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Gender and Income Distribution in a High-Informality Context: A CEQ-Based Analysis for Colombia

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Abstract

This study assesses the extent to which Colombia's our analysis assesses how fiscal policy is associated with changes in measured headship gaps in income and poverty. Using the fiscal incidence methodology developed by the Commitment to Equity (CEQ) Institute and household survey data from 2023, the analysis identifies structural disparities. Households headed by women exhibit a poverty rate 9.3 percentage points (p.p.) higher than those headed by men. And this gap narrows to 5.9 p.p. after controlling for factors such as reliance on informal job earnings and the presence of dependents. Although fiscal policy instruments reduce the gross income gap between these households (from 14.1% to 11.2%), its effect on the conditional poverty gap is marginal, decreasing it only from 5.9 p.p. to 5.5 p.p. The findings underscore the need for more inclusive policies that recognize and address vulnerabilities arising from the intersection of gender, informality, and household structure.

Keywords: Fiscal Policy, Inequality, Poverty, Informality, Unpaid Work, Care Responsibilities.

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Résumé

Cet article analyse, dans le cadre de l'approche CEQ, la contribution de la politique fiscale colombienne à la réduction des inégalités et de la pauvreté selon les typologies de ménages par genre. Les ménages sont classés par revenu pré-fiscal — défini comme le revenu du marché majoré des pensions contributives (MI+P) — puis nous suivons la séquence CEQ (MI+P – revenu du marché net – revenu disponible – revenu consommable). Nous décomposons l'effet redistributif par instrument à l'aide de contributions marginales de type Shapley et examinons trois mécanismes : (i) la couverture, (ii) la générosité des prestations et des prélèvements, et (iii) le taux de recours effectif. Les résultats montrent que la politique fiscale réduit l'écart de pauvreté entre ménages dirigés par des femmes et par des hommes, sans toutefois l'annuler ; les transferts monétaires expliquent l'essentiel de la réduction, tandis que les impôts indirects en atténuent une partie. Les conclusions sont robustes à des hypothèses alternatives sur le traitement des pensions (PDI/PGT). Nous en discutons les implications de ciblage et de conception des instruments dans un contexte d'informalité élevée et de charges de soins non rémunérées.

Mots-clés: Incidence fiscale , Politique fiscale , Transferts sociaux , Impôts indirects , Inégalités , Pauvreté , Genre , Informalité.

1. Introduction

The design of equitable fiscal policies faces the dual challenge of reducing poverty and addressing persistent structural inequalities. While fiscal policy can help reduce income inequality, it does not necessarily lead to lower poverty levels. For instance, as shown by Lustig (2016), some individuals living in poverty may become net contributors to the fiscal system and be further impoverished, primarily due to consumption taxes. Moreover, policy instruments aimed at poverty reduction, particularly cash transfers, can influence women's labor market participation and the nature of their employment. As noted by Díaz-Pardo and Rao (2024), the design of these transfers—such as their size, frequency, and conditionalities—may have implications for women's involvement in informal labor markets, especially when interacting with local gender norms and labor market structures.

In this sense, a rigorous analysis of fiscal incidence from a gender perspective requires going beyond the accounting of taxes and transfers to first understand the underlying determinants of these gaps. Gender inequalities have an idiosyncratic dimension linked to the economic and socio-cultural structures of the countries studied. Factors such as labor market segmentation, the prevalence of informal employment, and, crucially, gender norms that assign women a disproportionate share of unpaid care work shape the context in which fiscal policy operates (Amjad et al., 2024; Arora and Rada, 2020; Lustig et al., 2025). Therefore, the effectiveness of fiscal instruments in promoting equity is conditioned by labor market and cultural dynamics, which may constrain or even reverse their intended effects.

In Latin America, high care burdens and gender gaps in income and labor market participation have been identified as key determinants of poverty traps in the region (Marchionni et al., 2019). According to CEPAL (2021), women in Latin America spend three times as much time as men on unpaid work, which restricts their participation in the formal labor market and increases their exposure to poverty. In Colombia, compared to men, women face heavier unpaid work responsibilities, lower labor income, and higher poverty rates (Iregui-Bohórquez et al., 2025; DANE - ONU Mujeres Colombia, 2020; Tribín-Uribe et al., 2022).

This article analyzes the redistributive role of fiscal policy, understood as the system of taxes and transfers, in reducing gender gaps in income and poverty in Colombia. To this end, it uses household survey microdata and applies a microsimulation methodology within a model based on the *Commitment to Equity* (CEQ) approach[1]. Using this information, the analysis documents income and poverty gaps both in the general population and among vulnerable groups, with particular emphasis on the role of gender in shaping such vulnerability. It then examines the incidence of the fiscal system on gender gaps according to household typologies.

The paper presents two main findings. First, there are significant gaps in the incidence of monetary poverty between male- and female-headed households, which vary according to their characteristics. In the absence of redistributive fiscal policy, female-headed households have a poverty rate 9.3 percentage points

[1]Commitment to Equity (CEQ) approach developed by the CEQ Institute at Tulane University and described in Lustig (2022). In section 3.2 we explain in detail how we relate to CEQ modelling.

(p.p.) higher than male-headed households (48.3% and 38.9%, respectively). Furthermore, the results suggest that the greater vulnerability of female-headed households is associated with unfavorable productive conditions and limited access to quality employment. When accounting for differences in educational attainment, age, geographic location, presence of dependents, and reliance on informal income, the gap narrows to 5.9 p.p.

Second, although fiscal policy instruments contribute to reducing income gaps, they are not sufficient to eliminate inequalities in vulnerability to poverty among households based on headship. When comparing income and poverty gaps before and after applying taxes and transfers, the analysis reveals significant limitations in the Colombian fiscal system's ability to address these inequalities. For instance, female-headed households receive gross incomes that are 14.1% lower than those of male-headed households; this difference narrows to 11.2% once transfers are taken into account. Similarly, the poverty vulnerability gap decreases slightly, from 5.9 p.p. to 5.5 p.p., when all fiscal components are included. Although these instruments yield positive effects, their impacts remain limited.[2]

This study contributes to the growing literature that applies the CEQ methodology through a gender lens, underscoring the limits of aggregate fiscal analyses in capturing intra-household inequalities and the unequal burden of care work (Greenspun and Lustig, 2013; Greenspun, 2019; Robayo-Abril et al., 2024; Rodriguez Takeuchi et al., 2024). By jointly considering gender, labor informality, and care responsibilities, we extend prior analyses for Colombia (Nuñez and Lasso, 2023; Nuñez et al., 2020; Lustig and Meléndez, 2015; Baquero et al., 2023) by integrating these three dimensions within a single framework. This approach sharpens the classification of households, as advocated by Fuchs Tarlovsky and Gonzalez Icaza (2023), and shows how fiscal policy can inadvertently reinforce structural gaps when women remain excluded from formal employment and from effective access to public transfers.

By incorporating household structure and multiple fiscal instruments, the paper also contributes to the public economics literature on the distributive effects of fiscal policy across households (Alves et al., 2024; Bastani, 2013). Although the CEQ approach is static and does not model behavioral responses, it provides a unified accounting framework that moves beyond the representative couple-based household. For example, it highlights the vulnerability of single-parent households, typically headed by women, in settings with high labor informality.[3] By explicitly identifying priority groups for public action—informal households, female-headed households, and those with dependents—the analysis yields concrete recommendations for designing more inclusive and equitable fiscal policies.

In Colombia's 2023 policy context—marked by a transition in social programs and transfers[4]—the CEQ-based incidence exer-

[2] It should be highlighted that most of these fiscal and social policies were initially conceived for the general goals of income redistribution and poverty alleviation, rather than with the explicit aim of closing gender gaps. Nevertheless, recent efforts have sought to integrate gender equity considerations into policy design and targeting mechanisms. This trend is especially prominent in conditional cash transfer programs, which now often prioritize female-headed households in recognition of their heightened structural vulnerability.

[3] By not considering behavioral responses, static analyses do not answer normative questions about the optimal tax structure under different intra-household bargaining powers (Lustig et al., 2025).

[4] In particular, the replacement of *Familias en Acción* by *Tránsito a Renta Ciudadana*, the roll-out of *Renta Joven*, and the scaling-up of the VAT compensation.

cise is informative about *who* benefits and *where* burdens concentrate. In our data, headline headship gaps remain large; fiscal instruments reduce the gross-income gap but have only modest effects on the conditional poverty gap once informality and dependents are taken into account. The analysis therefore evaluates incidence rather than the fulfillment of an explicit gender objective in fiscal design.

The remainder of the document is organized as follows. Section 2 provides an overview of gender gaps in time use and labor market participation in Colombia, along with a description of the country's tax and transfer system. Section 3 outlines the CEQ methodology employed in the analysis. Section 4 presents the main findings. Finally, Section 5 discusses the conclusions and policy implications.

2. Context

2.1. Care Burdens, Informality, and Gender

During the 20th century, Colombia underwent profound social transformations, particularly regarding gender dynamics. Between the mid-1960s and the following thirty years, there was a notable shift in the situation of women: from a context marked by high fertility, low levels of schooling, and limited labor market participation, to one characterized by lower fertility rates, a significant increase in female enrollment in higher education, even surpassing male enrollment, and sustained growth in women's labor participation in major urban areas (Iregui-Bohórquez et al., 2024, 2025).

