

# Discussion Paper Series

IZA DP No. 18958

September 2026

# Inequality, Fiscal Policy and Satisfaction with the Government: Decomposition and Simulation

## Federico Fiorani

LISER and University of Luxembourg

## Denisa M. Sologon

LISER and IZA@LISER

H. Xavier Jara

LSE and Universidad Loyola Andalucía

The IZA Discussion Paper Series (ISSN: 2365-9793) ("Series") is the primary platform for disseminating research produced within the framework of the IZA@LISER Network, an unincorporated international network of labour economists coordinated by the Luxembourg Institute of Socio-Economic Research (LISER). The Series is operated by LISER, a Luxembourg public establishment (*établissement public*) registered with the Luxembourg Business Registers under number J57, with its registered office at 11, Porte des Sciences, 4366 Esch-sur-Alzette, Grand Duchy of Luxembourg.

Any opinions expressed in this Series are solely those of the author(s). LISER accepts no responsibility or liability for the content of the contributions published herein. LISER adheres to the European Code of Conduct for Research Integrity. Contributions published in this Series present preliminary work intended to foster academic debate. They may be revised, are not definitive, and should be cited accordingly. Copyright remains with the author(s) unless otherwise indicated.



# Inequality, Fiscal Policy and Satisfaction with the Government: Decomposition and Simulation<sup>\*</sup>

## Abstract

Government satisfaction rose sharply in Ecuador between 2007 and 2014, a period marked by declining inequality and substantial changes in fiscal and social policy. We examine how far this increase is associated with changes in individual economic circumstances, the wider income distribution, and the tax–benefit system. Using nationally representative household survey data, we combine distributional Fairlie decompositions with a tax–benefit microsimulation counterfactual. Changes in observed socioeconomic characteristics explain around one fifth of the increase in satisfaction near the centre of the distribution. Within this explained component, the decline in provincial income inequality is substantially more important than changes in individuals’ own disposable income. The tax–benefit counterfactual points in the same direction: predicted satisfaction would generally have been lower had the 2014 population faced the 2007 tax–benefit rules, although this difference accounts for only a small part of the overall rise in satisfaction. The results also reveal substantial heterogeneity across income groups, with the counterfactual differences more pronounced among the poor than among the two middle-class groups. Overall, the findings highlight the importance of distinguishing individual economic resources from broader distributional conditions when examining evaluations of government.

## JEL classification

D31, D72, H24, I38, O54

## Keywords

satisfaction with government, income inequality, tax–benefit policy, political support, tax–benefit microsimulation, Ecuador

## Corresponding author

Federico Fiorani

[federico.fiorani@liser.lu](mailto:federico.fiorani@liser.lu)

---

<sup>\*</sup> This research was funded by the Luxembourg National Research Fund (FNR) (PRIDE23/18689055).

---

# 1 Introduction

Satisfaction with government is central to the functioning of democracies. Citizens' evaluations of government performance shape electoral behaviour, political support, and the willingness to comply with public policy, especially during periods of crisis when policy effectiveness depends on public cooperation (Baccini et al., 2025; Becher et al., 2024). In democracies, these evaluations are often closely tied to economic and social outcomes: whether household incomes improve, whether public services expand, whether inequality falls, and whether citizens perceive the state as delivering material progress (Singh and Mayne, 2023). This matters as governments can directly reform taxes, transfers, and social protection, while many other drivers of political support are less directly under their control.

This paper studies how changes in income, inequality, and the tax-benefit policies underlying these changes are associated with the sharp rise in satisfaction with the Ecuadorian government between 2007 and 2014 (see Figure 1). Ecuador offers a well-suited case because it combines political continuity with rapid economic, fiscal, and social change. Rafael Correa governed from 2007 to 2017, giving the country a stable political leadership after a period of institutional turbulence. At the same time, his administration benefited from positive macroeconomic conditions due to high global oil prices, expanded the role of the state, increased social spending, reformed taxes and transfers, invested in health and education, and presided over a marked fall in inequality (Weisbrot et al., 2017; Jara et al., 2025). Figure 2 shows the change in disposable income distribution and inequality. This combination makes Ecuador a valuable setting for asking whether citizens' improved evaluations of government can be traced to observable improvements in economic conditions and redistributive policy, or whether most of these changes reflect other political and social forces.

The outcome analysed in this paper is satisfaction with the government, measured in the National Survey of Employment, Unemployment and Underemployment (ENEMDU)<sup>1</sup> on an eleven-point scale from 0 to 10, which captures a direct evaluation of the incumbent government's performance. Much of the political support literature uses the broader concept of satisfaction with democracy<sup>2</sup>, but that question often mixes evaluations of democratic institutions with evaluations of the government currently in office. Our outcome is narrower: it captures how satisfied citizens report being with the government itself. This makes the measure particularly suitable for studying performance-based support during a period in which the state became more visible in the economic and social lives of the citizens.

The paper addresses three gaps in the literature. First, research on economic voting and political support has focused on average levels of approval or satisfaction (e.g. Singh and Mayne, 2023). While averages are useful, they hide where distributional changes occur. A rise in average satisfaction may reflect fewer deeply dissatisfied citizens, more people moving into the middle of the scale, or a larger group of highly satisfied citizens. These are politically different changes. This paper addresses this *methodological gap* by focusing on the whole distribution of satisfaction, beyond its mean. Second, existing work shows that income and inequality shape how citizens evaluate their governments in Latin America (Krieckhaus et al., 2013; Baccini et al., 2025). Yet, there is limited evidence on the extent to which changes in government satisfaction are associated specifically with changes in the tax-benefit system. This paper addresses this policy gap by showing the exactly what share of the change is linked to the fiscal policy alone. Third, the paper contributes to the debate over whether evaluations of government are driven more by individual- or society-centred considerations, commonly characterised as egotropic ("pocketbook") and sociotropic evaluations. The former refer to individuals' own circumstances, such as income or employment status,

---

<sup>1</sup>ENEMDU is Ecuador's official household and labour-force survey, administered by the National Institute of Statistics and Censuses (INEC) and designed to be nationally representative. Its large repeated cross-sectional samples provide extensive coverage of the Ecuadorian population. Our estimation sample contains 18,930 respondents in 2007 and 30,365 in 2014, making it considerably larger than the samples typically available in surveys combining household economic information with measures of political attitudes.

<sup>2</sup>The topic of satisfaction with the government appears in the literature under the broader concept of "satisfaction with democracy" (Singh and Mayne, 2023). For decades, the mainstream surveys asked "On the whole, are you very satisfied, fairly satisfied, not very satisfied, or not at all satisfied with the way democracy works in [country]?", which does not clearly isolate evaluations of democracy as an institution from evaluations of the incumbent government (Inglehart, 1977).

whereas the latter concern broader societal outcomes, such as income inequality (e.g. Meehl, 1977; Kinder and Kiewiet, 1981).

The empirical approach includes two steps. In a first step, the paper compares the 2007 and 2014 distributions of government satisfaction and determines how much of the shift is associated with changes in demographics, education, labour market status, disposable household income, health insurance, social transfers, and provincial inequality. This decomposition separates changes in the population and its economic circumstances from changes in how those same characteristics translate into satisfaction with government (Fairlie, 1999). Second, our paper applies a counterfactual decomposition framework in order to isolate the part of the satisfaction shift specifically linked to changes in the fiscal system itself, holding the rest of the 2014 population structure fixed. For this we use the **ECUAMOD** tax-benefit microsimulation model to construct a policy counterfactual (Decoster et al., 2018; Jara et al., 2025).

We find that observable socio-economic changes explain a meaningful part of the large increase in government satisfaction. Around one fifth of the central shift is associated with changes in observed characteristics, while the remaining four fifths reflects changes in the relationship between those characteristics and satisfaction, or other unobserved political and social factors. Among the observable factors, the reduction in provincial income inequality is by far the largest contributor, while changes in individual income and other economic characteristics play a smaller role. This suggests that the income-related association identified in the paper is primarily distributional rather than individual. The decomposition also reveals substantial heterogeneity across income groups, with the strongest differences among the poor. For this group, observed characteristics account for a larger share of the satisfaction gap toward the upper part of the distribution, and the tax-benefit counterfactual differences are more pronounced than among the two middle-class groups.

Overall, our paper provides a distributional and policy-anchored account of the economic component of government satisfaction. It shows where in the satisfaction distribution change occurred, how much of that change is associated with observable socio-economic shifts, and how satisfaction in 2014 would have differed had households faced the 2007 tax-benefit system. In doing so, it connects the literature on economic voting and political support with the development literature on redistribution, inequality, and social policy in Latin America.

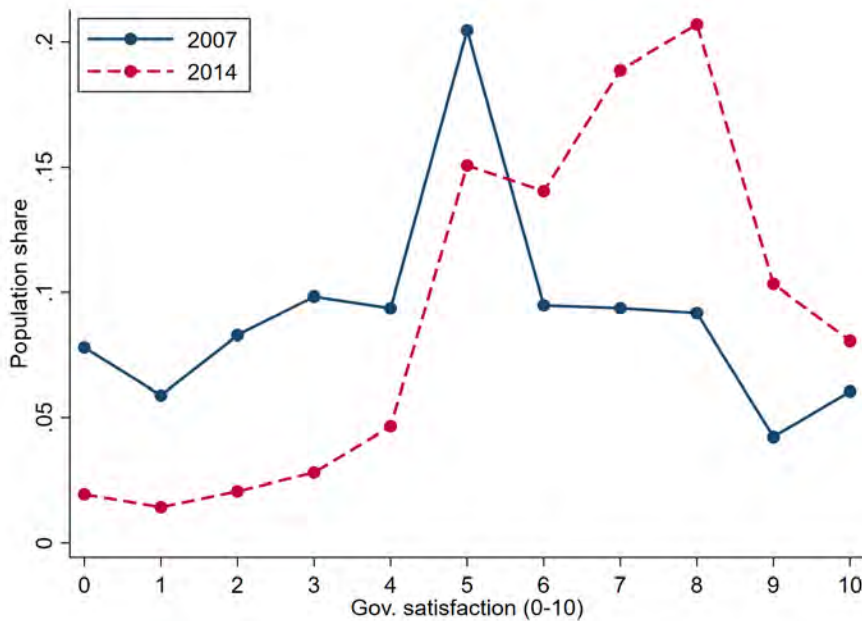


Figure 1: Government Satisfaction

The remainder of the paper is organised as follows. Section 2 presents the institutional and policy context

