are expressed in terms of annualized minimum wages in each country. The tax rates refer to marginal tax rates.The "Taxpayers (% of Population)" column refers to estimates of the proportion of people over 18 years of age who pay income based on "*household survey*" data considering the minimum income required to pay income taxes.

Table A.2. Characteristics of Employee Social Insurance Contributions in the Countries under Analysis (2019)

Country	Rate	Floor	Ceiling	Tax deductible
Argentina	17%	17% of $4499.95 (93 USD, 27% of the minimum wage	17% of $146246.86 (3031 USD,8,7 minimum wages)	Yes
Bolivia	12.71% + surcharges of 1%, 5% or 10% on income that exceeds 6 minimum wages	12.71% of the minimum wage		Yes
Colombia	8%+surcharges of 1% to 2% when income exceeds 4 minimum wages	8% of minimum wage	10% of 25 minimum wages	Yes
Ecuador	9.45% or 11.45%	9.45% of minimum wage		Yes
Mexico	1.1% or 6.1%	1.1% of minimum wage in private sector and 6.1% of minimum wage in public sector	1.1% of 20.5 minimum wages in private sector and 6.1% of 8.2 minimum wages in public sector	Yes
Peru	13%	13% of minimum wage		No
Uruguay	Between 13% and 17.9%, depending on the category of the worker and the retirement fund. In the general case is 15%.	It depends on the retirement fund. It is limited by the minimum wage	It depends on the retirement fund. The retirement contribution is limited, the health contribution is not	Yes

Source: Authors' formulation based on the 2019 legislation of employee social insurance contributions in each country

Table A3. Characteristics of Self-employed Social Insurance Contributions in the Countries under Analysis (2019)

Country	Rate	Floor	Ceiling	Tax deductible
Argentina	Fixed amount depending on the category of the worker and the gross income. There are two subsystems: "autónomos" (5 categories depending on the activity and income) and "monotributistas" (small taxpayers)	344.5 (7 USD, 2% of the minimum wage)	4799.89 (99.5 USD, 28.4% of the minimum wage)	Yes
Bolivia	14.42% + surcharges of 1%, 5% or 10% on income that exceeds 6 minimum wages	14.42% of the minimum wage		Yes
Colombia	28.5%+surcharges of 1% to 2% when income exceeds 4 minimum wages	28.5% of minimum wage	30.5% of 25 minimum wages	Yes
Ecuador	20.6%	20.6% of minimum wage		Yes
Mexico	7.98%	7.98% of minimum wage	7.98% of 20.5 minimum wages	Yes
Peru	Fixed amounts depending on age	15% of minimum wage	23% of minimum wage	No
Uruguay	Fixed amount depending on the category of the worker and the retirement fund. There are 6 systems depending on the activity and the firm size			Yes

Source: Authors' formulation based on the 2019 legislation of self-employed social insurance contributions in each country

Table A4. Simulated Social Programs

Country	**Name**	**Description**	**Payment**	**Explicitly Targeted to Women**
Argentina	**Asignación Universal por hijo (AUH)**	Conditional payment for each son or daughter under the age of 18, or for those with a disability (up to 5 children), belonging to an unemployed or informal worker family group	Monthly payment of $2,652 per child (16% of the minimum wage) or $8,642 if the child is disabled (51% of the minimum wage)	Yes. The program prioritizes payments to mothers
	Tarjeta Alimentar (from 2020)	For families that receive AUH when the children are under 6 years old, and for women who receive a pension for being mothers of 7 or more children.	Monthly payment of $4000 (24% of the minimum wage) or $6000 (36% of the minimum wage)	Yes. The program prioritizes payments to mothers