Despite increasing their participation in the labor market, women remain primarily responsible for unpaid work (DANE, 2021, 2022; Tribín et al., 2022). International literature agrees that, globally, women bear a greater share of these tasks compared to men (Arora and Rada, 2020; Charmes, 2019; Hernando, 2022). This unequal distribution is linked to traditional gender norms, which assign women the role of caregivers and men the role of economic providers (Arora and Rada, 2020).

Data from Colombia's National Time Use Survey (ENUT) confirm that the burden of domestic and unpaid care work falls disproportionately on women. On average, women devote over 60% more daily time to these tasks (7.76 hours) than men (4.69 hours) (Figure 1). This gap remains consistent across different levels of education (Figure 2a) and becomes wider in households with dependent minors (Figure 2b).

The distribution of unpaid work remains unequal even when women are the main economic providers in the household. Even when they contribute 100% of the family income, they continue to perform more than 60% of care work (Tribín et al., 2022). Similarly, in households where the woman earns more than her partner, the domestic work gap increases by approximately one hour per day, significantly reducing her leisure time (Salazar Díaz, 2021). This highlights the persistence of social norms that assign women the primary caregiving role—norms that are not substantially altered by increased labor market participation or income. This double burden contributes to widening the leisure time gap between men and women (Hochschild and Machung, 2012).

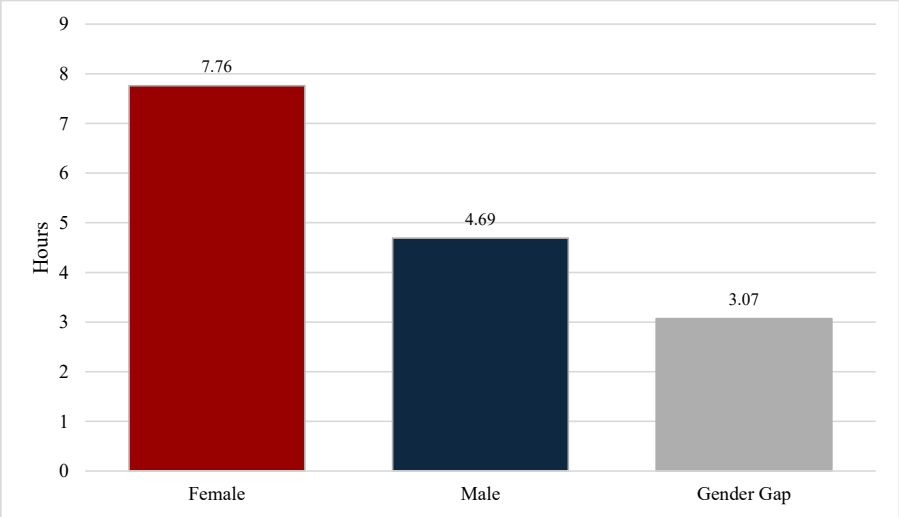
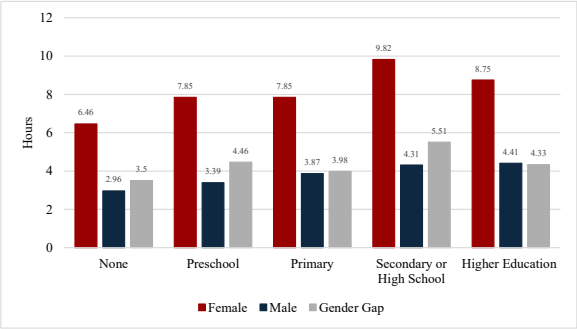
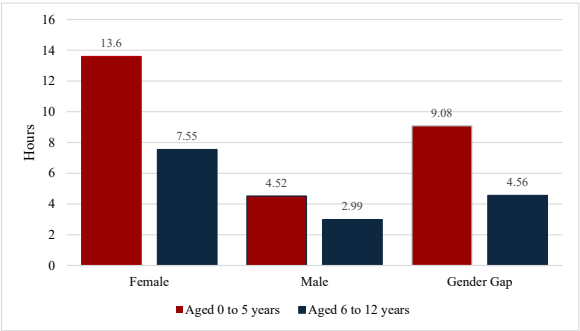


Figure 1: Hours of Unpaid Work by Sex



(a) Hours of Unpaid Work by Sex and Education Level



(b) : Hours of Unpaid Work in Households with Minors

Figure 2: Hours of Unpaid Work by Sex and Household Characteristics

These dynamics in the unequal distribution of care responsibilities lead many mothers to leave formal employment or enter informal occupations. This reality not only limits their professional development opportunities but also perpetuates gender gaps in access to income and social protection. The rigidity of formal employment and the challenges of balancing work and family life prompt many women to choose informal jobs, which offer greater flexibility to care for children or other dependent family members (Ramírez-Bustamante, 2019).

Motherhood significantly reduces both the likelihood of formal employment and labor income. More than a decade after childbirth, mothers have a 9% lower probability of being formally employed than women without children. In contrast, no long-term effects of fatherhood are observed for men (Gallego et al., 2025). Moreover, women with children experience a persistent increase in the likelihood of entering the informal sector. Eighteen years after the birth of the first child, the informality rate among these women increases by approximately 33%, the share of self-employed women rises by 34%, and the share of salaried women decreases by 16%. These findings underscore the persistence of structural barriers that con-

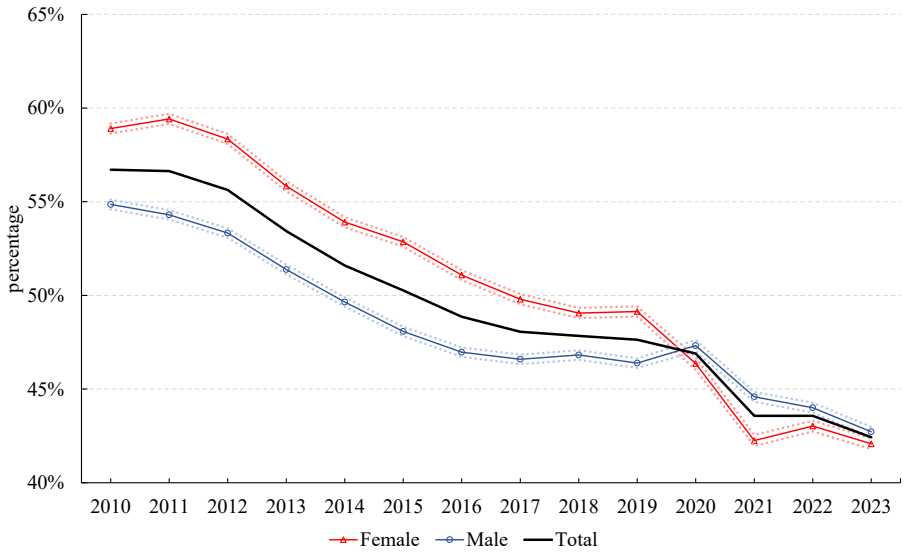


Figure 3: Informality Rate by Sex, 2010–2023. *Note*: *Lines show series for females, males, and total; no confidence intervals are plotted.*

strain women's labor opportunities throughout their life course (Caro Guevara, 2023).

The data show that time gaps in unpaid care work persist even when women attain higher levels of education (Addati et al., 2022). In Colombia, for instance, women with tertiary education continue to spend significantly more time on unpaid care work than their male counterparts, suggesting that education does not fully offset the constraints imposed by caregiving responsibilities (Iregui-Bohórquez et al., 2024, 2025).

Figure 3 shows that between 2010 and 2020, women in Colombia consistently exhibited higher labor informality rates than men. However, this trend reversed with the onset of the COVID-19 pandemic. During the 2020 and 2021 lockdowns, informality rates dropped sharply due to the destruction of informal jobs and the withdrawal of many women from the labor market to assume unpaid care responsibilities. As a result, the women who remained economically active were primarily those in formal employment with access to telework, which lowered the female share of informal employment.

This shift in labor market composition was not merely transitory. Beginning in 2022, women began re-entering the labor market, with increases in labor force participation and employment that outpaced those of men—particularly in Colombia's five main cities: Bogotá, Medellín, Cali, Barranquilla, and Bucaramanga. This trend is explained by the recovery of traditionally feminized sectors such as commerce, hospitality, and tourism, as well as by the expansion of telework in administrative occupations, where women are overrepresented. Additionally, women in Colombia have, on average, higher educational attainment than men, which improves their chances of securing formal employment. Nevertheless, the decline in the overall informality rate has slowed since 2021. In particular, informality among women increased in 2022, and by 2023, their rate had once again converged with that of men, reaching approximately 42%.

These patterns point to a mechanism that reinforces disadvantages for households headed by women or where women are the primary earners—one that links care burdens and labor

informality. The demands of unpaid care may push women to prioritize flexibility, leading them to accept more vulnerable and lower-paying jobs in the informal sector.