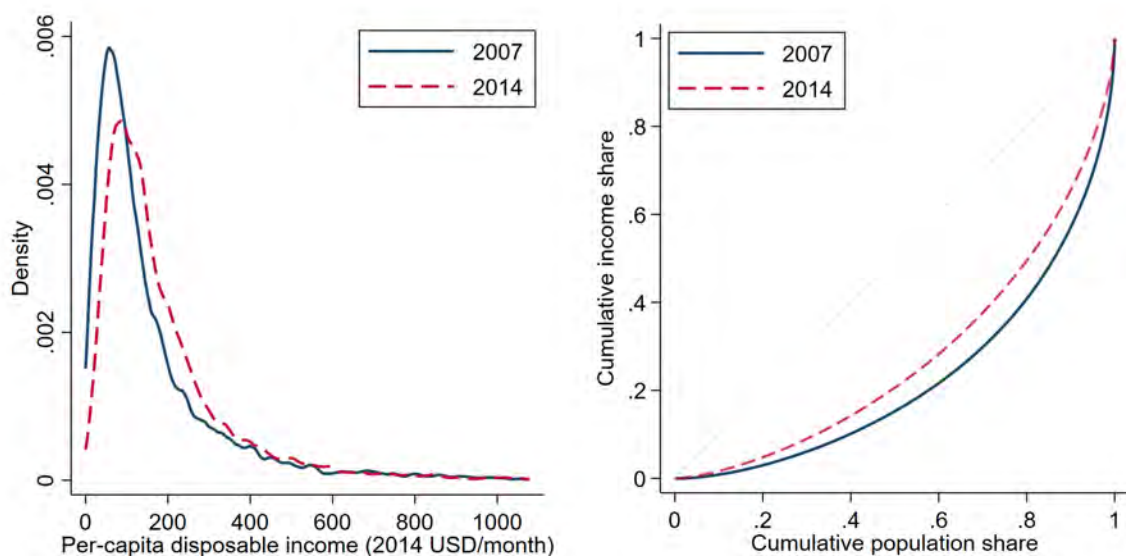


Figure 2: Income and Inequality

of Ecuador during the Correa period. Section 3 describes the data and empirical strategy. Section 4 presents the results. Section 5 discusses the implications of the findings.

## 2 Institutional Context – Policies and Trends

The presidency of Rafael Correa provides a period of political continuity in Ecuador, against which satisfaction with the government nevertheless fluctuated substantially. These changes coincided with substantial economic, distributive, and social-policy transformations (Weisbrot et al., 2017; Jara et al., 2025).

The period also coincided with favourable external conditions for much of the 2007–2014 window. As an oil-exporting and fully dollarized economy, Ecuador benefited from high international oil prices and favourable terms of trade, which generated substantial oil revenues and expanded the fiscal resources available to the government. Together with stronger domestic revenue mobilisation and access to external financing, these revenues increased the fiscal space available to the government (IMF, 2015). The macroeconomic environment therefore forms an important part of the context in which the Citizens’ Revolution implemented its economic and social-policy agenda. Improvements in household incomes and public services during this period occurred alongside both domestic policy reforms and favourable external conditions. These conditions began to deteriorate toward the end of 2014, when the sharp decline in international oil prices reduced oil-export and fiscal revenues.

In 2007, Ecuador entered the period known as the Citizens’ Revolution, following the election of Rafael Correa and the Alianza PAIS movement, which explicitly aimed to reverse the “long neoliberal night” through a model of twenty-first-century socialism and state-led development. The project combined the re-centralization of state authority and a stronger presidency with an agenda centred on social justice, redistribution, and the expansion of social rights (de la Torre, 2013). A new Constitution was approved in 2008, redefining the role of the state, enshrining a broad catalogue of social rights, and incorporating the post-development paradigm of *buen vivir* (*sumak kawsay*), which framed development in terms of collective well-being and the rights of nature rather than GDP growth alone (Villalba, 2013).

The new constitutional framework authorized an expanded regulatory and fiscal role for the state and

reconfigured key economic and financial institutions, including tighter regulation of the financial sector and a stronger role for public banks. At the same time, the Correa governments were characterized by contentious relations with organized civil society, indigenous movements, and the media. The consolidation of executive authority therefore proceeded alongside increasing state regulation of societal actors, a development that some authors characterize as “hyper-presidentialism” (de la Torre, 2013).

On the fiscal side, the Correa administration strengthened revenue mobilisation while making parts of the direct-tax system more progressive. The 2007 *Ley Reformatoria para la Equidad Tributaria* raised the highest marginal personal income-tax rate to 35%, introduced deductions for specified household expenses, and replaced the flat 5% inheritance and gift tax with a progressive schedule ranging from 5% to 35%. The reform also introduced taxes on extraordinary income and capital outflows, while subsequent reforms broadened tax bases and strengthened tax administration (Castro et al., 2014).

The direction of reform was not uniformly tax-increasing. The general corporate income-tax rate was reduced from 25% to 24% in 2011, 23% in 2012, and 22% from 2013, alongside deductions and temporary exemptions intended to encourage productive investment. At the same time, the government introduced additional taxes on financial institutions, foreign-held assets, and environmentally harmful activities, and modified excise taxes on tobacco and alcohol. The standard VAT rate remained at 12% throughout the period. The December 2014 reform further broadened the corporate tax base and strengthened provisions directed at tax avoidance and transactions involving tax havens (Castro et al., 2014; IMF, 2015).

Overall revenue mobilisation increased substantially. Measured according to the OECD definition, which includes compulsory social-security contributions, total tax revenue increased from 12.8% of GDP in 2007 to 19.0% in 2014. This increase was broad-based rather than driven solely by progressive direct taxation: between 2008 and 2014, income and profit taxes increased from 3.8% to 4.1% of GDP, while social-security contributions rose from 3.4% to 4.7% and taxes on goods and services from 6.8% to 10.1% (OECD et al., 2016). The increase in domestic revenue therefore complemented oil revenues in financing the broader expansion of the state’s fiscal activities.

Ecuador’s main cash-transfer programme, the *Bono de Desarrollo Humano* (BDH), underwent significant parameter changes between 2007 and 2014. Eligibility was targeted toward poor households using a national proxy means-test. Two versions of the targeting index were used during the period: the first from 2003 to 2009 and the second from 2009 to 2014 (Izurieta et al., 2024). Benefit amounts also increased over time: the monthly transfer was US\$30 in 2007 and had risen to US\$50 by 2012, in nominal terms. These changes in targeting and generosity mean that variation in BDH coverage and benefit amounts during the 2007–2014 period reflects not only household eligibility but also institutional changes to Ecuador’s flagship anti-poverty transfer.

In parallel, the government pursued a strategy of rebuilding public health services and strengthening social insurance, framed as part of a broader move toward a more universalist welfare model (Grugel and Ruggirozzi, 2018). Public social spending roughly doubled between the mid-2000s and early 2010s, while investment in health and education became a prominent component of the Citizens’ Revolution’s policy agenda (Weisbrot et al., 2017). These reforms affected household disposable income through transfers and reduced out-of-pocket payments while also increasing the visibility of the state in everyday life.

The Citizens’ Revolution also coincided with a marked improvement in average living standards and a decline in inequality, at least until the mid-2010s commodity slowdown. Between 2007 and 2014, Ecuador experienced robust income growth and a sizeable reduction in income inequality, with the Gini coefficient falling by around 8–10 points and incomes of the bottom 40% growing faster than the national average. Poverty and extreme-poverty rates also declined substantially over the same period, reflecting a combination of labour-market dynamics and expanded social transfers (Weisbrot et al., 2017).

These distributive outcomes were presented by the government as evidence of a post-neoliberal development strategy centred on progressive taxation, the renegotiation of oil and debt contracts, and the use of resource revenues to finance social investment. In this context, changes in household income, receipt of social transfers, and perceptions of inequality were not merely economic outcomes; they were also

politically salient indicators through which citizens could evaluate the perceived success or failure of the Citizens’ Revolution (de la Torre, 2013). This institutional and economic context is therefore central to interpreting changes in satisfaction with government over the period.

### 3 Data and Method

This section introduces the data used in the analysis and the methods used to decompose the change in government satisfaction in Ecuador between 2007 and 2014, and to quantify how much of that change can be attributed to the tax-benefit policy reforms that took place over the period.

#### 3.1 Data

The analysis uses the National Survey of Employment, Unemployment and Underemployment (ENEMDU), a nationally representative repeated cross-section conducted by the Ecuadorian Statistical Office (INEC) (INEC-ANDA, 2025). We pool the December rounds of 2007 and 2014 for the analysis as these rounds contain an additional module of perceptions and satisfaction with life domains. Government satisfaction is measured on an eleven-point scale running from 0 (*totalmente infeliz*) to 10 (*totalmente feliz*), and is asked to one respondent per household only – typically the household head or spouse. Following INEC’s protocol, we restrict the analysis sample to that designated respondent, with a fallback to the household head when the code of the respondent is ambiguous or points to a minor. All sample means, regressions, decompositions and counterfactual averages reported in the paper incorporate the survey design declared by INEC.

We construct the income data with ECUAMOD, the Ecuadorian module of the SOUTHMOD family of tax-benefit microsimulation models implemented in the EUROMOD software environment (Decoster et al., 2018; Sutherland and Figari, 2013). ECUAMOD encodes the contemporaneous legislation governing direct taxes, social insurance contributions and government cash transfers, and translates household-level market-income data from ENEMDU into individual-level disposable incomes under user-chosen policy regimes (Jara et al., 2025). Appendix A checks the SOUTHMOD data against the incomes calculated by INEC.<sup>3</sup>

We summarize the ECUAMOD weighted respondent data based on the two ENEMDU waves in Table 1. The headline pattern is the sharp rise in average government satisfaction, from 4.85 in 2007 to 6.65 in 2014 on the 0–10 scale – a gain of roughly 1.8 points, or about 37% of the 2007 mean. The shift accompanies modest improvements in average living standards: ECUAMOD-simulated per-capita disposable income rises marginally in real terms (from USD 239.02 to USD 248.96 in 2014 constant prices), while its standard deviation contracts by more than a third (from 497.30 to 314.47). The derived Gini inequality decreases from 52.28 to 43.30, Appendix B reports the specific values. Mean per-capita social-transfer income among recipients<sup>4</sup> rises from USD 64.71 to USD 73.88, while its standard deviation declines from 233.83 to 136.44. Health-insurance coverage moves from 32.8% of respondents in 2007 to 45.4% in 2014.