Bolivia	**Juana Azurduy**	For pregnant women, and mothers of children under 2 years old without health coverage.	Cash transfer that includes 200 bs annually for 4 annual check-ups, a bonus of 120 bs for birth and 4 payments for each bimonthly check-up for children under 2 years of age (750 bs). The equivalent transfer amount is 4% of the annualized minimum salary	Yes
Colombia	**Familias en Acción**	Aimed at increasing educational and health attainment for children under 18 years and living in poverty.	The educational component varies between $77,007 and $89,808, depending on the location, and the health component varies between $109,098 and $160,402. The total transfer varies between 13% and 19% of the minimum wage	Yes
Ecuador	**Bono de Desarrollo Humano**	Aimed at families who live in extreme poverty and belong to one of these groups: (i) families with children, (ii) the elderly without contributory pensions, and (iii) persons with disability who do not receive contributory benefits.	The transfer is made up of a bonus for children (50 USD, 13% of the minimum wage), with an additional of 30 USD for the first child under 5 years old, 27 USD for the second and 24.3 for the third; an additional amount of 8, 9 or 10 USD for children between 5 and 18 years old. The old age bonus is 100 USD (25% of the minimum wage) and the disability bonus is 50 USD (13% of the minimum wage)	Yes. The component for families is paid to mothers.
Peru	**Juntos**	Targets households in poor socioeconomic conditions	Bi-monthly cash transfer (26.8% of the minimum	The program prioritizes the

		with children under 19 years old.	wage, every two months)	mother as the main beneficiary.
Uruguay	**Asignaciones Familiares del Plan Equidad**	Aimed at children and adolescents from households in a vulnerable socioeconomic situation.	The transfer is made up of a basic amount of $1,615 per child (11% of the minimum wage) and a complementary amount of $692 per child (5% of the minimum wage).	Yes. The program prioritizes payments to mothers

Source: Authors' formulation based on the 2019 legislation of self-employed social insurance contributions in each country

Appendix B. Covid Policies per Country

Argentina

Several Covid-related policies were introduced: i) reinforcement of monetary transfers: an extraordinary payment of $3,100 for beneficiaries of the AUH and of $4,000 or $6,000 (depending on the number of children) for the beneficiaries of the *Tarjeta Alimentar*; ii) a bonus for pensioners of the amount necessary to reach $18,892; iii) a new cash transfer called Emergency Family Income (IFE) of $10,000, for the unemployed, informal workers and small contributors aged 18 to 65, who did not receive other family income (with the exception of the AUH); iv) a reduction of a monthly payment in the social security contribution for workers registered in the lowest categories of the small contributor's regime (Monotributo); and v) other measures, which included compensatory salary allocations to employees of companies in sectors of critical activities, setting maximum prices for basic necessities, different types of credits for companies and workers, prohibition of dismissals and the extraordinary tax on large fortunes.

Bolivia

The government implemented four cash transfer programs: i) *Bono Familia* (Bs 500, March-June 2020), for students in the initial, primary and secondary cycles in public or private schools, and students enrolled in the alternative and special education subsystems; ii) *Bono Canasta Familiar* (Bs 400, March-June 2020) for elders receiving the *Renta Dignidad* bond, mothers and children enrolled in the *Bono Juana Azurduy* program, and people with disabilities; iii) *Bono universal* (Bs 500, March-June 2020) for people aged between 18 and 60 who did not earn income from public or private sectors and did not receive other transfers; iv) *Bono contra el Hambre* (Bs 1000, Dec 2020-May 2021) for people who did not earn income from public or private sectors, people aged between 18 and 60, people with disabilities, mothers enrolled in the *Bono Juana Azurduy* programme, independent affiliates of the pensions system, and workers affiliated with the Mining Cooperative System.

Colombia

Covid-related policies consisted of different types of measures: i) a bonus for beneficiaries of Familias en Acción, Jóvenes en Acción, and Colombia Mayor; ii) a cash transfer for Households

not covered by the main social programs; iii) a VAT refund for the beneficiaries of the main social assistance programs, to mitigate the regressivity of value-added tax on households living in poverty and extreme poverty; iv) changes in the unemployment subsidy targeted to formal workers who made payments to Family Compensation Fund; v) transitory tax for government officials or pensioners with monthly incomes higher than 10 million Colombian pesos; and vi) a reduction in pension contribution rates for self-employed workers, employees and employers.