3. Fiscal Policy Analysis with a Gender Approach

Several authors have emphasized the need to adapt existing methodologies, such as the CEQ model, by incorporating a gender perspective through relevant sociodemographic disaggregations (Grown and Valodia, 2010; Greenspun, 2019). This study applies the CEQ methodology with an approach that integrates gender, care responsibilities, and labor informality to evaluate the differential distributive effects of fiscal policy in Colombia. In line with recommendations highlighting the importance of recognizing intra-household dynamics (Amjad et al., 2024), this analysis uses microdata from the 2023 Great Integrated Household Survey (GEIH) and the conceptual framework of the 2020–2021 National Time Use Survey (ENUT)[5] to construct household typologies. These typologies combine the sex of the household head, the presence of dependents, and the degree of formality of the main income source, enabling the identification of structural inequalities disproportionately affecting women.

3.1. Structure and Redistributive Role of Colombia's Fiscal System

The Colombian fiscal system is based on a combination of direct and indirect taxes and parafiscal contributions, complemented by a broad portfolio of social expenditures that includes cash transfers and subsidies. This structure finances the functioning of the state and seeks to implement social policies targeting the most vulnerable population. This section describes the taxes, transfers, subsidies, and social spending mechanisms that may affect individual income. A detailed description of tax rates, exemptions, subsidies, and the institutional design of the relevant programs is provided in Appendix **??**.

National government revenues amount to approximately 23% of Gross Domestic Product (GDP). The primary form of direct taxation is the personal income tax, which is structured progressively, with marginal rates reaching up to 39%.[6] However, its redistributive potential is limited due to a complex system of exempt incomes and deductions (up to a cap) that disproportionately benefits higher-income groups, resulting in only a small share of the population contributing effectively. It is worth noting, nonetheless, that the 2022 tax reform sought to expand the direct taxation of individuals by introducing a global cap on the total amount of exempt income and deductions. Still, individual direct taxation remains low overall.

In addition to income tax, there is a wealth tax levied on individuals with very high levels of

[5] ENUT follows the 2008 System of National Accounts (SNA) production boundary: market activities are "within SNA," while unpaid domestic and care work is "outside SNA." The survey uses a previous-day (24-hour) diary for persons aged 10 and over in a nationally representative probability sample, yielding hours and participation measures. One of its stated aims is to inform the satellite account of unpaid work and to support gender-policy monitoring (See: DANE, *ENUT—Marco conceptual y metodológico*, document code DSO-ENUT-FME-001, 2016–2017).

[6] For legal entities, the general nominal rate is 35%, although a wide array of deductions and tax benefits reduces the effective tax burden.

liquid assets.[7] The capital gains tax is another form of direct taxation, applied to inheritances and extraordinary income from gambling. Following the 2022 tax reform, the capital gains tax rate is 15% for inheritances and 35% for lotteries, raffles, and betting.

Social security and parafiscal contributions represent a significant share of national government revenues, accounting for approximately 20% of the total. These include mandatory health and pension contributions by employers and employees, as well as contributions used to finance the National Training Service (SENA), the Colombian Institute of Family Welfare (ICBF), and the Family Compensation Funds. All of these contributions directly affect formal workers with legally established contracts, but at the same time, they enable access to future retirement or disability pensions. In our simulation model we only take into account social security contributions because they are payed either by formal self-employed and employees.

Indirect taxes are primarily concentrated in the Value Added Tax (VAT), which applies a general rate of 19% and a reduced rate of 5% for certain goods and services. To mitigate its potential regressivity, most items in the basic consumption basket are either excluded or exempt. In addition, there is a National Consumption Tax (8%) and selective taxes (or health taxes) on fuels, tobacco, alcoholic beverages, and sugary drinks. While direct and parafiscal taxes are levied on formal and state-monitored income sources, indirect taxes apply universally, regardless of whether income is derived from formal or informal sources. This is particularly relevant for the analysis of redistributive effects, as discussed later.

The cornerstone of redistributive social spending is the Transfer System, administered by the Department for Social Prosperity and reorganized in 2024 to enhance its targeting and efficiency. The main programs are:

- *Tránsito a Renta Ciudadana* (Citizen's Income): This is the central program, aimed at households in extreme and moderate poverty registered in Sisbén IV.[8] It operates through three components:
    1. *Valoración del Cuidado* (Care Valuation): Prioritizes households in extreme poverty with children under 6 years of age and persons with disabilities, subject to co-responsibilities in health and education.
    2. *Colombia sin Hambre* (Colombia without Hunger): Supports households in extreme poverty with children and adolescents between 6 and 17 years old, also subject to co-responsibilities.
    3. *Fortalecimiento de Capacidades* (Capacity Building): Provides transfers to households in moderate poverty to incentivize the achievement of goals that promote social mobility.
- *Renta Joven* (Youth Income): The successor to *Renta Jóven*, it provides conditional cash

[7] The net worth threshold for paying the wealth tax is 1,400 Tax Value Units (UVT), equivalent to approximately 54 legal monthly minimum wages in 2024.

[8] Sisbén IV (System for Identifying Potential Beneficiaries of Social Programs) is the fourth version of the mechanism used in Colombia to classify the population according to their socioeconomic status, with the aim of targeting the allocation of subsidies and social programs. Unlike previous versions, which assigned a continuous score, Sisbén IV groups individuals into categories (A, B, C, and D) based on their level of vulnerability. This version introduces methodological improvements to enhance the accuracy of beneficiary identification.

transfers to support the retention and academic performance of young people aged 14 to 28 enrolled in higher, technical, or technological education.

- *Colombia Mayor* (Older Adults): Offers an economic subsidy to older adults living in poverty who do not receive a pension or live in destitution.
- *Compensación del IVA* (VAT Compensation): Issues a bimonthly payment to the poorest households to offset the impact of VAT on their income, functioning as an equity mechanism within the tax system.

Additionally, the state maintains high-fiscal-cost indirect subsidies. Notable among these are cross-subsidies in public utility services (electricity and gas), which aim to redistribute resources from higher-income to lower-income households through a targeting mechanism based on socioeconomic strata defined by housing location. The Fuel Price Stabilization Fund (FEPC), which places considerable pressure on public finances, subsidizes domestic gasoline and diesel (ACPM) prices. Likewise, the public pension system (Colpensiones) requires increasing transfers from the national budget to cover the gap between contributions and pension payments—approximately 4% of GDP—which primarily benefits higher-income pensioners. Lastly, the Subsidized Health Regime provides coverage for about half the population using public funds.

At the subnational level, there are complementary efforts such as the Guaranteed Minimum Income program in Bogotá, which integrates and supplements national transfers to ensure a minimum income floor for the poorest households in the capital. In our microsimulation model, we incorporate these local cash transfers in large cities, as they have become important tools for poverty reduction in high-population regions following the COVID-19 pandemic.

3.2. The CEQ Model

The *Commitment to Equity* (CEQ) model is a fiscal incidence analysis framework designed to assess the impact of a country's fiscal policy on inequality and poverty (Lustig, 2022; Amjad et al., 2024). The methodology is based on a so-called "accounting approach," which is static and does not model behavioral responses from economic agents or general equilibrium effects (Amjad et al., 2024; Lustig, 2022). Its primary tool is the construction of a sequence of income concepts that cumulatively reflect the role of the state through its tax, transfer, and social spending systems. This enables comparisons between income distributions before and after fiscal intervention, thereby quantifying its redistributive impact (see Figure 4).

The analysis begins with a pre-fiscal income concept that serves as the baseline. This is constructed from Market Income, which comprises household income prior to fiscal intervention. It includes net labor income (from primary and secondary activities), capital income (e.g., rent, interest), private transfers (such as remittances), and other sources such as dividends or capital gains, imputed house rents and in kind labor income. (Baquero et al., 2023; Amjad et al., 2024).

A key methodological component of the CEQ framework is the treatment of contributory

pensions (Lustig, 2022). This study adopts the Pensions as Deferred Income (PDI) approach, which considers pensions as a form of forced savings rather than government transfers. Under this approach, the reference pre-fiscal income is known as Market Income plus Pensions. To compute this, pension contributions are subtracted from Market Income (to avoid double counting), and pension benefits received by households are added (Lustig, 2022; Amjad et al., 2024). This treatment contrasts with the alternative scenario—Pensions as Government Transfers (PGT)—in which pensions are treated as direct transfers and contributions are classified as direct taxes (Amjad et al., 2024). The adoption of the PDI approach aligns with prior fiscal incidence analyses for Colombia (Nuñez and Lasso, 2023; Baquero et al., 2023).