The labour market evolves as follows. Informal work declines from 38.3% to 34.2% of respondents and the unemployment share falls slightly from 1.8% to 1.4%, while public-sector employment is essentially unchanged at around 8%. Human capital improves at the bottom of the distribution, with the share of respondents whose highest attainment is primary or less dropping from 9.0% to 5.9% and the secondary share rising correspondingly. Demographic composition shifts only modestly – respondents are on average about one year younger (48.1 vs. 49.0), somewhat more often female (26.5% vs. 22.7%), and slightly more likely to self-identify as mestizo (84.0% vs. 80.7%) – while the urban–rural split and the marital-status distribution remain broadly stable.

<sup>3</sup>The corresponding results calculated directly from INEC income data are available from the authors upon request.

<sup>4</sup>The take-up rate of means-tested benefits is 100% in ECUAMOD.

Table 1: Descriptive statistics of the analysis sample (weighted respondents).

|                              | Year            |                 |
|------------------------------|-----------------|-----------------|
|                              | 2007            | 2014            |
| N                            | 3,404,545       | 4,171,711       |
| Govt satisfaction (0-10)     | 4.85 (2.76)     | 6.65 (2.20)     |
| Age                          | 49.04 (15.87)   | 48.13 (15.52)   |
| Disposable income p.c.       | 239.02 (497.30) | 248.96 (314.17) |
| Provincial Gini              | 53.27 (3.10)    | 44.71 (3.11)    |
| Sex                          |                 |                 |
| Male                         | (77.3%)         | (73.5%)         |
| Female                       | (22.7%)         | (26.5%)         |
| Marital status               |                 |                 |
| Partnered                    | (57.7%)         | (55.0%)         |
| Formerly Partnered           | (12.7%)         | (11.7%)         |
| Single                       | (29.6%)         | (33.3%)         |
| Education                    |                 |                 |
| Primary or less              | (9.0%)          | (5.9%)          |
| Secondary                    | (75.4%)         | (79.2%)         |
| Tertiary                     | (15.6%)         | (15.0%)         |
| Mestizo                      |                 |                 |
| Other                        | (19.3%)         | (16.0%)         |
| Mestizo                      | (80.7%)         | (84.0%)         |
| Area                         |                 |                 |
| Urban                        | (68.5%)         | (69.2%)         |
| Rural                        | (31.5%)         | (30.8%)         |
| Work status                  |                 |                 |
| Formal                       | (61.7%)         | (65.8%)         |
| Informal                     | (38.3%)         | (34.2%)         |
| Economic activity status     |                 |                 |
| Public Employee              | (7.8%)          | (8.0%)          |
| Private Employee             | (38.4%)         | (38.4%)         |
| Business owner/Self-employed | (39.3%)         | (37.0%)         |
| Retired                      | (5.0%)          | (5.5%)          |
| Unemployed                   | (1.8%)          | (1.4%)          |
| Student                      | (0.3%)          | (0.3%)          |
| Inactive                     | (5.2%)          | (5.3%)          |
| Sick                         | (1.5%)          | (3.3%)          |
| Unpaid                       | (0.8%)          | (0.8%)          |
| Health insurance             |                 |                 |
| Uninsured                    | (67.2%)         | (54.6%)         |
| Insured                      | (32.8%)         | (45.4%)         |
| Receives social transfer     |                 |                 |
| No                           | (73.1%)         | (74.8%)         |
| Yes                          | (26.9%)         | (25.2%)         |

*Notes:* ENEMDU respondents (one per household), weighted using the survey expansion factor. Actual (unweighted) sample sizes: 2007 N=18930; 2014 N=30365. Continuous variables report means (standard deviations); categorical variables report weighted percentage shares within each year. Variable definitions: *Disposable income p.c.* – ECUAMOD-simulated per-capita disposable household income, expressed in constant 2014 USD per month; *Provincial inequality* – provincial Gini coefficient calculated from per-capita disposable income; *Receives social transfer* – share of respondents living in a household receiving any social transfer (ECUAMOD assumes 100% take-up, so this also corresponds to the eligibility rate); *Government satisfaction* – self-reported satisfaction with the national government on the 0–10 ENEMDU consumer-module scale; *Marital status* – partnered (married/cohabiting), formerly partnered (separated/divorced/widowed), or single (never married); *Education* – highest level attained (primary or less, secondary, tertiary); *Mestizo* – whether the respondent self-identifies as mestizo (non-Mestizo / Mestizo); *Area* – urban or rural residence; *Work informality* – whether the respondent’s main job is informal (formal / informal); *Economic activity status* – labour-force category (public employee, private employee, business owner/self-employed, retired, unemployed, student, inactive, sick, unpaid worker); *Health insurance* – whether the respondent is covered by any health-insurance scheme.

## 3.2 Method

We proceed in two steps. First, we apply a cutpoint Fairlie decomposition (Fairlie, 1999, 2005, 2017) of the 2007–2014 gap in the cumulative probability of reporting satisfaction at or above each level  $c \in \{1, \dots, 10\}$  of the eleven-point scale. This step quantifies how much of the gap is associated with changes in the distribution of observable characteristics across years (the *composition*, or *explained* component) and how much with changes in the conditional relationship between these characteristics and satisfaction (the *returns*, or *unexplained* component). Second, we run a microsimulation counterfactual in which the 2007 tax-benefit system is applied to the 2014 population using ECUAMOD, and we use the probabilities estimated in the decomposition to predict, for the same 2014 respondents, the counterfactual satisfaction distribution that would have prevailed if the fiscal policies had remained fixed since 2007. Because the decomposition fixes the 2014 conditional model and the counterfactual uses the same fitted regressions, the two exercises are formally tied: the counterfactual isolates the policy-induced subset of the composition effect that the decomposition pools together.

### 3.2.1 Outcome variable and covariates

The dependent variable is the ordinal satisfaction-with-government score from the ENEMDU consumer module, and the covariate vector includes demographics, education, labour market status, household economic resources, health insurance, and provincial inequality.

Let  $Y_{it} \in \{0, 1, \dots, 10\}$  denote the government-satisfaction score reported by respondent  $i$  in year  $t \in \{2007, 2014\}$ . Because we do not wish to impose a cardinal interpretation of the eleven-point scale, we transform  $Y_{it}$  into a sequence of binary outcomes indexed by the cutpoint  $c$ :

$$Y_{it,c} = \mathbf{1}[Y_{it} \geq c], \quad c \in \{1, \dots, 10\}. \quad (1)$$

Each  $Y_{it,c}$  identifies one point of the cumulative distribution function (CDF) complement of  $Y_{it}$ , and the collection  $\{P(Y \geq c)\}_{c=1}^{10}$  together with the boundary  $P(Y \geq 0) \equiv 1$  recovers the full probability mass function via the standard differencing  $\Pr(Y = k) = P(Y \geq k) - P(Y \geq k + 1)$ . The cutpoint  $c = 0$  is degenerate ( $Y_{it,0} \equiv 1$ ) and is excluded from estimation.

The covariate vector  $X_{it}$  comprises six blocks, denoted

$$X = (X^D, X^E, X^L, X^I, X^G, X^R)$$

with *demographics*  $X^D$  (age, sex, marital status, ethnicity, urban/rural residence); *education*  $X^E$  (highest level attained, with primary as the omitted category); *labour market*  $X^L$  (an informal-work indicator, economic-status and the health insurance dummy); *income block*  $X^I$  (the log of equivalised disposable household income<sup>5</sup>, and an indicator for receipt of any social transfer); *provincial inequality*  $X^G$  (the Gini coefficient on equivalised disposable income at the province–year cell); and *regional fixed effects*  $X^R$  (region dummies).

The *income block*, comprising both observed and counterfactual disposable income and social transfers,  $X^I$ , is constructed using ECUAMOD. ECUAMOD allows us to construct disposable-income distributions under alternative tax-benefit systems: the observed distribution is obtained by applying each year’s tax-benefit rules to that year’s population and market-income data, while counterfactual distributions are obtained by applying the tax-benefit rules of one year to the population and market-income data of another. We exploit this feature to generate, for each respondent observed in the 2014 wave, the disposable income and social transfers that would have obtained had the 2007 tax-benefit system been in force in 2014—here referred as *07-on-14* simulation. From the resulting counterfactual income distribution, we also compute the corresponding provincial Gini coefficients. We denote the resulting vector by  $X_{i,2014}^{I,07on14}$  and the

<sup>5</sup>Equivalised income follows INEC’s per-capita convention (household disposable income divided by household size) and is expressed in 2014 constant prices.

corresponding provincial Gini by  $X_{r,2014}^{G,07on14}$ . Demographics, education, labour market characteristics, and region enter the simulation as inputs rather than outputs and are therefore held fixed in the counterfactual:  $X_{i,2014}^{\{D,E,L,R\},07on14} = X_{i,2014}^{\{D,E,L,R\}}$ . The *07-on-14* vector therefore differs from the observed 2014 vector  $X_{i,2014}$  only in the income block and in the inequality measure derived from the resulting disposable-income distribution.

### 3.2.2 Distributional Fairlie decomposition

We decompose the change in government satisfaction between 2007 and 2014 into a component associated with changes in observed characteristics (e.g., income levels and inequality) and a component associated with changes in the conditional relationship between those characteristics and satisfaction.

Because  $Y$  is an ordered, bounded 0–10 response, a Blinder–Oaxaca decomposition<sup>6</sup> would be restrictive in two respects. First, it assigns equal metric distance to adjacent response categories and therefore adopts a particular cardinalization of the scale, an assumption that remains debated in the subjective well-being literature: Oswald (2008) and Kaiser and Lepinteur (2025) emphasize that the reporting function and equal-interval interpretation of subjective scales are not innocuous. Second, as emphasised by the distributional decomposition literature, mean decompositions do not reveal whether group differences arise at the bottom, middle, or top of the outcome distribution (DiNardo et al., 1996; Firpo et al., 2009; Fortin et al., 2011). We therefore decompose cumulative cutpoint probabilities,  $P(Y \geq c)$ , for  $c = 0, \dots, 10$ , following the logic of ordinal and survival-function decompositions for ordered outcomes (Wu and Kaplan, 2025). This preserves the ordinal information in the outcome, makes the location of the gap transparent, and allows covariate contributions to vary across the satisfaction distribution.