Ecuador

The main policy introduced was the Family Protection Grant (*Bono de Protección Familiar*). The program consisted of a cash transfer of US$120 paid in two monthly instalments (i.e., US$60 each month) and targeting two population groups under a two-stage process. In the first stage, the poorest 400,000 households in the country were targeted ,and payments were made in April and May 2020. In the second stage, the program targeted 500,000 additional households, excluding stage one beneficiaries, with payments made in May and June 2020.

Peru

The Peruvian government implemented four cash transfer policies that aimed at providing support to face the lockdown and possible loss of employment: i) *Bono Independiente*, ii) *Bono Rural*, iii) *Bono Yo me Quedo en Casa*, and iv) *Bono Familiar Universal*. The objective of these programs was to benefit households living in poverty and extreme poverty according to the SISFOH (*Sistema de Focalización de Hogares*). They were paid in the second quarter of 2020, with almost all receiving a one-time transfer of PEN S/760 in an effort to benefit/cover different groups: self-employed workers, poor households living high-risk areas, households living in rural areas, and households without formal income.

Uruguay

The government implemented five different policies: i) a reinforcement of the monetary transfers to the beneficiaries of the main assistance programs (*Asignaciones Familiares del Plan de Equidad* and *Tarjeta Uruguay Social*, April 2020-December 2021); ii) a monetary transfer for the unemployed or informal workers who are not beneficiaries of any other social program; iii) a self-employed workers subsidy, for the poorest self-employed formal workers; iv) a partial unemployment subsidy: for private formal workers with partial unemployment, implying a 50

percent reduction in working time and the consequent reduction in labor income, with the benefit amount defined as 25 percent of gross income before reduction; and v) a temporary tax for public workers with monthly incomes higher than $120,000 (US$2,857- April and May 2020).

Mexico

No Covid-specific policies were introduced by the Mexican government. In 2020, the only policy introduced was *Crédito a la palabra* consisting of a single loan payment for business, to be repaid in three years with an annual interest rate of 6.5 percent.

Appendix C

Table C.1. Contribution of Different Income Components to Individual Disposable Income, by Quintile and Gender in 2019

	Female						Male					
Quintile	Labor Income	Non-Labor income	Social Insurance Cont.	Benefits	Pensions	Income Tax	Labor Income	Non-Labor income	Social Insurance Cont.	Benefits	Pensions	Income Tax
						Argentina						
1	45.9%	5.9%	-3.2%	43.3%	8.2%	0.0%	100.2%	1.0%	-6.5%	2.3%	3.1%	-0.1%
2	71.5%	7.3%	-6.4%	18.5%	9.1%	0.0%	105.2%	0.6%	-9.4%	1.2%	2.6%	-0.1%
3	92.3%	6.7%	-11.1%	5.4%	6.9%	-0.1%	107.4%	1.2%	-12.0%	0.4%	3.4%	-0.2%
4	101.9%	6.6%	-13.7%	1.6%	4.0%	-0.4%	109.4%	2.4%	-13.9%	0.3%	2.5%	-0.8%
5	105.7%	7.8%	-14.7%	0.5%	5.1%	-4.3%	110.0%	7.3%	-14.0%	0.1%	3.0%	-6.4%
						Bolivia						
1	74.2%	23.1%	-1.0%	3.1%	0.7%	0.0%	102.2%	-1.8%	-1.3%	0.8%	0.2%	0.0%
2	77.4%	21.3%	-1.6%	2.0%	1.0%	0.0%	99.5%	1.5%	-2.0%	0.8%	0.3%	0.0%
3	85.6%	15.1%	-2.7%	0.9%	1.2%	0.0%	100.3%	1.4%	-3.2%	0.6%	1.0%	0.0%
4	91.9%	9.7%	-3.7%	1.0%	1.2%	0.0%	100.8%	2.0%	-4.1%	0.7%	0.7%	0.0%
5	92.9%	10.8%	-6.2%	0.7%	1.9%	-0.2%	101.6%	3.4%	-6.3%	0.4%	1.4%	-0.5%
						Colombia						
1	48.9%	25.6%	-1.9%	26.6%	0.8%	0.0%	94.4%	5.0%	-2.0%	2.3%	0.3%	0.0%
2	67.5%	19.2%	-2.8%	14.8%	1.3%	0.0%	98.0%	3.3%	-3.4%	1.4%	0.8%	0.0%
3	82.8%	14.1%	-4.4%	5.6%	1.8%	0.0%	98.7%	3.7%	-4.7%	0.8%	1.5%	0.0%
4	92.0%	11.4%	-5.9%	0.2%	2.4%	0.0%	98.7%	4.6%	-5.7%	0.1%	2.3%	0.0%
5	96.0%	10.2%	-7.5%	0.0%	3.3%	-2.0%	101.7%	6.3%	-7.5%	0.0%	2.4%	-3.0%