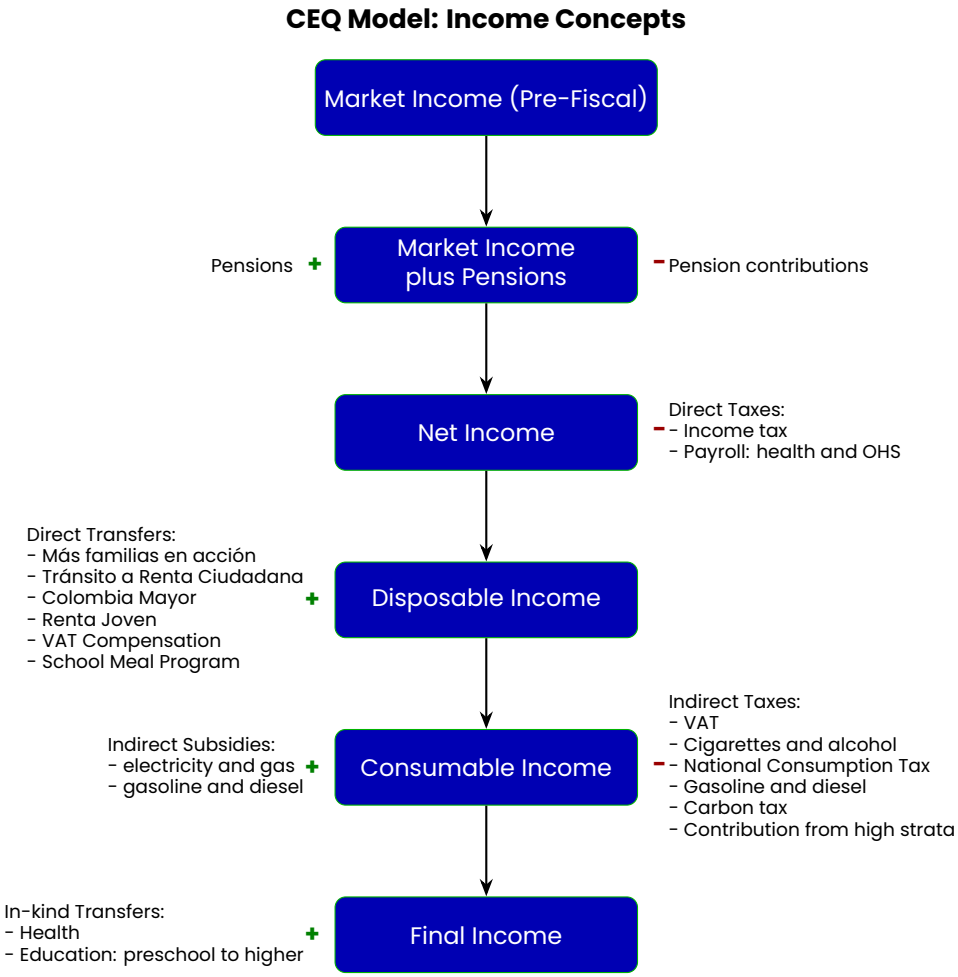
To ensure terminological clarity, we follow CEQ usage throughout. Households are ranked by pre-fiscal income, defined as market income plus contributory pensions under the pensions-as-deferred-income (PDI) scenario (MI+P). We then track the sequence from MI+P to net market income (subtracting direct personal income taxes and employee social security contributions), to disposable income (adding direct cash and near-cash transfers), and to consumable income (subtracting indirect taxes and adding indirect subsidies). Finally, we attribute the overall change in inequality and poverty to specific fiscal instruments using Shapley value marginal contributions (see Lustig (2022)).

From the pre-fiscal income concept (Market Income plus Pensions), the following sequence of income concepts is constructed to isolate the impact of each fiscal component (Nuñez and Lasso, 2023; Baquero et al., 2023; Lustig, 2022; Amjad et al., 2024):

- Net Income: Obtained by subtracting direct taxes (mainly the personal income tax) and social security contributions (e.g., health and occupational risk insurance) from pre-fiscal income.
- Disposable Income: Calculated by adding direct cash transfers to net market income. These include social assistance programs such as, in the Colombian case, *Transito a Renta Ciudadana*, *Colombia Mayor*, *Devolución del IVA*, and *Ingreso Solidario* (Nuñez and Lasso, 2023; Baquero et al., 2023). This is the most widely used welfare indicator in official poverty and inequality statistics.
- Consumable Income: Derived by subtracting indirect taxes (e.g., Value Added Tax (VAT), consumption taxes, fuel and carbon taxes) from disposable income, and adding indirect subsidies (e.g., for public utilities or fuel). This concept better reflects a household's actual consumption capacity.
- Final Income: Calculated by adding the value of in-kind transfers, which correspond to the monetized value of public services received by households, mainly in the areas of education and health. These services are typically valued at their average cost to the government (Amjad et al., 2024; Lustig, 2022).

Comparing inequality (e.g., the Gini coefficient) and poverty indicators across these different income concepts makes it possible to determine the progressivity and redistributive impact of each fiscal component. It is important to clarify that, contrary to common assumptions, this methodology does not presume the absence of "re-ranking" (i.e., changes in households' relative positions within the distribution); rather, re-ranking is an observable outcome and is

treated as a form of horizontal inequity (Amjad et al., 2024; Lustig, 2022).



Source: Author's elaboration based on Baquero et al. (2023).

Figure 4: Evolution of Income Concepts.

For the application of this model, the primary data source is typically a nationally representative household survey, such as the *Gran Encuesta Integrada de Hogares* in the case of Colombia (Nuñez and Lasso, 2023; Baquero et al., 2023). However, since these surveys often lack detailed expenditure information—essential for estimating the incidence of indirect taxes—additional data are required. This gap is addressed through statistical imputation techniques using microdata from specialized consumption surveys, such as the *Encuesta Nacional de Presupuestos de los Hogares* (ENPH) (Baquero et al., 2023).

The analysis is enhanced by incorporating administrative records from institutions such as the *Dirección de Impuestos y Aduanas Nacionales* (DIAN) to more accurately model the income tax system and correct for the underestimation of high incomes. The model also uses the input-output matrix to estimate the indirect effects of consumption taxes on the prices of final goods (Nuñez and Lasso, 2023; Baquero et al., 2023).

3.3. Gender Approach

The literature on fiscal incidence with a gender perspective within the *Commitment to Equity* (CEQ) methodology has advanced significantly in recent years, particularly in low- and middle-income countries. As noted by Greenspun and Lustig (2013), it is essential to comprehensively assess the effects of taxes and public transfers from a gender perspective, as aggregate approaches tend to overlook intra-household heterogeneity and the unequal distribution of care responsibilities.[9]

To operationalize the relationship between the redistributive role of fiscal policy and gender gaps, CEQ models typically employ household typologies. These classifications group households based on dimensions of economic vulnerability relevant to gender analysis. In particular, the literature in developing countries has used criteria such as female headship (Greenspun, 2019), the identity of the primary earner and the presence of dependents (Robayo-Abril et al., 2024), "care groups" (Rodriguez Takeuchi et al., 2024), and time-use characteristics (Fuchs Tarlovsky and Gonzalez Icaza, 2023). In all of these cases, once household typologies are defined, per capita income is calculated at each of the five CEQ income levels to estimate gaps and distributional indicators at the household level, rather than the individual level. Per capita income is computed as the total household income divided by the number of household members. Gaps between typologies are then measured as the percentage difference between the median per capita incomes of each group.

3.3.1. Definition of Household Typologies

Following the discussion in Section 2, the household typologies used in this study are based on three structural dimensions that shape persistent inequalities in Colombia: female headship, care responsibilities, and insertion into the informal labor market. These dimensions are highly representative of the Colombian population and labor force, conditioning households' ability to benefit from the fiscal system and therefore carrying distributive implications. In Colombia, approximately 45% of households are headed by women (DANE, 2024a), while 56% of the employed population works in informal jobs (DANE, 2024b). These two dimensions are often correlated, resulting in a substantial share of households that experience greater economic burdens and, in practice, elevated care responsibilities.

Using data from the GEIH, a set of household-level variables is constructed to identify the dimensions of interest. Specifically, indicator variables are used to capture: (1) whether the household head is a woman (1 if female, 0 otherwise); (2) whether the majority (50% or more) of household income comes from women's earnings; (3) whether the household includes dependents (children under 18 or adults over 65); and (4) whether the majority of household income originates from members classified as informal workers by DANE.[10]

[9] Lustig et al. (2025) proposes a classification of fiscal incidence studies into three categories: (1) static accounting incidence analyses, which allocate taxes and transfers without modeling behavioral responses; (2) microsimulations with endogenous behavior, which incorporate household responses to fiscal policy changes; and (3) general equilibrium models, which account for macroeconomic interactions and second-order effects. Most gender-focused studies fall into the first category, although they have evolved toward more refined household classifications by incorporating time-use surveys and, in some cases, partial approximations of informality.

[10] DANE defines informal employment as a job in which the worker lacks health or pension coverage through the employment relationship, or works in an unregistered economic unit. This includes self-employed workers, unreg-

These variables and their interactions (e.g., female-headed households whose primary income source is formal) form the basis for implementing the gender-focused analysis.

3.3.2. Empirical Specification for Headship Gaps

To assess the role of fiscal policy in shaping household income distribution and vulnerability to poverty, we estimate linear regression models of the form

$$Y_i^s = \alpha_0 + \rho^s FemaleHead_i + \mathbf{X}_i'\gamma + \varepsilon_i, \tag{1}$$

where Y_i^s denotes the income or poverty vulnerability measure for individual i at income level s as defined by the CEQ methodology; $FemaleHead_i$ is a binary variable equal to 1 if individual i lives in a female-headed household; $\mathbf{X}_i$ is a vector of control variables; and ε_i is an idiosyncratic error term.