More specifically, we use a sequence of decompositions of  $\Delta_c \equiv \Pr(Y_{2014} \geq c) - \Pr(Y_{2007} \geq c)$  for  $c = 1, \dots, 10$ . The collection  $\Delta_c$  summarises the entire change in the satisfaction distribution between the two waves, and its component-wise decomposition allows the contribution of each covariate block to vary along the support of  $Y$ . Our cutpoint logits are a distribution-regression estimator of the conditional CDF complement  $\Pr(Y \geq c | X)$  in the sense of Foresi and Peracchi (1995) and Chernozhukov et al. (2013): sweeping the fitted probability  $\Lambda(\hat{\alpha}_{c,t} + X' \hat{\beta}_{c,t})$  across  $c$  traces out an estimate of the whole conditional distribution of  $Y$  given  $X$ , rather than a single conditional mean or quantile. This is what lets the decomposition below recover a genuine Chernozhukov et al. (2013) counterfactual distribution: the composition term  $E_c$  in (3) applies the same fitted 2014 logit — the identical estimated relationship between characteristics and satisfaction — to the 2007 sample’s characteristics instead of the 2014 sample’s, and averages the resulting predicted probabilities across each group in turn. Holding the fitted relationship fixed while substituting one year’s population of characteristics for the other’s is exactly the construction that defines a Chernozhukov et al. (2013) counterfactual distribution.  $\Delta_c$  is the observed distributional gap that this counterfactual construction decomposes, evaluated pointwise at each of the ten thresholds.<sup>7</sup>

We propose the following conditional model. For each cutpoint  $c$  and year  $t$  we estimate a binary logit

$$\Pr(Y_{it,c} = 1 | X'_{it}) = \Lambda(\alpha_{c,t} + X'_{it}\beta_{c,t}), \quad \Lambda(z) = \frac{e^z}{1+e^z}, \quad (2)$$

<sup>6</sup>Let  $\text{Gov}\bar{\text{Sat}}_{2014}$  and  $\text{Gov}\bar{\text{Sat}}_{2007}$  denote average satisfaction with government in 2014 and 2007, respectively. The total mean difference between the two years is:

$$\Delta = \text{Gov}\bar{\text{Sat}}_{2014} - \text{Gov}\bar{\text{Sat}}_{2007}.$$

Using the Oaxaca–Blinder framework, this difference can be decomposed as:

$$\Delta = \underbrace{(\bar{X}_{2014} - \bar{X}_{2007})' \hat{\beta}_{2007}}_{\text{Explained component}} + \underbrace{\bar{X}'_{2014} (\hat{\beta}_{2014} - \hat{\beta}_{2007})}_{\text{Unexplained component}},$$

where  $\bar{X}_{2007}$  and  $\bar{X}_{2014}$  are the vectors of mean characteristics in each year, and  $\hat{\beta}_{2007}$  and  $\hat{\beta}_{2014}$  are the estimated coefficients from the year-specific regressions.

<sup>7</sup>Because a proportion is already a linear functional of  $F$ ,  $Y_{it,c} = \mathbf{1}[Y_{it} \geq c]$  is trivially its own influence function for  $\Pr(Y \geq c)$  (Firpo et al., 2009), so a linear-probability Oaxaca on  $Y_{it,c}$  is already the RIF-Oaxaca for this proportion with no nontrivial recentering. The Fairlie specification used in the main analysis is the natural nonlinear generalisation of that same decomposition, respecting the binary support of  $Y_{it,c}$ .

where  $X_{it}$  contains the six covariate blocks defined above and the model is fitted with survey weights.<sup>8</sup> The pair  $(\hat{\alpha}_{c,t}, \hat{\beta}_{c,t})$  characterises the year- $t$  conditional model at cutpoint  $c$ .

Following Fairlie (1999, 2005), the gap in  $\Pr(Y \geq c)$  between 2014 (the reference year) and 2007 admits the non-linear decomposition

$$\Delta_c = \underbrace{\left[ \frac{1}{N_{14}} \sum_{i=1}^{N_{14}} \Lambda(\hat{\alpha}_{c,14} + X'_{i,14} \hat{\beta}_{c,14}) - \frac{1}{N_{07}} \sum_{i=1}^{N_{07}} \Lambda(\hat{\alpha}_{c,14} + X'_{j,07} \hat{\beta}_{c,14}) \right]}_{\text{Composition (explained)} \equiv E_c} + \underbrace{\left[ \frac{1}{N_{07}} \sum_{i=1}^{N_{07}} \Lambda(\hat{\alpha}_{c,14} + X'_{j,07} \hat{\beta}_{c,14}) - \frac{1}{N_{07}} \sum_{i=1}^{N_{07}} \Lambda(\hat{\alpha}_{c,07} + X'_{j,07} \hat{\beta}_{c,07}) \right]}_{\text{Returns (unexplained)} \equiv U_c}, \quad (3)$$

where  $N_t$  is the year- $t$  respondent sample size. The composition component  $E_c$  asks how much  $\Pr(Y \geq c)$  would change if the 2007 covariate distribution were replaced by the 2014 distribution while holding the 2014 conditional model fixed. The returns component  $U_c$  captures how much  $\Pr(Y \geq c)$  would change if the 2007 conditional model were replaced by the 2014 conditional model while holding the 2007 covariate distribution fixed. By construction  $\Delta_c = E_c + U_c$ .

Additional calculations identify the contribution of the specific blocks to the explained part of the satisfaction gap. For example, let  $X^{-D}$  collect all covariates other than demographics. If demographics are replaced first, their contribution is

$$E_c^D = \frac{1}{N_{14}} \sum_{i=1}^{N_{14}} \left[ \Lambda(\hat{\alpha}_{c,14} + (X_{i,14}^D)' \hat{\beta}_{c,14}^D + (X_{i,07}^{-D})' \hat{\beta}_{c,14}^{-D}) - \Lambda(\hat{\alpha}_{c,14} + (X_{i,07}^D)' \hat{\beta}_{c,14}^D + (X_{i,07}^{-D})' \hat{\beta}_{c,14}^{-D}) \right]. \quad (4)$$

Thus,  $E_c^D$  compares predicted probabilities when demographic characteristics are taken from the paired 2014 observation rather than the 2007 observation, while all other covariates remain at their 2007 values.

If  $X^E$  is replaced next, its contribution is

$$E_c^E = \frac{1}{N_{14}} \sum_{i=1}^{N_{14}} \left[ \Lambda(\hat{\alpha}_{c,14} + (X_{i,14}^E)' \hat{\beta}_{c,14}^E + (X_{i,07}^{-E})' \hat{\beta}_{c,14}^{-E}) - \Lambda(\hat{\alpha}_{c,14} + (X_{i,07}^E)' \hat{\beta}_{c,14}^E + (X_{i,07}^{-E})' \hat{\beta}_{c,14}^{-E}) \right]. \quad (5)$$

To implement (4), (5), and the analogous expressions for the remaining covariate blocks, the Fairlie algorithm first orders observations in the two years by their predicted probabilities (of being above a certain cutpoint) under the reference model and pairs observations according to their ranks in the two distributions (Fairlie, 2005). Because the 2007 and 2014 cross-sectional samples differ in size, an equal-sized subsample is drawn from the larger sample before the pairs are formed. For notational simplicity, we retain  $N_{14}$  in the detailed-decomposition formulas above; in those expressions it refers only to the observations entering the paired sample in a given replication, rather than to the full 2014 estimation sample.

The detailed contributions are sensitive both to the particular subsample used to form the pairs and to the order in which the covariate blocks are replaced (Gelbach, 2016; Fairlie, 2017). We address these sources of sensitivity following Fairlie (2017) by repeatedly performing the decomposition with randomised subsampling and randomised ordering of the covariate blocks. Specifically, we use the `ro` and `reps()` options of Ben Jann's `fairlie` command in Stata, with  $R = 1000$  replications for the overall decomposition and  $R = 500$  for the stratified decomposition.<sup>9</sup> The reported detailed contributions are averages across

<sup>8</sup>Throughout the analysis, estimation and sample averages use the ENEMDU survey weights unless otherwise stated. Survey weights are also incorporated in the resampling procedure used for the Fairlie decomposition.

<sup>9</sup>A fixed random seed makes the procedure exactly reproducible. Survey weights are incorporated in the resampling procedure following Fairlie (2017).

these replications. Throughout, 2014 is used as the reference year, so the 2014 logit coefficients anchor both the aggregate composition component  $E_c$  and its detailed block contributions. We also retain the estimated 2014 cutpoint-logit coefficients and use them to construct the microsimulation counterfactuals described below.

### 3.2.3 Counterfactual scenario of taxes and benefits

The decomposition in Section 3.2.2 compares the actual 2007 and 2014 distributions of  $X$  and of  $Y | X$ , and therefore combines all channels through which  $X$  could differ between waves – demographic changes, structural transformation of the labour market, and the direct effect of tax-benefit policy on disposable income, transfers and (through the income distribution) income inequality. The counterfactual prediction focuses on the last of these channels by holding all other characteristics at their 2014 values and replacing only the income component of  $X$  with what it would have been under the 2007 tax-benefit system.

This counterfactual construction builds on the tax-benefit microsimulation literature, which isolates the contribution of policy reforms by applying the tax-benefit rules of one period to the population and market-income distribution of another period (Bargain and Callan, 2010). A recent application of this approach to Ecuador uses ECUAMOD to quantify the contribution of tax-benefit reforms to changes in poverty and inequality over time (Jara et al., 2025). We adapt this logic to government satisfaction: rather than treating the resulting counterfactual disposable income distribution as the outcome of interest, we use it to construct the economic covariates entering the estimated satisfaction model.

For each respondent observed in 2014, we construct the counterfactual covariate vector as follows:

$$X_{i,2014}^{07on14} = (X_{i,2014}^D, X_{i,2014}^E, X_{i,2014}^L, X_{i,2014}^{I,07on14}, X_{i,2014}^{G,07on14}, X_{i,2014}^R), \quad (6)$$

where the income block and the provincial Gini are obtained from the ECUAMOD 07-on-14 simulation, in which the 2007 tax-benefit system is applied to the 2014 population and market-income data, while the remaining four blocks retain their observed 2014 values. Disposable income in both the observed and counterfactual scenarios is expressed in 2014 prices using the CPI deflator, consistently with the variables used to estimate the cutpoint logits.