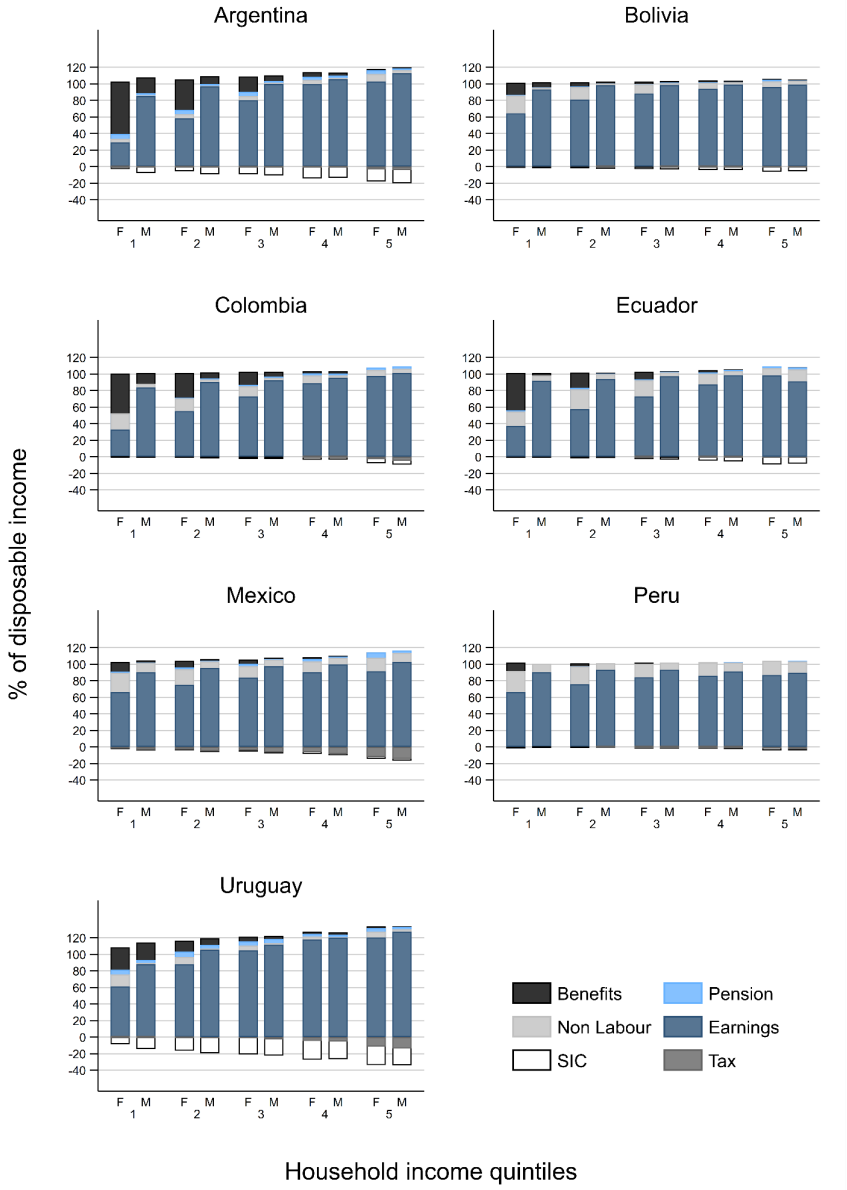
	Female						Male					
Quintile	Labor Income	Non-Labor income	Social Insurance Cont.	Benefits	Pensions	Income Tax	Labor Income	Non-Labor income	Social Insurance Cont.	Benefits	Pensions	Income Tax
						Ecuador						
1	42.8%	17.8%	-1.0%	38.1%	2.2%	0.0%	93.3%	7.3%	-1.6%	0.7%	0.2%	0.0%
2	65.1%	20.3%	-1.9%	14.8%	1.7%	0.0%	95.1%	6.8%	-2.7%	0.3%	0.5%	0.0%
3	79.6%	15.4%	-3.4%	5.5%	2.9%	0.0%	98.3%	4.9%	-4.0%	0.2%	0.5%	0.0%
4	89.9%	12.5%	-5.4%	1.1%	1.9%	0.0%	99.5%	5.2%	-5.6%	0.0%	0.8%	0.0%
5	98.1%	10.0%	-8.3%	0.1%	1.8%	-1.6%	100.0%	7.1%	-8.2%	0.0%	3.2%	-2.0%
						Mexico						
1	64.6%	20.4%	0.4%	16.1%	1.2%	1.9%	92.7%	8.5%	-0.8%	2.1%	0.4%	-3.0%
2	79.0%	14.8%	0.8%	8.4%	1.3%	2.8%	96.5%	7.1%	-1.2%	1.7%	0.6%	-4.7%
3	85.8%	12.8%	1.2%	4.7%	2.0%	4.1%	98.8%	6.4%	-1.5%	1.4%	0.9%	-6.1%