Estimating model (1) allows us to quantify both the gap between female- and male-headed households and the extent to which fiscal policy mitigates this gap. Specifically, the coefficient ρ^s captures the average difference in Y_i^s between individuals in female-headed versus male-headed households. The impact of fiscal policy is assessed by comparing the estimates of ρ^s across different income concepts derived from the CEQ framework (i.e., market, net, disposable, and consumable income). If fiscal instruments contribute to narrowing gender-related gaps, we expect the magnitude of ρ^s to decrease—approaching zero—as more redistributive components are incorporated into the income measure.

While the coefficient of interest is ρ^s, it is essential to control for household and individual characteristics that may influence both income outcomes and the likelihood of living in a female-headed household. The control vector $\mathbf{X}_i$ includes fixed effects for region and department, and indicator variables for the presence of dependents and whether the majority of household income originates from informal sources. Additionally, individual-level controls include years of schooling, age, and age squared to account for earning potential.

It is important to emphasize that the differences captured in equation (1) should not be interpreted as causal effects. However, characterizing these differences and their evolution across income concepts provides valuable descriptive evidence on how fiscal policy influences disparities between household types.

4. Results

We present results in three steps. First, descriptive evidence on household typologies by gender, dependents, and informality. Second, a CEQ accounting simulation of Total Net Fiscal Effects to map instruments to typologies. Third, conditional gaps from linear regressions across CEQ income concepts (pre-fiscal, net, disposable, and consumable), which indicate how fiscal components are associated with changes in headship gaps.

istered employers, employees without social protection, unpaid family workers, and individuals with insufficient information about their occupation. Government employees are excluded.

4.1. Household Typologies

The potential for fiscal instruments to affect measured headship gaps depends on the prevalence of the affected household types. Table 1 presents the population distribution in Colombia according to the household typologies described in the previous section, using 2023 GEIH data.

The results suggest that a significant share of Colombia's population lives in households that meet at least one of the conditions described in those typologies. In total, 43.5% of the population lives in female-headed households, 53.6% lives in households whose income comes mostly from informal sources, and 33.3% lives in households with dependents—either minors or adults aged 65 and over (Table 1, Panel A).

Panel A: Population by typology (% of total)

Female head	43.5
Informal	53.6
With dependents	33.3

Panel B: Joint distribution (% of total)

Household headship	Female			Male		
Labor status	Formal	Informal	Total	Formal	Informal	Total
Dependents						
With dependents	6.1	8.6	14.8	9.0	9.5	18.6
Without dependents	12.8	16.0	28.8	18.5	19.4	37.9
Totals	18.9	24.7	43.5	27.6	28.9	56.5

Table 1: Population distribution by household headship, labor status, and presence of dependents, 2023

These dimensions are not evenly distributed across the population. They are more common among households relying on informal employment and among female-headed households. In particular, 14.8% of the population lives in female-headed households with dependents. Within this group, a majority (equivalent to 8.6% of the total population) relies on informal income. A similar pattern is observed among female-headed households without dependents, where 16.0% of the population is both female-headed and informal. By contrast, nearly half of male-headed households depend on informal income, regardless of the presence of dependents.

These typologies are associated with higher economic vulnerability—particularly (i) female-headed households, (ii) households whose main income is informal, and (iii) households with dependents. Table 2 reports the 2023 monetary poverty rate for households by each dimension and their interactions. This measure is calculated from Pre-fiscal income (market income plus pensions, MI+P) (Pre-fiscal (MI+P)), defined as income before taxes and transfers.[11] Poverty incidence based on Pre-fiscal (MI+P) provides a starting point to assess household vulnerability, as it reflects income before any fiscal redistribution.

[11] Pre-fiscal (MI+P) includes labor income (employees and self-employed), capital income, contributory pensions,

A: Poverty rate by typology (% of the group total)

Female head	49.0	Male head	39.8
Informal	63.6	Formal	21.2
With dependents	58.3	Without dependents	36.5

B: Poverty rate by typology combinations (% of the group total)

Household headship	Female			Male		
Labor status	Formal	Informal	Total	Formal	Informal	Total
Dependents						
With dependents	37.4	80.9	63.5	30.9	75.8	54.2
Without dependents	17.4	61.1	41.6	13.9	50.8	32.7

Table 2: Poverty incidence by household headship, labor status, and presence of dependents, 2023

The results in Table 2 show systematic differences in household vulnerability across typologies. The poverty rate is 49.0% for female-headed households, 63.6% for households whose income is mainly informal, and 58.3% for households with dependents. In contrast, poverty affects 39.8% of male-headed households, 21.2% of households with formal income, and 36.5% of households without dependents.

When considering interactions between these dimensions, the highest incidence of poverty is observed among female-headed households with informal income and dependents, reaching 80.9%. Among female-headed households, poverty falls substantially if there are no dependents (61.1%) or if income comes primarily from formal sources (37.4%). Male-headed households exhibit the same pattern, although their poverty levels are consistently lower. Even among the least vulnerable group—male-headed households without dependents and with formal income—poverty remains at 13.9%, compared to 17.4% in their female-headed counterparts.

The concentration of vulnerability among these typologies is consistent with their distribution across the income distribution. Figure 5 illustrates the distribution of the population by household typology across income deciles (based on Pre-fiscal (MI+P)), where decile 1 corresponds to the 10% of households with the lowest income and decile 10 to the highest. The figure confirms that female-headed households are overrepresented in the lower part of the income distribution: nearly 60% of households in the first decile are female-headed, compared to just 40% in the tenth decile. Similarly, households with dependents and with informal income sources are heavily concentrated in the bottom half of the distribution, particularly within the first five Pre-fiscal (MI+P) deciles.

4.2. Fiscal Incidence and Household Typologies

rents, remittances, and other private income.

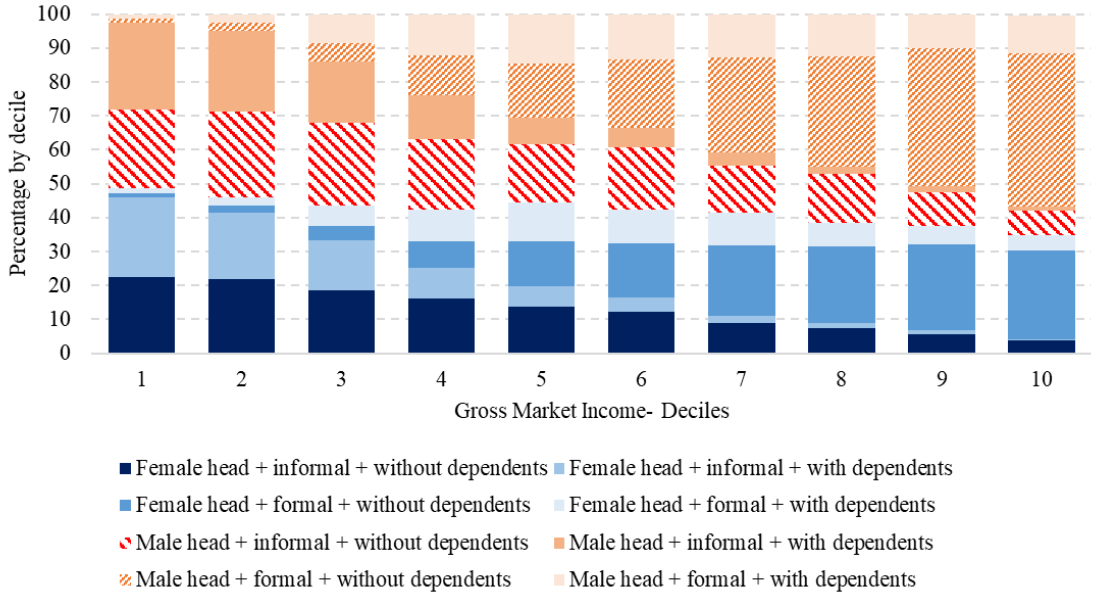


Figure 5: Population distribution by household typology and income decile, 2023

CEQ income definition	Monetary poverty (%)	Gini (0–1)
Pre-fiscal income (market income plus pensions, MI+P)	38.4	0.558
Net market income	39.3	0.555
Disposable income	35.2	0.533
Consumable income	38.4	0.546

Table 3: Simulated monetary poverty and inequality indicators by CEQ income definition - Year 2023

4.2.1. Aggregate Incidence Results

The Pre-fiscal (MI+P) results confirm high economic vulnerability among Colombian households, particularly for female-headed households, those with dependents, and those relying on informal employment. However, the CEQ simulations show that the tax-and-transfer system has only a moderate effect on poverty and inequality reduction. Table 3 presents poverty and extreme poverty rates and the Gini coefficient by CEQ income concept for 2023.

At the Pre-fiscal (MI+P) level, 38.4% of people are poor, and inequality, measured by the Gini coefficient, is 0.558.[12] Poverty and inequality decline modestly when transfers are included (disposable income), but indirect taxes and subsidies (consumable income) partially offset these effects, as reflected in the slight increase in the Gini coefficient from 0.533 to 0.546.