For each cutpoint  $c$ , we use the same estimated 2014 conditional model that anchors the Fairlie composition component (Section 3.2.2) and apply it to the 07-on-14 covariate vector:

$$\widehat{\Pr}(Y \geq c | 07on14) = \frac{1}{N_{14}} \sum_{i=1}^{N_{14}} \Lambda(\hat{\alpha}_{c,14} + (X_{i,2014}^{07on14})' \hat{\beta}_{c,14}). \quad (7)$$

We compare  $\widehat{\Pr}(Y \geq c | 07on14)$  with the observed cumulative share  $\widehat{\Pr}(Y \geq c | 2014)$ . The contrast

$$\widehat{PE}_c = \widehat{\Pr}(Y \geq c | 07on14) - \widehat{\Pr}(Y \geq c | 2014) \quad (8)$$

isolates the cutpoint- $c$  *policy effect*: the change in  $\Pr(Y \geq c)$  that the 2014 population would have experienced if the income block had been generated under the 2007 system rather than the 2014 system, holding the 2014 conditional model and all non-income regressors fixed.

The composition effect  $E_c$  measures the joint contribution of *all* covariate blocks to total change in satisfaction ( $\Delta_c$ ); in particular, demographic and educational change between 2007 and 2014 – driven by ageing, schooling expansion, and structural transformation – enter explained change ( $E_c$ ) alongside the policy-induced changes in income levels and inequality ( $X^I$  and  $X^G$ ). Equation (7), by contrast, holds the non-income blocks fixed at their 2014 values and varies only the income blocks ( $X^I$  and  $X^G$ ). The two exercises are therefore complementary: the decomposition reveals how much of the observed gap is associated with covariates, while the counterfactual shows how much would have moved if only the policy levers had reverted i.e., if the policymaker applied the 2007 tax-benefit system to the population living in

Ecuador in 2014. Mechanically,  $\widehat{PE}_c$  is the increment to  $E_c$  contributed by the tax-benefit system under a fixed reference covariate distribution (namely the 2014 distribution), as a well-defined “fiscal policy slice”.

To probe heterogeneity in the policy effect and in the underlying decomposition, we re-run Sections 3.2.2–3.2.3 within each level of the categorical stratifiers: marital status, education, informal work, economic status, region, urban/rural residence, health insurance, ethnicity, and income categories. We describe the last of these in the result section, while Appendix C shows the outputs for all the categories.

## 4 Results

Our analysis combines two complementary exercises for the 2007–2014 ENEMDU samples. First, we conduct a cutpoint-by-cutpoint Fairlie decomposition of the change in government satisfaction (equation 3), which quantifies the extent to which changes in observed characteristics account for the observed satisfaction gap. Second, we implement a microsimulation-based counterfactual in which the policy-sensitive economic covariates – disposable income and social transfers, together with the provincial Gini coefficient derived from the resulting income distribution – are replaced by the values that would prevail under the 2007 tax-benefit rules (equation 7). Both exercises use the 2014 logit specification as the reference model. This common reference allows the counterfactual exercise to identify the portion of the model-based explained gap associated with changes in the tax-benefit system, while holding the remaining 2014 characteristics fixed.

We present the results in four steps. We first document the change in the distribution of government satisfaction between 2007 and 2014 and assess how much of this change is accounted for by differences in observed characteristics (Figure 3). We then disaggregate the explained component into the contributions of the individual covariate blocks (Table 3). Third, we use the microsimulation counterfactual to examine the part of the explained gap associated with changes in the tax-benefit system (Figure 4). Finally, we examine whether these aggregate patterns differ across income groups (Figure 6). Results for the remaining stratifications are reported in Appendix C.

### 4.1 The 2007–2014 satisfaction gap

Government satisfaction shifted upward substantially between 2007 and 2014 across almost the entire distribution. At  $c = 1$ , the probability of reporting a satisfaction score at or above the cutpoint increases from 0.921 in 2007 to 0.981 in 2014, corresponding to a gap of 5.9 percentage points. The difference widens progressively toward the middle of the scale and reaches its maximum at  $c = 6$ , where  $\Pr(Y \geq 6)$  rises from 0.383 to 0.725. This represents an increase of 34.2 percentage points (95% CI: [0.330, 0.354]). Beyond this cutpoint, the gap narrows again, falling to 29.5 percentage points at  $c = 7$ , 19.7 points at  $c = 8$ , 8.4 points at  $c = 9$ , and 2.5 points at  $c = 10$ . The 2007–2014 change is therefore concentrated primarily in the middle and upper-middle of the satisfaction distribution rather than at its extremes.

The Fairlie decomposition separates the part of the observed gap associated with changes in observed characteristics from the part associated with changes in the conditional relationship between those characteristics and government satisfaction (Table 2). The explained component is positive throughout the scale and statistically distinguishable from zero between  $c = 2$  and  $c = 9$ . At  $c = 6$ , where the overall gap is largest, compositional change accounts for 19.6% of the difference, while the remaining 80.4% is associated with changes in the conditional relationship between the included characteristics and satisfaction.

The relative importance of compositional change increases toward the upper end of the satisfaction distribution. The explained share rises from 22.3% at  $c = 7$  to 29.5% at  $c = 8$  and 41.9% at  $c = 9$ . At  $c = 10$ , the point estimate rises further to 51.1%, although neither the explained nor the unexplained component is statistically distinguishable from zero at this cutpoint. Taken together, these results suggest

Table 2: Fairlie decomposition of  $P(\text{satisfaction} \geq c)$ , 2007 vs 2014.

| $c$       | 2014<br>$\Pr(Y \geq c)$ | 2007<br>$\Pr(Y \geq c)$ | Difference<br>(2014 – 2007) | Explained<br>(composition)  | Unexplained<br>(returns)    | % expl.<br>of diff. |
|-----------|-------------------------|-------------------------|-----------------------------|-----------------------------|-----------------------------|---------------------|
| $\geq 1$  | 0.9806                  | 0.9214                  | 0.0592<br>[0.0533, 0.0652]  | 0.0087<br>[-0.0010, 0.0185] | 0.0505<br>[0.0391, 0.0619]  | 14.7%               |
| $\geq 2$  | 0.9672                  | 0.8640                  | 0.1032<br>[0.0958, 0.1106]  | 0.0150<br>[0.0027, 0.0274]  | 0.0881<br>[0.0737, 0.1026]  | 14.6%               |
| $\geq 3$  | 0.9468                  | 0.7805                  | 0.1663<br>[0.1574, 0.1752]  | 0.0301<br>[0.0140, 0.0462]  | 0.1362<br>[0.1178, 0.1546]  | 18.1%               |
| $\geq 4$  | 0.9187                  | 0.6827                  | 0.2360<br>[0.2259, 0.2460]  | 0.0446<br>[0.0257, 0.0636]  | 0.1913<br>[0.1699, 0.2128]  | 18.9%               |
| $\geq 5$  | 0.8731                  | 0.5874                  | 0.2857<br>[0.2747, 0.2967]  | 0.0420<br>[0.0214, 0.0627]  | 0.2437<br>[0.2203, 0.2671]  | 14.7%               |
| $\geq 6$  | 0.7250                  | 0.3830                  | 0.3420<br>[0.3297, 0.3543]  | 0.0669<br>[0.0407, 0.0931]  | 0.2751<br>[0.2462, 0.3040]  | 19.6%               |
| $\geq 7$  | 0.5832                  | 0.2880                  | 0.2952<br>[0.2826, 0.3078]  | 0.0659<br>[0.0389, 0.0929]  | 0.2293<br>[0.1995, 0.2591]  | 22.3%               |
| $\geq 8$  | 0.3921                  | 0.1946                  | 0.1975<br>[0.1856, 0.2094]  | 0.0583<br>[0.0333, 0.0833]  | 0.1392<br>[0.1115, 0.1668]  | 29.5%               |
| $\geq 9$  | 0.1870                  | 0.1028                  | 0.0841<br>[0.0749, 0.0934]  | 0.0353<br>[0.0169, 0.0536]  | 0.0489<br>[0.0283, 0.0695]  | 41.9%               |
| $\geq 10$ | 0.0851                  | 0.0600                  | 0.0252<br>[0.0183, 0.0320]  | 0.0129<br>[-0.0004, 0.0261] | 0.0123<br>[-0.0026, 0.0272] | 51.1%               |

Notes: Fairlie (Jann, SSC) decomposition of the 2007–2014 gap in satisfaction. Reference logit estimated on year 2014. The first row of each cell block reports point estimates; the second row reports 95% confidence intervals.

that changes in observed characteristics account for a larger share of movement into the upper tail of the satisfaction distribution than of the much larger shift around its centre. Figure 3 illustrates this pattern graphically.

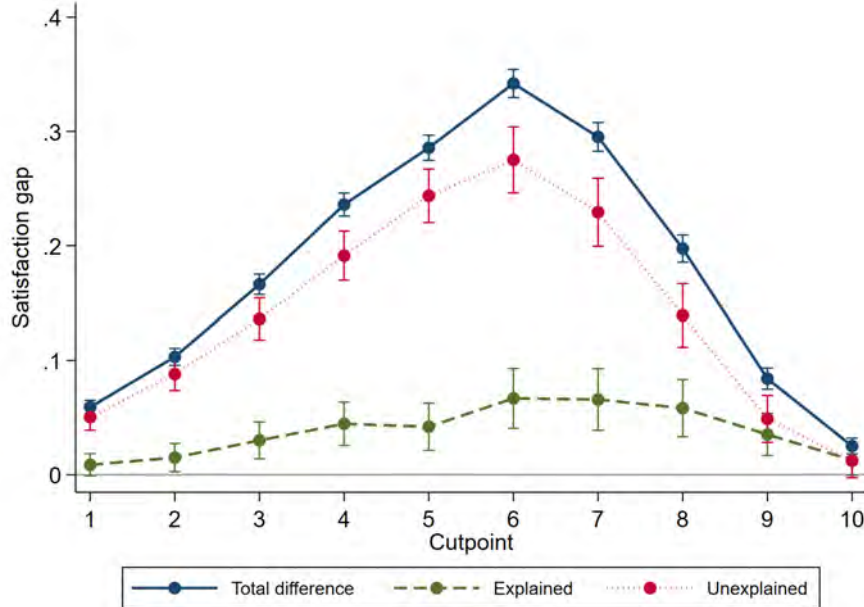
Figure 3: Cutpoint Fairlie decomposition of the 2007–2014 gap in  $\Pr(Y \geq c)$ . CI: 95%.