4	92.6%	10.5%	1.8%	1.2%	3.0%	5.6%	100.2%	7.0%	-1.7%	1.0%	1.5%	-8.0%
5	94.9%	13.2%	2.2%	0.2%	5.7%	11.8%	102.2%	11.6%	-1.9%	0.2%	2.2%	-14.4%
						Peru						
1	68.1%	18.6%	-1.2%	14.5%	0.0%	0.0%	96.7%	3.8%	-0.6%	0.0%	0.1%	0.0%
2	80.9%	17.5%	-1.7%	3.3%	0.1%	0.0%	96.7%	4.1%	-1.0%	0.0%	0.2%	0.0%
3	85.3%	15.6%	-2.0%	0.9%	0.2%	0.0%	96.3%	5.1%	-1.5%	0.0%	0.2%	0.0%
4	89.4%	13.1%	-2.8%	0.2%	0.1%	-0.1%	94.4%	7.0%	-1.6%	0.0%	0.5%	-0.3%
5	90.8%	13.4%	-2.2%	0.0%	0.2%	-2.3%	91.8%	11.2%	-1.4%	0.0%	0.9%	-2.5%
						Uruguay						
1	70.9%	21.0%	-8.6%	9.4%	7.2%	-0.1%	100.4%	1.9%	-13.1%	6.8%	4.0%	-0.1%
2	93.2%	9.6%	-15.0%	5.8%	6.7%	-0.2%	108.9%	0.8%	-17.6%	4.1%	4.9%	-1.2%
3	105.1%	5.5%	-18.9%	4.6%	4.9%	-1.2%	112.1%	0.9%	-19.0%	3.8%	4.8%	-2.6%
4	112.4%	5.2%	-20.7%	3.0%	3.6%	-3.6%	116.3%	1.2%	-19.8%	3.7%	3.6%	-5.0%
5	120.4%	6.5%	-21.4%	2.8%	3.4%	-11.8%	126.4%	2.4%	-19.6%	2.3%	2.9%	-14.2%