[12]Because this is a microsimulation model, poverty, indigence, and inequality indicators differ from official DANE figures. Two reasons explain these differences: (i) transfer allocation rules simulated by the model do not fully reflect the atypical adjustments made in 2023; and (ii) the model does not incorporate all local or pilot programs that appear in household surveys but cannot be replicated.

	Poverty (%)			Indigence (%)		
	Male	Female	Diff.	Male	Female	Diff.
Pre-fiscal income	27.1	33.3	-6.2	17.80	25.21	-7.41
Net market income	28.8	35.5	-6.7	18.18	25.52	-7.34
Disposable income	24.9	31.3	-6.2	13.23	19.19	-5.97
Consumable income	28.6	35.7	-7.1	16.14	21.98	-5.83

Table 4: Poverty and indigence (extreme poverty) by income concept and household headship. The difference is computed as Male − Female.

4.2.2. Gender gaps and fiscal policy: Simulated

Disaggregating by household headship reveals persistent gender gaps in vulnerability. Table 4 shows that, across income concepts, female-headed households face systematically higher poverty and indigence than male-headed households. On average, the poverty gap is around 6.5 percentage points, and the indigence gap about 6.7 points.

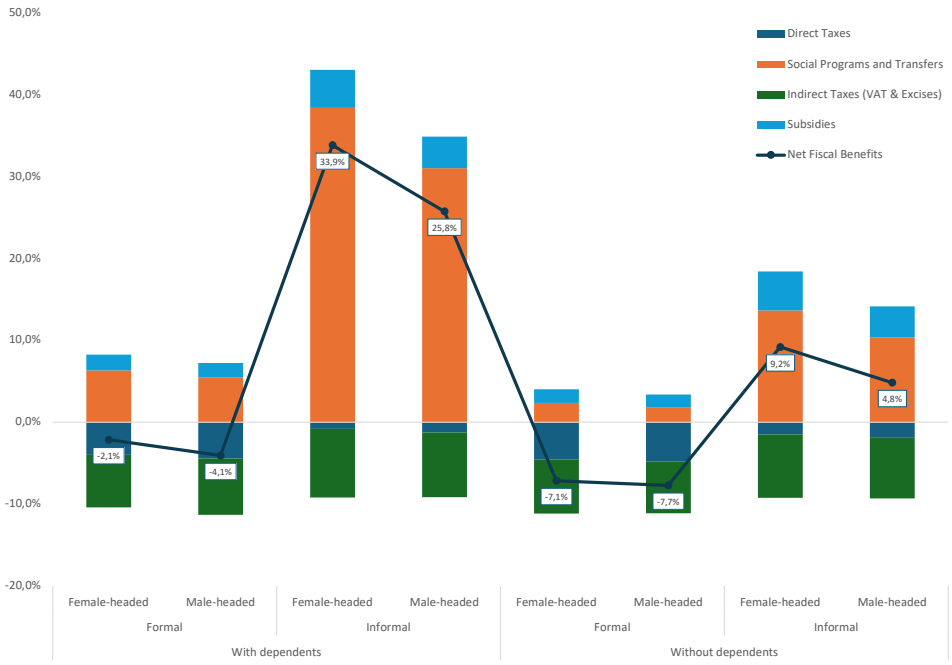
Fiscal policy instruments reduce extreme poverty more than overall poverty, and the indigence gap between male- and female-headed households narrows when transfers are considered—from 7.41 p.p. at Pre-fiscal (MI+P) to 5.97 p.p. at disposable income. Nonetheless, gaps persist across all concepts.

Using an accounting incidence exercise from our simulation model, we explore the effects of fiscal instruments on households' income. To summarize the overall impact of taxes and benefits we report the Total Net Fiscal Benefit —benefits (direct transfers and indirect subsidies) net of taxes (direct and indirect)—as a share of pre-fiscal (market) income. Calculations follow a first-order CEQ approach: policy instruments are allocated to household consumption baskets and *indirect price effects* are propagated via an input–output matrix; no behavioral or general-equilibrium responses are modeled.

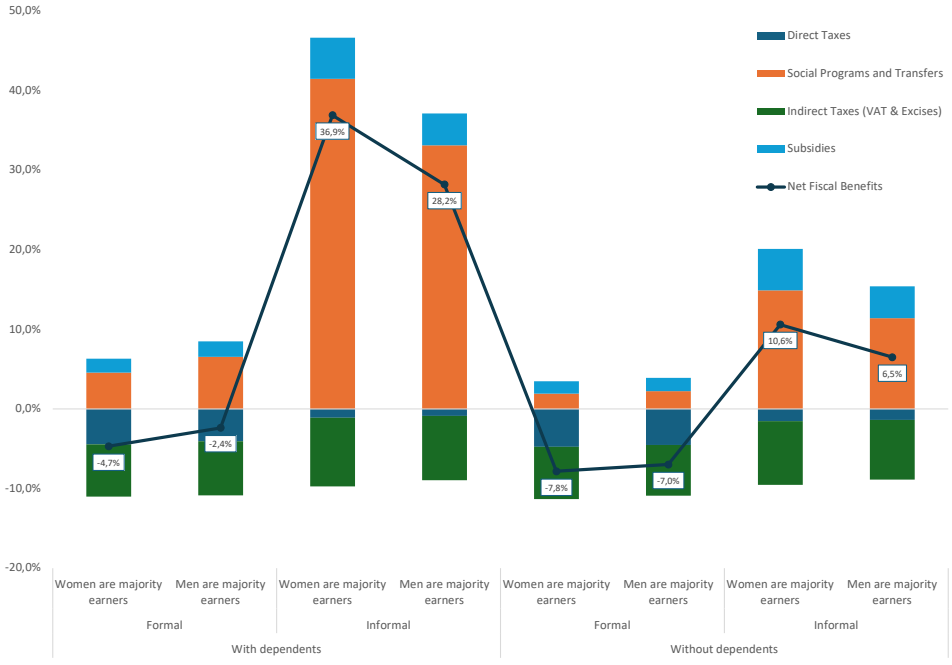
Figure 6 displays stacked bars for each instrument (negative for taxes; positive for transfers/subsidies) and a line for the Total Net Fiscal Benefit. Panel (a) disaggregates by female- vs. male-headed households; Panel (b) by households where women vs. men are the majority earners. In both panels we distinguish with vs. without dependents and formal vs. informal labor status.

Across both panels, a coherent pattern emerges. Among households with dependents, those in informal work are clear net beneficiaries: in Panel (a) the net fiscal benefit is +33.9% for female-headed households versus +25.8% for male-headed households, while in Panel (b) it reaches +36.9% for households where women are the majority earners versus +28.2% where men are the majority earners. By contrast, formal households with dependents are mild net payers, around −2.1% and −4.1% in Panel (a) (female-/male-headed) and −4.7% and −2.4% in Panel (b) (women/men majority earners). For households without dependents, formal groups are again net payers in both panels (about −7%), whereas informal groups remain net beneficiaries but with smaller magnitudes: +9.2% versus +4.8% in Panel (a), and +10.6% versus +6.5% in Panel (b).

These simulation-based figures are descriptive—they map who pays and who benefits. In



(a) By headship (female- vs. male-headed), conditioning on dependents and labor status.



(b) By majority earners (women vs. men), conditioning on dependents and labor status.

Figure 6: Accounting incidence of taxes, transfers, and subsidies as a share of pre-fiscal (market) income. Panel (a) shows the headship split; Panel (b) the majority-earners split. Black line shows the *Net Fiscal Benefit* = (direct transfers + indirect subsidies) − (direct taxes + indirect taxes).

Dependent variable: Monetary poverty indicator (Pre-fiscal income)

	(1)	(2)	(3)	(4)	(5)
Female head	0.0950	0.0945	0.0917	0.0707	0.0672
	[0.0031]***	[0.0029]***	[0.0028]***	[0.0027]***	[0.0027]***
With dependents			0.1882		0.1995
			[0.0036]***		[0.0034]***
Informal household				0.2678	0.2718
				[0.0034]***	[0.0033]***
No labor income household				0.3879	0.3960
				[0.0043]***	[0.0043]***
Individual controls	No	Yes	Yes	Yes	Yes
Observations	274,007	274,007	274,007	274,007	274,007

Table 5: Conditional gaps in vulnerability to monetary poverty

what follows, we use a regression analysis to examine conditional differences by headship and by the sex of the majority earner, controlling for dependents and formality, to explore further the relevance of household typologies on poverty incidence.

4.2.3. Gender gaps and fiscal policy: Regression analysis

Unconditional differences do not account for household characteristics. Table 5 presents conditional poverty gaps, estimated with controls. Female headship is associated with a poverty rate 9.5 p.p. higher than male headship in the unconditional model. Controlling for education, age, and region reduces the gap to 7.1 p.p. The presence of dependents increases poverty risk by nearly 20 p.p., but does not fully explain gender differences. Reliance on informal income accounts for a substantial share: once included, the headship gap falls to around 4.9 p.p.