Table 3 disaggregates the explained component into the contributions of the individual covariate blocks. The dominant contribution comes from the inequality block. At  $c = 6$ , changes in provincial income

inequality account for 84.8% of the explained component. This pattern persists toward the upper part of the distribution: inequality accounts for 85.1% of the explained component at  $c = 7$ , 87.1% at  $c = 8$ , and 92.1% at  $c = 9$ . Its contribution is statistically distinguishable from zero from  $c = 2$  through  $c = 9$ . Changes in provincial income inequality therefore account for most of the part of the satisfaction increase associated with changes in observed characteristics.

This result is particularly relevant in the Ecuadorian context because reducing inequality was a prominent objective of the Citizens' Revolution and one of the most visible distributive changes over the period considered here. The decomposition therefore indicates that, among the socioeconomic changes captured by our model, the dimension most closely associated with the increase in government satisfaction is also one that occupied a central place in the government's redistributive agenda.

Labour-market characteristics provide the second-largest positive contribution. The employment block is statistically distinguishable from zero between  $c = 5$  and  $c = 8$  and accounts for approximately 8.5% of the explained component at both  $c = 6$  and  $c = 7$ . The direct contribution of household income is smaller: at  $c = 6$ , the income block accounts for 5.2% of the explained component and is statistically distinguishable from zero at  $c = 6$ ,  $c = 8$ , and  $c = 9$ .

The contrast between the income and inequality blocks is particularly relevant for the subsequent counterfactual analysis. Changes in household economic resources make a comparatively modest direct contribution to the decomposition, whereas changes in their distribution, as captured by provincial inequality, account for most of the explained component. Because the tax-benefit counterfactual affects both disposable household resources and the inequality measure generated by the resulting income distribution, its implications need not correspond to the contribution of the income block alone. The remaining covariate blocks make comparatively small and mostly statistically indistinguishable contributions.

Table 3: Detailed contributions to the composition effect  $E_c$ , by covariate block and cutpoint.

| $c$       | Total $E_c$ | Demographics | Education | Employment | Income  | Inequality | Region    |
|-----------|-------------|--------------|-----------|------------|---------|------------|-----------|
| $\geq 1$  | 0.0087      | 0.0003       | -0.0001   | 0.0003     | -0.0005 | 0.0089     | -0.0002   |
| $\geq 2$  | 0.0150      | 0.0007       | -0.0003   | 0.0005     | 0.0003  | 0.0140*    | -0.0001   |
| $\geq 3$  | 0.0301      | 0.0008       | -0.0004   | 0.0011     | 0.0015  | 0.0274***  | -0.0002   |
| $\geq 4$  | 0.0446      | 0.0002       | -0.0004   | 0.0015     | 0.0014  | 0.0419***  | -0.0000   |
| $\geq 5$  | 0.0420      | 0.0008       | -0.0002   | 0.0024*    | 0.0020  | 0.0369***  | 0.0001    |
| $\geq 6$  | 0.0669      | 0.0011       | -0.0005   | 0.0057***  | 0.0035* | 0.0567***  | 0.0003    |
| $\geq 7$  | 0.0659      | 0.0012       | 0.0001    | 0.0056***  | 0.0022  | 0.0561***  | 0.0008*** |
| $\geq 8$  | 0.0583      | -0.0012      | 0.0004    | 0.0043**   | 0.0029* | 0.0508***  | 0.0011*** |
| $\geq 9$  | 0.0353      | -0.0012      | -0.0004   | 0.0011     | 0.0023* | 0.0325***  | 0.0009*** |
| $\geq 10$ | 0.0129      | -0.0009      | 0.0001    | -0.0000    | 0.0010  | 0.0122     | 0.0004*   |

Notes: Cells are point estimates in shares ( $\hat{\Lambda}$  scale); stars indicate significance (\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ).

## 4.2 Counterfactual scenario: applying the 2007 system to 2014 population

Figure 4 reports the difference between the predicted satisfaction distribution under the 2007 tax-benefit rules applied to the 2014 population and that predicted under the observed 2014 system. Recall that the counterfactual effect is defined as  $\widehat{\Pr}(Y \geq c \mid 07on14) - \widehat{\Pr}(Y \geq c \mid 2014)$ . A negative value therefore indicates that, holding the 2014 population characteristics and satisfaction model fixed, the probability of reporting satisfaction at or above cutpoint  $c$  would have been lower under the 2007 tax-benefit system.

The estimated difference is negative at every cutpoint. Its magnitude is small at the bottom of the satisfaction distribution, increases around its middle, and declines again toward the top. The largest difference occurs at  $c = 6$ , where applying the 2007 system to the 2014 population reduces the predicted probability of reporting satisfaction of at least six by approximately 0.54 percentage points. Differences of a similar magnitude are obtained at  $c = 7$  and  $c = 8$ , at approximately 0.48 and 0.51 percentage points,

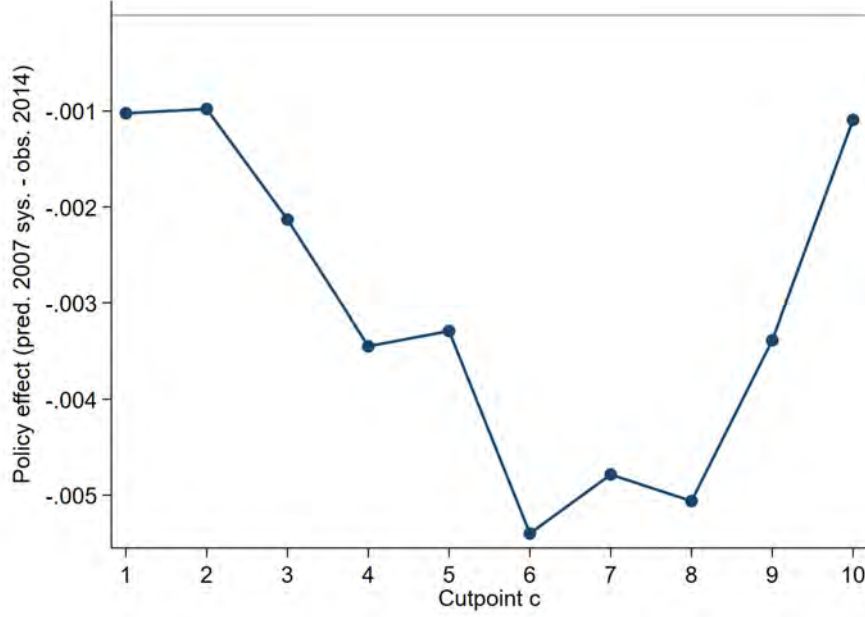


Figure 4: Policy effect  $\widehat{PE}_c$ .

respectively. These results indicate that the tax-benefit changes between 2007 and 2014 are associated with a modest upward shift in the predicted satisfaction distribution, particularly around its middle and upper-middle range.

The counterfactual contribution is small relative to the full increase in government satisfaction. At  $c = 6$ , the counterfactual difference represents approximately 1.6% of the observed 2007–2014 satisfaction gap. This share rises to 2.6% at  $c = 8$  and 4.0% at  $c = 9$ , largely because the overall satisfaction gap becomes smaller toward the upper end of the scale. Relative to the explained component of the Fairlie decomposition, however, the corresponding shares are larger: approximately 8.1% at  $c = 6$ , 8.7% at  $c = 8$ , and 9.6% at  $c = 9$ . The tax-benefit counterfactual therefore accounts for only a limited part of the overall rise in satisfaction, but for a non-negligible share of the portion associated with changes in observed characteristics.

This relatively modest counterfactual contribution is also consistent with the broader institutional setting. Jara et al. (2025) show that tax-benefit reforms contributed to reductions in poverty and inequality in Ecuador up to 2014, but that changes in market income and other population characteristics also made important contributions. Our counterfactual isolates only the tax-benefit channel operating through disposable income, transfers, and the resulting income distribution.

### 4.3 Heterogeneity by income category

Income is a particularly relevant dimension along which to examine heterogeneity because the tax-benefit reforms considered here operate directly through disposable household resources and social transfers, while their distributional implications need not be uniform across the income distribution. We therefore repeat both the Fairlie decomposition and the tax-benefit counterfactual separately for four socioeconomic groups: poor, vulnerable middle class, consolidated middle class, and high-income.<sup>10</sup>

<sup>10</sup>The four groups follow the socioeconomic classification used by the Inter-American Development Bank and already implemented for the Andean region (Duryea and Robles, 2017; Jara et al., 2023). The classification starts from a benchmark of US\$3.10 per person per day in 2011 PPP terms and defines the three boundaries as 1.6, 4, and 20 times this benchmark, corresponding to US\$4.96, US\$12.40, and US\$62.00 per person per day in 2011 PPP terms. We convert these international thresholds into monthly Ecuadorian values and express them in 2014 prices. This yields monthly per-capita thresholds of approximately US\$92.46, US\$231.15, and US\$1,155.77 in 2014 prices. Accordingly, individuals are classified as poor below

The increase in government satisfaction is visible across all four income groups (Figure 5). As in the aggregate results, the 2007–2014 gap is largest around the middle of the satisfaction distribution. At  $c = 6$ , the gap is approximately 35 percentage points among both the poor and the vulnerable middle class, 30 percentage points among the consolidated middle class, and 29 percentage points among the high-income respondents. The broad upward shift in satisfaction is therefore not confined to a particular part of the income distribution.

The extent to which changes in observed characteristics account for this increase, however, differs substantially across socioeconomic groups. At  $c = 6$ , the explained component accounts for 13.9% of the satisfaction gap among the poor and 13.6% among the vulnerable middle class, compared with 32.4% among the consolidated middle class. For the poor, the relative importance of the explained component increases markedly toward the upper part of the satisfaction distribution, reaching 29.5% at  $c = 7$ , 40.4% at  $c = 8$ , and 74.5% at  $c = 9$ . Among the vulnerable middle class, the corresponding shares are smaller, at 17.0%, 23.7%, and 34.7%, respectively. By contrast, among the consolidated middle class the explained share is largest around the centre of the distribution and does not increase in the same way toward the upper tail. Estimates for the high-income group are substantially imprecise, mostly due to its smaller sample size.