Table C.2. Gender Composition for Each Decile Group
(percentage of women by per capita household disposable income decile)

	1	2	3	4	5	6	7	8	9	10	Total
Argentina	56.9%	54.8%	53.1%	52.3%	50.4%	52.0%	51.1%	47.9%	49.4%	47.9%	51.4%
Bolivia	53.8%	55.3%	54.1%	53.2%	53.3%	53.7%	51.7%	49.4%	50.1%	45.1%	51.6%
Colombia	56.3%	54.2%	53.5%	52.3%	52.7%	51.8%	50.8%	49.4%	46.8%	48.2%	51.2%
Ecuador	53.0%	55.4%	54.2%	52.6%	51.8%	52.1%	50.9%	50.5%	48.0%	48.3%	51.4%
Mexico	56.4%	55.7%	54.7%	53.9%	53.8%	52.0%	50.9%	50.5%	50.6%	49.4%	52.5%
Peru	53.5%	56.0%	54.9%	53.6%	53.7%	52.3%	51.5%	50.6%	50.3%	48.2%	52.2%
Uruguay	55.8%	53.9%	52.6%	51.2%	50.6%	50.6%	49.4%	49.1%	48.2%	48.5%	50.8%

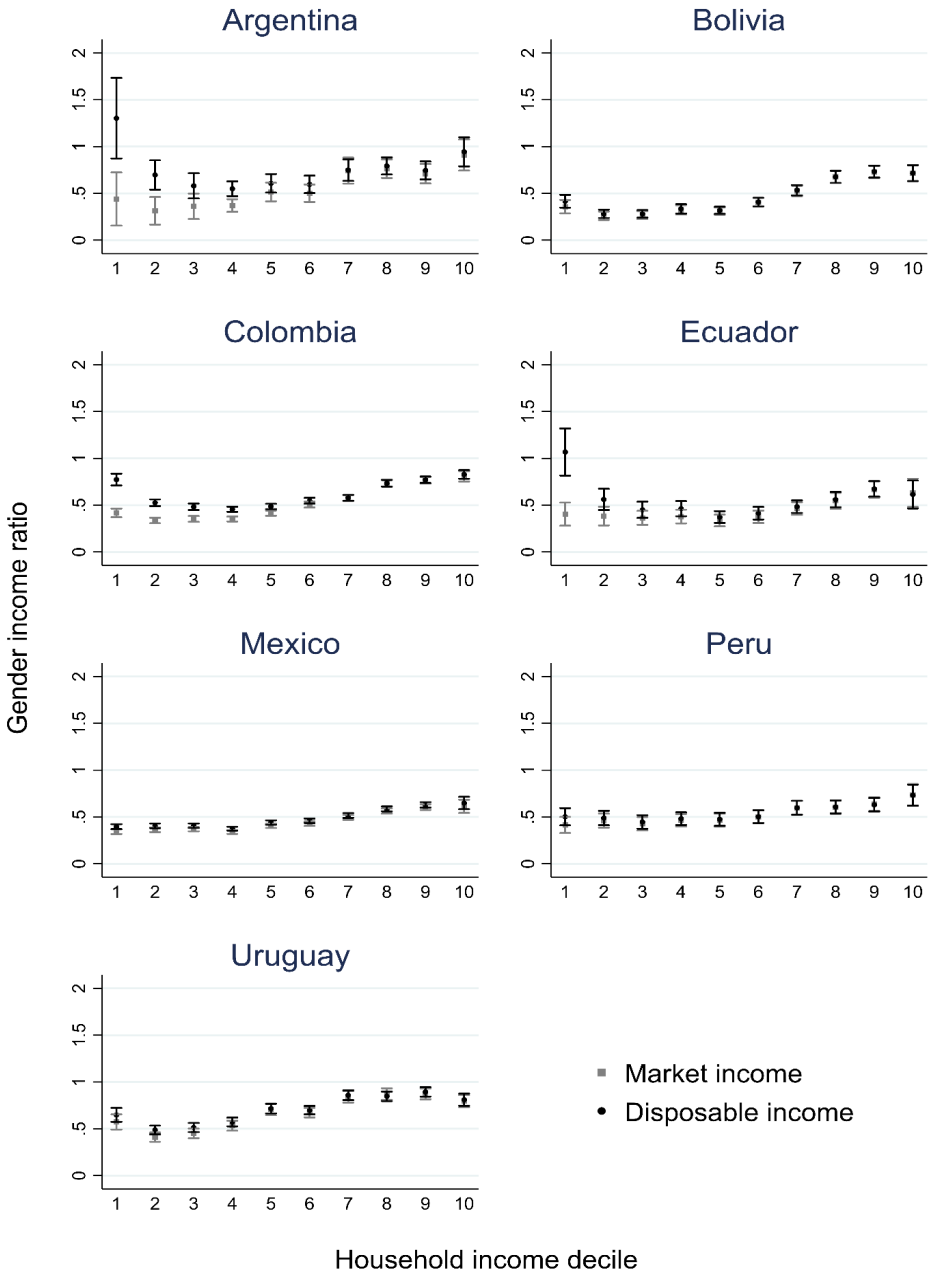
Appendix D.