Table 6 extends this analysis across CEQ income definitions. Fiscal policy components reduce income and poverty gaps, but the reductions are modest. Female-headed households earn about 6.6% less in net market income and 5.9% less in disposable income compared to male-headed households. For poverty, the conditional gap narrows from 6.7% at gross income to 5.9% at disposable income, showing that transfers partially mitigate, but do not eliminate, gender disparities.

Table 7 explores an alternative definition of female-type households, based on the majority of household income being earned by women. Under this definition, gaps are narrower. For gross income, the conditional poverty gap is negligible (0.02 p.p.), although income gaps remain at about 5.2%. While differences persist, they are smaller than those found using headship. Transfers and subsidies included in disposable and consumable income reduce these gaps only partially.

The accounting incidence in Figure 6 helps interpret the conditional gaps in Tables 5–7. The simulation shows that configurations where women are overrepresented—informal households with dependents—receive sizable *Total Net Fiscal Benefits*, while formal households (with or without dependents) are net payers. This composition of taxes, transfers, and subsidies anticipates the regression pattern: once we control for dependents and reliance on informal income, the female–male headship poverty gap shrinks because the controls

Dependent variable: Poverty indicator				
	Pre-fiscal	Net	Disposable	Consumable
Female head	0.0672	0.0666	0.0592	0.0604
	(0.0027)***	(0.0027)***	(0.0027)***	(0.0028)***
Controls	Yes	Yes	Yes	Yes
Observations	274,007	274,007	274,007	274,007
Dependent variable: Income (log)				
	Pre-fiscal	Net	Disposable	Consumable
Female head	-0.0660	-0.0617	-0.0594	-0.1259
	(0.0138)***	(0.0139)***	(0.0101)***	(0.0148)***
Controls	Yes	Yes	Yes	Yes
Observations	271,813	271,813	271,813	270,325

Table 6: Conditional gaps in vulnerability to poverty and in income across CEQ income definitions

Dependent variable: Poverty indicator				
	Pre-fiscal	Net	Disposable	Consumable
Majority female income	0.0155	0.0143	0.0109	0.0093
	[0.0027]***	[0.0028]***	[0.0028]***	[0.0029]***
Controls	Yes	Yes	Yes	Yes
Observations	274,007	274,007	274,007	274,007
Dependent variable: Income (log)				
	Pre-fiscal	Net	Disposable	Consumable
Majority female income	0.5557	0.5565	0.2451	0.0698
	[0.0150]***	[0.0150]***	[0.0109]***	[0.0151]***
Controls	Yes	Yes	Yes	Yes
Observations	271,813	271,813	271,813	270,325

Table 7: Conditional gaps under an alternative definition of female-type household (majority female income)

absorb both pre-fiscal vulnerability and a large part of the simulated net benefits accruing to those configurations. The remaining conditional gap is consistent with three elements embedded in the CEQ sequence: (i) at the *disposable* concept, cash transfers lower poverty risk among the configurations where women are concentrated, which is reflected in the smaller conditional gap; (ii) moving to the *consumable* concept, indirect taxes and the structure of consumption partially erode those gains, which is consistent with the modest rebound in the headship gap and the larger negative coefficient for *consumable* income in the log-income regressions; and (iii) heterogeneity in exposure to indirect taxes and access to indirect subsidies across retail channels and locations likely differs by household configuration.

Two implications follow for future research. First, on the tax side, it is important to measure pass-through and effective VAT burdens by retail formality and geography, and to benchmark the VAT Compensation against the typology-specific VAT burden. Second, on the spending side, linking time-use constraints to program conditionalities and access to in-kind services (childcare, health, education) can clarify why similar transfer amounts yield different poverty impacts across configurations. Future work should therefore combine the CEQ accounting approach with (i) behavioral microsimulation for labor supply and consumption responses, (ii) richer imputation of consumption baskets using ENPH–ENUT linkages to incorporate care constraints, and (iii) a decomposition of the incidence of alternative social programs focused on household typologies.

High informality implies a narrower effective tax base for direct taxation and weaker pass-through of indirect taxes across retail channels. This translates into (i) limited income-tax incidence on configurations where women are overrepresented and (ii) heterogeneous VAT burdens depending on purchase points and access to indirect subsidies. This composition effect helps explain why conditional gaps shrink with cash transfers but decline only modestly once indirect taxes and subsidies are netted out.

5. Concluding Remarks

This study shows that while fiscal policy in Colombia helps mitigate income inequality, it has limited capacity to close structural gender gaps—particularly those affecting female-headed households in contexts of high informality and the presence of dependents. Incorporating these dimensions into a fiscal incidence analysis reveals vulnerabilities often obscured by aggregate models, indicating that the system's redistributive effects are insufficient to counteract women's accumulated disadvantages.

An analysis of the transitions across CEQ income concepts shows that fiscal instruments operate unevenly. Although cash transfers account for most of the reduction in the income gap (from 14.1% to 11.2% at the disposable income level), their impact on the conditional poverty gap is only marginal, reducing it from 5.9 to 5.5 percentage points. This suggests that program targeting—while poverty-sensitive—is not sufficiently sensitive to household structure and labor-market barriers that heighten women's vulnerability, such as insertion into informal employment due to care responsibilities.

These findings call for a re-evaluation of social and fiscal policy. It is not enough to transfer resources; instruments must explicitly recognize the interaction between gender, care, and informality. This implies revising eligibility criteria and benefit amounts to better reflect household structure, as well as strengthening in-kind transfers—such as childcare, health, and education services—that have amplified economic value for women by facilitating labor-force participation. A gender-responsive fiscal policy should move from a stance of distributive neutrality to one that actively corrects structural inequalities. Specifically, Colombia's 2022 tax reform (Ley 2277 de 2022) introduced a global cap on exempt income and deductions and adjusted capital gains rates (see Section 3.1).

A future policy agenda should therefore be more comprehensive. As noted by Díaz-Pardo and Rao (2024), the effectiveness of cash transfers on women's economic autonomy critically depends on program design and the institutional context. In an economy like Colombia's, transfers should be complemented with instruments that address barriers to formal employment. Ultimately, a gender-equity-oriented fiscal policy requires an architecture that integrates transfers with the provision of public care services and active labor-market policies, thereby avoiding the reproduction of the very inequalities it seeks to remedy.

Our simulated incidence clarifies these regression results: transfers concentrate in configurations where women are overrepresented, which helps reduce the headship gap at the disposable-income level, but the burden of indirect taxes—once reflected in the consumable concept—partially offsets those gains. Designing VAT offsets calibrated to typology-specific consumption baskets and expanding in-kind care services would increase the total net fiscal benefits that drive the conditional gaps.

It is important to recognize this analysis's limitations. Following Lustig et al. (2025), our model is static and does not capture households' behavioral responses to fiscal changes. The absence of these dynamics—such as adjustments in labor supply or consumption patterns—could underestimate the real impact of reforms, a particularly relevant omission in a highly informal context like Colombia's.

Additionally, while a headship-based approach captures meaningful differences in income and poverty, it addresses only one dimension of gender inequality. It does not consider, for example, intra-household disparities in unpaid work, differential access to economic resources, or decision-making power. These dimensions—closely linked to persistent gender norms—also shape forms of economic exclusion that aggregate analysis cannot detect. Consequently, the results should be understood as a partial approximation that underscores the need to complement this type of study with methods that integrate information on time use, agency, and intra-household bargaining.

References

Addati, L., Cattaneo, U., and Pozzan, E. (**2022**). Los cuidados en el trabajo: invertir en licencias y servicios de cuidados para una mayor igualdad en el mundo del trabajo. *Ginebra. OIT*.

Alves, C. B., da Costa, C. E., Lobel, F., and Moreira, H. (**2024**). Intrahousehold inequality and the joint taxation of household earnings. *Journal of Public Economics*, 239:105208.

Amjad, B., Lustig, N., and Popova, D. (**2024**). Distributional impact of fiscal policies: A survey of methodological approaches. Technical Report 324, Agence Française de Développement. AFD Research Papers.

Arora, D. and Rada, C. (**2020**). Gender norms and intrahousehold allocation of labor in Mozambique: A CGE application to household and agricultural economics. *Agricultural Economics*, 51(2):259–272.

Baquero, J. P., Dávalos, M. E., and Monroy, J. M. (**2023**). Revisando los impactos distributivos de la política fiscal en Colombia. Technical report, The World Bank. Poverty and Equity Global Practice.

Bastani, S. (**2013**). Gender-based and couple-based taxation. *International tax and public finance*, 20:653–686.

Caro Guevara, N. D. (**2023**). Penalidad a la maternidad: evidencia en el mercado laboral colombiano. Documentos CEDE 3, Universidad de los Andes.

CEPAL (**2021**). La autonomía económica de las mujeres en la recuperación sostenible y con igualdad.

Charmes, J. (**2019**). *The Unpaid Care Work and the Labour Market: An analysis of time use data based on the latest World Compilation of Time-use Surveys*. ILO Geneva.

DANE (**2021**). Boletín técnico. encuesta nacional de uso del tiempo (ENUT) 2020–2021. Boletín técnico, Departamento Administrativo Nacional de Estadística (DANE).