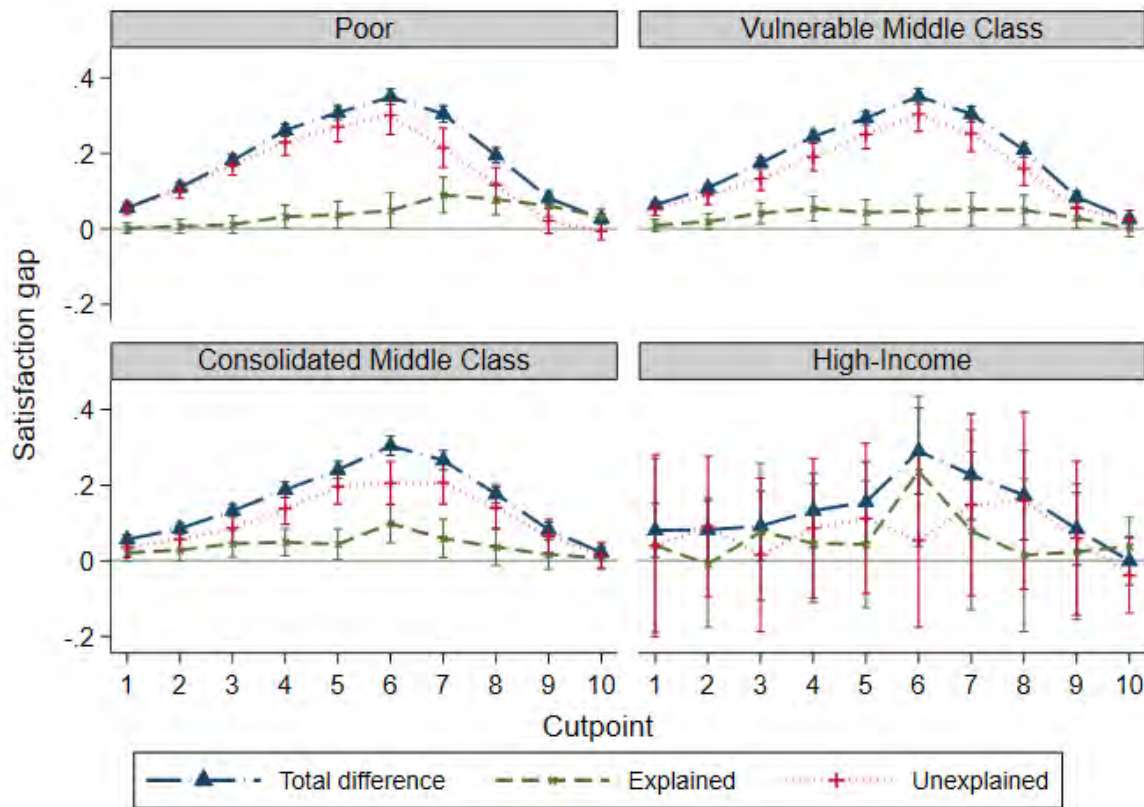


Figure 5: Fairlie decomposition of the 2007–2014 gap in  $\Pr(Y \geq c)$  by income group.

The detailed decomposition (Table 4) reinforces the aggregate result that inequality is the principal observed economic factor associated with the explained component. At  $c = 6$ , the inequality block accounts for approximately 83% of the explained component among the poor, 90% among the vulnerable

US\$92.46; vulnerable middle class from US\$92.46 to below US\$231.15; consolidated middle class from US\$231.15 to below US\$1,155.77; and high-income group at or above US\$1,155.77. The same real thresholds are applied in both survey years because all monetary variables are expressed in 2014 prices. In the underlying person-level ENEMDU data, the poor group contains 38,589 individuals in 2007 and 39,107 in 2014; the vulnerable middle class 25,163 and 48,584; the consolidated middle class 12,405 and 27,812; and the high-income group 630 and 966, respectively. These correspond to 50.3%, 32.8%, 16.2%, and 0.8% of the 2007 sample and 33.6%, 41.7%, 23.9%, and 0.8% of the 2014 sample.

middle class, and 99% among the consolidated middle class. Among the poor, the inequality contribution becomes particularly pronounced at higher cutpoints and is statistically distinguishable from zero from  $c = 7$  onward. For the vulnerable middle class, it is statistically distinguishable from zero over  $c = 3$ – $c = 9$ , and for the consolidated middle class over  $c = 3$ – $c = 7$ . By comparison, the direct income block is not statistically distinguishable from zero at any cutpoint within these income groups. Thus, the heterogeneity analysis again points more strongly to changes in the broader distribution of income than to changes in household disposable income alone.

Figure 6 shows that the tax-benefit counterfactual also varies across income groups. Among the poor, applying the 2007 tax-benefit rules to the 2014 population generally lowers predicted satisfaction from the middle of the scale onward, with the largest difference occurring at  $c = 7$ , at approximately 1.34 percentage points. This corresponds to about 4.4% of the within-group 2007–2014 satisfaction gap at that cutpoint. For the vulnerable middle class, the counterfactual differences are negative throughout the distribution but smaller in magnitude, reaching approximately 0.55 percentage points at their largest. Among the consolidated middle class, the estimates are also negative throughout and reach their largest magnitude at  $c = 6$ , at approximately 0.75 percentage points, equivalent to around 2.5% of the satisfaction gap at that cutpoint.

The profile for the high-income group is qualitatively different and considerably more volatile. The estimated counterfactual difference is negative at the lowest cutpoints but becomes positive from approximately  $c = 4$  onward, implying a reversal in the direction of the association. Given the small size of this group and the instability also visible in its decomposition estimates, this pattern should be treated as suggestive rather than as a precisely estimated difference.

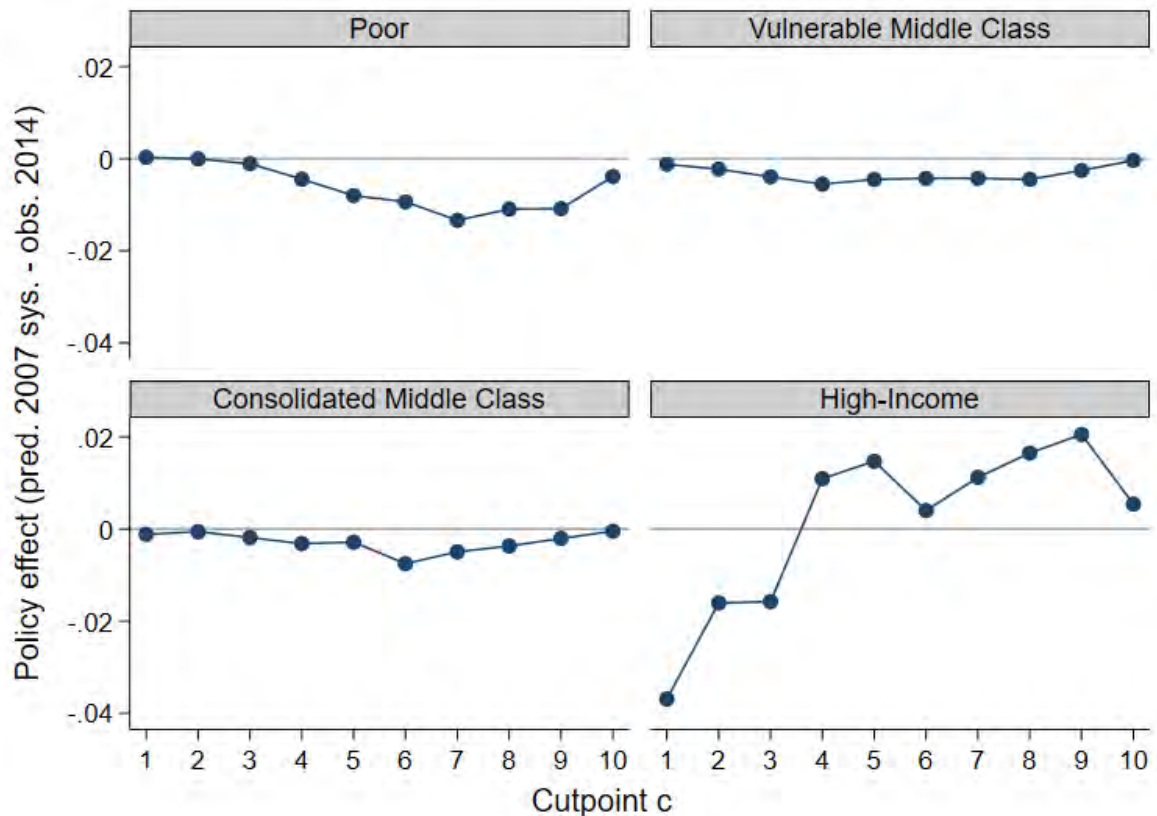


Figure 6: Counterfactual difference between the 2007 tax-benefit system applied to the 2014 population and the observed 2014 system, by income group.

The income-group analysis reveals heterogeneity that is obscured by the aggregate estimates. The share of

Table 4: Detailed contributions to the composition effect  $E_c$ , by covariate block and cutpoint, within income category.