Figure D.1. Disposable Income Components, by Gender and Income Quintiles, 2020



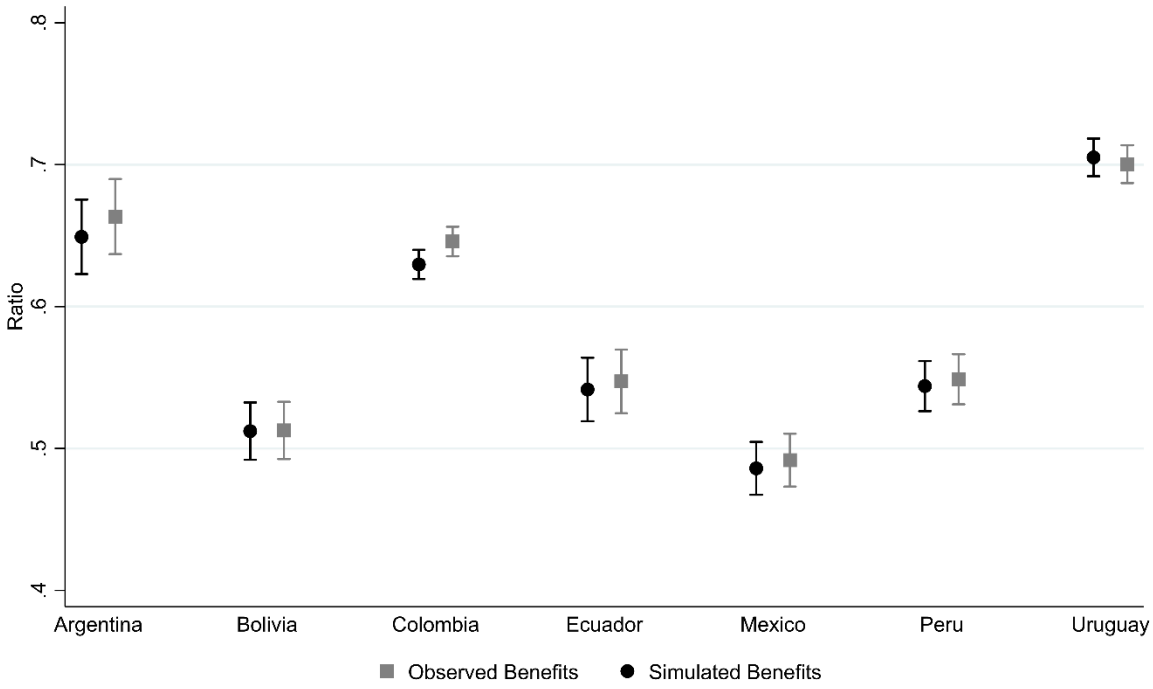
Source: Authors' formulation based on microsimulation models.
Note: Income quintiles are calculated based on per capita household disposable income. F stands for female; M stands for male.

Figure D.2. Market Income and Disposable Income Gender Ratios (women's average income / men's average income) by Household Disposable Income Deciles, 2020



Source: Authors' formulation based on microsimulation models.
Note: The sample considers individuals between the ages of 18 and 60 years old. 95% confidence intervals presented.

Figure D.3. Disposable Income Gender Ratios with Observed and Simulated Benefits, 2019



Source: Authors' formulation based on microsimulation models.
Note: The sample considers individuals between the ages of 18 and 60 years old. 95% confidence intervals presented.