DANE (**2022**). Estadísticas de mercado laboral por departamentos. https://www.dane.gov.co/index.php/estadisticas-por-tema/mercado-laboral/mercado-laboral-por-departamento-histo Acceso el 16 de junio de 2025.

DANEa (**2024**a). Boletín técnico encuesta nacional de calidad de vida. Technical report, Departamento Administrativo Nacional de Estadística, Bogotá.

DANEb (**2024**b). Boletín técnico ocupación informal trimestre móvil noviembre 2023 - enero 2024. Technical report, Departamento Administrativo Nacional de Estadística, Bogotá.

DANE - ONU Mujeres Colombia (**2020**). Tiempo de cuidados: las cifras de la desigualdad.

Díaz-Pardo, G. and Rao, M. (**2024**). Women and cash transfers: How program design and local conditions relate to causal estimates of impact. Synthesis Paper 13, G²LM|LIC – Gender, Growth and Labour Markets in Low-Income Countries Programme, IZA and LSE.

Fuchs Tarlovsky, A. and Gonzalez Icaza, M. F. (**2023**). Assessing the effects of the fiscal system on gender disparities in Armenia.

Gallego, J., García, L., García, A., and Medina, C. (**2025**). Child penalty and

maternity leave: The case of Colombia. mimeo.

Greenspun, S. and Lustig, N. (**2013**). Gendered fiscal incidence analysis. a review of the literature. Commitment to Equity (CEQ) Working Paper 76, CEQ Institute.

Greenspun, S. J. (**2019**). *A Gender Sensitive Fiscal Incidence Analysis for Latin America: Brazil, Colombia, the Dominican Republic, Mexico, and Uruguay*. Tulane University.

Grown, C. and Valodia, I. (**2010**). *Taxation and gender equity*. Routledge London.

Hernando, R. (**2022**). Unpaid care and domestic work: Counting the costs. *Asia-Pacific Economic Cooperation*.

Hochschild, A. and Machung, A. (**2012**). *The second shift: Working families and the revolution at home*. Penguin.

Iregui-Bohórquez, A. M., Melo-Becerra, L. A., Ramírez-Giraldo, M. T., and Tribín-Uribe, A. M. (**2025**). *El camino hacia la igualdad de género en Colombia: todavía hay mucho por hacer*, volume Segunda Edición. Banco de la República.

Iregui-Bohórquez, A. M., Melo-Becerra, L. A., Ramírez-Giraldo, M. T., Tribín-Uribe, A. M., and Zárate-Solano, H. M. (**2024**). Unraveling the factors behind women's empowerment in the labor market in Colombia. *World Development*, 183:106731.

Lustig, N. (**2016**). Inequality and fiscal redistribution in middle income countries: Brazil, chile, colombia, indonesia, mexico, peru and south africa. *Journal of Globalization and Development*, 7(1):17–60.

Lustig, N., editor (**2022**). *Commitment to Equity Handbook: Estimating the Impact of Fiscal Policy on Inequality and Poverty*. Brookings Institution Press. 2 vols.: Vol. 1, Fiscal Incidence Analysis: Methodology, Implementation, and Applications; Vol. 2, Methodological Frontiers in Fiscal Incidence Analysis.

Lustig, N., Martinez-Pabon, V., and Pessino, C. (**2025**). Fiscal policy, income redistribution, and poverty reduction in Latin America. *Oxford Open Economics*, 4(Supplement 1):i426–i446.

Lustig, N. and Meléndez, M. (**2015**). The impact of taxes and transfers on inequality and poverty in colombia. CEQ Working Paper 24, CEQ Institute, Tulane University; Inter-American Dialogue, New Orleans, LA.

Marchionni, M., Gasparini, L., and Edo, M. (**2019**). *Brechas de género en América Latina. Un estado de situación*. CAF.

Nuñez, J. and Lasso, D. (**2023**). Incidencia de los impuestos y el gasto social: escenarios de política pública para Colombia. AFD Working Papers 292, Agence Française de Développement (AFD).

Nuñez, J., Olivieri, S. D., Parra, J., and Pico, J. (**2020**). The distributive impact of taxes and expenditures in colombia. Policy Research Working Paper Series 9171, The World Bank.

Ramírez-Bustamante, N. (**2019**). "a mí me gustaría, pero en mis condiciones no puedo". maternidad, discriminación y exclusión: el paso del trabajo formal al trabajo informal en confección en Colombia. *Revista CS*, SPE:241–269.

Robayo-Abril, M., Tribin, A. M., and Oliva, J. A. (**2024**). Fiscal policy as a tool for gender equity in El Salvador. Commitment to Equity (CEQ) Working Paper 131, CEQ Institute.

Rodriguez Takeuchi, L. K., Wai-Poi, M. G., and Woodham, J. S. (**2024**). Taxes, transfers, and gender: Fiscal policy incidence across fiscal and care categories in Jordan. Technical report, The World Bank.

Salazar Díaz, A. (**2021**). Ingreso relativo, identidad de género y brecha en el trabajo no remunerado: Evidencia para Colombia. Master's thesis, Universidad de los Andes.

Tribín, A. M., Gómez-Barrera, A. D., and Pirela-Rios, A. (**2022**). Distribución del cuidado, roles de género y poder de negociación en Colombia: un análisis a partir de la enut 2020-2021. informe quanta–cuidado y género.

Tribín-Uribe, A. M., Gómez-Barrera, A. D., and Mojica-Urueña, T. (**2022**). Informe desigualdad laboral: Migración y género. Informe Quanta-Cuidado y Género.

Appendix A. Observed 2023 amounts and CEQ coverage

Scope. This appendix compares our CEQ 2023 simulations with official observed amounts for the main taxes, cash transfers, and in-kind social spending included in the incidence analysis. Figures are in thousands of millions of 2023 COP (i.e., billions). Coverage is Simulated/Observed $\times 100$.

Table 1: Observed (official) vs. CEQ-simulated amounts, 2023 (thousands of millions COP)

Item	Simulated	Observed	Coverage (%)
Personal income tax (renta personas naturales)	9,714.780	21,770.000	44.6
VAT (IVA) – total collected†	31,111.224	66,300.000	46.9
Tránsito a Renta Ciudadana	4,363.519	4,591.235	95.0
VAT Refund/Compensación (sum of both modalities)	1,775.416	995.985	178.3
Jóvenes en Acción / Renta Joven (2023 observed is JEA)	586.304	635.050	92.3
Colombia Mayor	1,712.886	1,721.603	99.5
PAE (School Feeding Program)	4,429.662	4,462.000	99.3
Ingreso Mínimo Garantizado – Bogotá	573.617	492.000	116.6
Health: Contributive regime (ADRES)	36,050.564	37,320.000	96.6
Health: Subsidized regime (ADRES)	42,778.526	36,420.000	117.5

Notes. (i) Units: thousands of millions of COP (billions), 2023 values as reported by each source. (ii) Coverage is Simulated/Observed $\times 100$. (iii) †The observed VAT is the *total* amount collected (DIAN), which includes components not directly paid by households (e.g., VAT on external trade and B2B). Our CEQ simulation uses internal VAT borne by households; the comparison is therefore indicative of coverage rather than a strict incidence identity. (iv) "VAT Refund/Compensación" adds the two administrative modalities reported in sectoral accounts to match the CEQ household concept. (v) For 2023, observed execution for the youth program corresponds primarily to *Jóvenes en Acción* during the transition to *Renta Joven*. (vi) Bogotá IMG uses the 2023 operational amount communicated by the city. (vii) ADRES figures are 2023 UPC commitments (Contributive and Subsidized).

Official sources. DIAN, *Informe de Gestión 2023*; DIAN, Press Release 082/2024 (AY2023 personal income tax, individuals); Sectoral *Rendición de Cuentas 2023* (Prosperidad Social sector: TRC, Compensación/Devolución del IVA, Jóvenes en Acción, Colombia Mayor); MEN/UApA, Audiencia Pública 2023 (PAE); Bogotá City Government (IMG 2023 operations); ADRES, Institutional Management Report 2023 (UPC commitments).

A. A note about some choices of the COLSim-2025 model

We adopt the CEQ PDI scenario. Key income concepts are: market income (MI); market income plus pensions (MI+P, the pre-fiscal ranking income under PDI); net market income (NMI) = MI+P minus direct personal income taxes and employee social security contributions; disposable income (DI) = NMI plus direct cash and near-cash transfers; consumable income (CI) = DI minus indirect taxes plus indirect subsidies; and final income (FI) = CI plus the value of in-kind education and health benefits.

Construction details: when survey earnings are reported net of contributions and/or personal income tax, we reconstruct the pre-fiscal concept by adding back those amounts to recover factor income prior to intervention, subtracting contributory pension contributions from factor income to avoid double counting, and adding contributory pension benefits to obtain MI+P. We then compute NMI, DI, CI, and FI in sequence. For definitions and sequencing, see Lustig (2022).

Attribution of effects: to assign the redistributive impact to specific instruments, we compute Shapley value marginal contributions so that the sum across instruments equals the total effect between MI and FI. We report results for DI (direct taxes and transfers) and for CI (including indirect taxes and subsidies).

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