| $c$                              | Total $E_c$ | Demographics | Education | Employment | Income  | Inequality | Region    |
|----------------------------------|-------------|--------------|-----------|------------|---------|------------|-----------|
| <i>Poor</i>                      |             |              |           |            |         |            |           |
| $\geq 1$                         | 0.0017      | 0.0003       | 0.0005    | -0.0001    | 0.0009  | -0.0007    | 0.0009    |
| $\geq 2$                         | 0.0068      | 0.0004       | 0.0005    | 0.0011     | 0.0021  | 0.0014     | 0.0013*   |
| $\geq 3$                         | 0.0114      | -0.0000      | 0.0007    | 0.0017     | 0.0034  | 0.0041     | 0.0015**  |
| $\geq 4$                         | 0.0325      | -0.0008      | 0.0006    | 0.0006     | 0.0038  | 0.0257     | 0.0025*** |
| $\geq 5$                         | 0.0373      | -0.0012      | 0.0005    | 0.0016     | 0.0041  | 0.0297     | 0.0026*** |
| $\geq 6$                         | 0.0486      | 0.0004       | -0.0003   | 0.0029     | 0.0021  | 0.0404     | 0.0031*** |
| $\geq 7$                         | 0.0897      | -0.0001      | 0.0011    | 0.0018     | 0.0039  | 0.0798***  | 0.0032*** |
| $\geq 8$                         | 0.0786      | -0.0022      | 0.0015    | -0.0020    | -0.0005 | 0.0784***  | 0.0033*** |
| $\geq 9$                         | 0.0612      | -0.0007      | 0.0005    | 0.0002     | 0.0008  | 0.0581***  | 0.0022*   |
| $\geq 10$                        | 0.0325      | 0.0003       | 0.0005    | -0.0001    | 0.0004  | 0.0304**   | 0.0010    |
| <i>Vulnerable Middle Class</i>   |             |              |           |            |         |            |           |
| $\geq 1$                         | 0.0094      | -0.0005      | -0.0004   | -0.0002    | -0.0008 | 0.0116     | -0.0004   |
| $\geq 2$                         | 0.0190      | -0.0004      | -0.0004   | 0.0003     | -0.0007 | 0.0208     | -0.0005   |
| $\geq 3$                         | 0.0412      | 0.0015       | -0.0005   | 0.0004     | -0.0004 | 0.0408**   | -0.0006   |
| $\geq 4$                         | 0.0540      | -0.0004      | -0.0003   | 0.0002     | -0.0003 | 0.0548**   | -0.0000   |
| $\geq 5$                         | 0.0435      | 0.0003       | -0.0005   | 0.0008     | -0.0001 | 0.0422*    | 0.0008    |
| $\geq 6$                         | 0.0477      | 0.0002       | -0.0004   | 0.0043     | -0.0005 | 0.0431*    | 0.0009*   |
| $\geq 7$                         | 0.0516      | 0.0029       | -0.0005   | 0.0047*    | 0.0003  | 0.0428*    | 0.0013*** |
| $\geq 8$                         | 0.0494      | 0.0006       | -0.0009   | 0.0026     | -0.0001 | 0.0459*    | 0.0013**  |
| $\geq 9$                         | 0.0292      | -0.0002      | -0.0008   | -0.0007    | 0.0002  | 0.0297*    | 0.0010*   |
| $\geq 10$                        | 0.0007      | -0.0006      | -0.0004   | -0.0018    | 0.0002  | 0.0031     | 0.0003    |
| <i>Consolidated Middle Class</i> |             |              |           |            |         |            |           |
| $\geq 1$                         | 0.0217      | 0.0005       | 0.0004    | 0.0011     | -0.0003 | 0.0205     | -0.0005   |
| $\geq 2$                         | 0.0285      | 0.0014       | 0.0002    | 0.0005     | 0.0001  | 0.0268     | -0.0005   |
| $\geq 3$                         | 0.0458      | 0.0010       | 0.0005    | 0.0019     | -0.0001 | 0.0439*    | -0.0014   |
| $\geq 4$                         | 0.0494      | -0.0007      | 0.0009    | 0.0020     | 0.0000  | 0.0487**   | -0.0015   |
| $\geq 5$                         | 0.0441      | -0.0012      | 0.0006    | 0.0028     | 0.0001  | 0.0430*    | -0.0013   |
| $\geq 6$                         | 0.0988      | -0.0003      | -0.0004   | 0.0021     | -0.0006 | 0.0981***  | -0.0001   |
| $\geq 7$                         | 0.0592      | -0.0007      | -0.0002   | 0.0024     | -0.0008 | 0.0575*    | 0.0009    |
| $\geq 8$                         | 0.0370      | -0.0007      | 0.0012    | 0.0009     | -0.0018 | 0.0361     | 0.0012*   |
| $\geq 9$                         | 0.0169      | 0.0010       | 0.0014    | -0.0012    | -0.0014 | 0.0164     | 0.0007    |
| $\geq 10$                        | 0.0077      | -0.0005      | 0.0016    | 0.0004     | -0.0004 | 0.0062     | 0.0004    |
| <i>High-Income</i>               |             |              |           |            |         |            |           |
| $\geq 1$                         | 0.0408      | -0.0003      | -0.0004   | -0.0058    | 0.0422  | 0.0062     | -0.0016   |
| $\geq 2$                         | -0.0085     | 0.0030       | 0.0092    | -0.0199    | 0.0071  | 0.0079     | -0.0156   |
| $\geq 3$                         | 0.0767      | 0.0036       | 0.0235    | -0.0423    | 0.0067  | 0.0886     | -0.0037   |
| $\geq 4$                         | 0.0468      | 0.0003       | 0.0198    | -0.0233    | 0.0127  | 0.0501     | -0.0132   |
| $\geq 5$                         | 0.0436      | 0.0008       | 0.0200    | -0.0223    | 0.0090  | 0.0546     | -0.0184   |
| $\geq 6$                         | 0.2366      | -0.0016      | 0.0282*   | -0.0336    | 0.0144  | 0.2396*    | -0.0113   |
| $\geq 7$                         | 0.0794      | 0.0121       | 0.0170    | -0.0156    | 0.0145  | 0.0740     | -0.0220   |
| $\geq 8$                         | 0.0149      | 0.0087       | 0.0152    | 0.0244     | 0.0031  | -0.0234    | -0.0133   |
| $\geq 9$                         | 0.0243      | 0.0019       | 0.0110    | 0.0285     | -0.0112 | 0.0201     | -0.0251   |
| $\geq 10$                        | 0.0381      | 0.0025       | 0.0005    | 0.0009     | 0.0018  | 0.0269     | 0.0053    |

Notes: Cells are point estimates in shares ( $\hat{\Lambda}$  scale); stars indicate significance (\*  $p < 0.05$ , \*\*  $p < 0.01$ , \*\*\*  $p < 0.001$ ). *Notes:* Cells report contributions to the explained component on the probability scale. Income groups follow the IDB socioeconomic classification described in Section 4.3; the three thresholds are expressed in constant 2014 USD and applied identically to both survey years. The stratified Fairlie decompositions use 500 replications.  $r = 500$  Fairlie replications per cell (vs.  $r = 1000$  in the overall table), and cells with fewer than 30 observations in either year are omitted.

the satisfaction gap associated with changes in observed characteristics differs across socioeconomic groups and across the satisfaction distribution, while the predicted implications of the tax-benefit counterfactual are more pronounced among the poor than among the two middle-class groups over the middle and upper-middle part of the satisfaction distribution. This pattern is consistent with an institutional setting in which lower-income households were more directly exposed to changes in transfer eligibility and generosity. During the period, Ecuador modified both the targeting mechanism and the benefit level of its principal cash-transfer programme, the *Bono de Desarrollo Humano* (see Section 2). Across the poor and middle-class groups, changes in provincial income inequality nevertheless remain more important for the explained component than changes in household income itself.

Appendix C extends the same decomposition and counterfactual exercise to the remaining population subgroups. These additional results provide a broader assessment of whether heterogeneity is also present along other socio-economic dimensions. Two patterns are particularly noteworthy. First, the counterfactual difference is generally larger among rural than among urban respondents over the middle and upper-middle of the satisfaction distribution, suggesting that the predicted implications of reverting to the 2007 tax-benefit system differ according to place of residence. Second, marital status also reveals meaningful heterogeneity: the counterfactual differences are generally more pronounced among single respondents than among partnered respondents over several middle and upper-middle cutpoints. For the remaining stratifications, including education, health-insurance coverage, ethnicity, and economic status, the differences are generally smaller or less systematic.

#### 4.4 Robustness

The detailed Fairlie decomposition may be sensitive to both the subsample used to pair observations across years and the order in which covariate blocks are introduced (Fairlie, 2017; Gelbach, 2016). To reduce the sensitivity of the estimated contributions to these choices, we repeat the decomposition using randomised subsampling and randomised ordering of the covariate blocks. The reported contributions are averaged across these replications. The resulting estimates are therefore not driven by a particular matching sample or ordering of the explanatory variables.

## 5 Conclusions

Ecuador experienced substantial economic, fiscal, and social change between 2007 and 2014, alongside a marked increase in satisfaction with the government. Over the same period, household incomes changed, inequality declined, and the tax-benefit system underwent important reforms. From a political-economy perspective, it is therefore relevant to assess the extent to which the increase in government satisfaction is associated with changes in individuals' economic circumstances, with changes in the wider income distribution, and with the tax-benefit policies underlying part of these changes. This paper addresses these questions by combining a distributional decomposition of the change in government satisfaction with a tax-benefit microsimulation counterfactual. The first exercise assesses how changes in observed socio-economic characteristics are associated with shifts across the satisfaction distribution, while the second compares predicted satisfaction under the 2014 tax-benefit system with a counterfactual in which the 2007 rules are applied to the 2014 population.

Our results show that changes in observed socio-economic characteristics account for a meaningful part of the increase in government satisfaction. Within this explained component, changes in the distribution of income play a substantially larger role than changes in individuals' own disposable income. In particular, the decline in provincial inequality is the main income-related factor associated with the shift in satisfaction, while the contribution of individual income is comparatively small. This pattern is consistent with the distinction between egotropic and sociotropic evaluations of government performance, suggesting that evaluations of government may be related not only to individuals' own material circumstances, but also to

broader societal economic conditions (Meehl, 1977; Kinder and Kiewiet, 1981; Baccini et al., 2025). In the Ecuadorian context, this interpretation is especially relevant given the prominence of redistribution and inequality reduction during the Citizens' Revolution.

The tax-benefit counterfactual points in the same direction. Applying the 2007 tax-benefit system to the 2014 population produces lower predicted satisfaction than under the observed 2014 system across most of the satisfaction distribution. The magnitude of this difference is modest relative to the overall increase in government satisfaction. This result is consistent with Jara et al. (2025), who show that, while tax-benefit reforms contributed to the reduction in inequality in Ecuador, changes in market income and other population characteristics played a larger role. Taken together, these results suggest that the tax-benefit system was associated with a favourable change in predicted satisfaction.

The income-group analysis further shows that these relationships are not uniform across the income distribution. Among the poor, the share of the satisfaction gap associated with changes in observed characteristics rises markedly toward the upper part of the satisfaction distribution, and the tax-benefit counterfactual differences are generally larger than among the two middle-class groups over the middle and upper-middle cutpoints. Among the consolidated middle class, by contrast, compositional change is relatively more important around the centre of the satisfaction distribution. Estimates for the high-income group are substantially less precise because of the small size of this group and should therefore be interpreted cautiously.

Overall, the results indicate that the economic component of changing government satisfaction in Ecuador is more strongly associated with changes in the wider income distribution than with changes in individuals' own disposable income. At the same time, observed socio-economic characteristics explain only part of the overall increase in satisfaction, leaving a substantial share associated with changes in the relationship between these characteristics and government satisfaction or with other political, social, and economic factors not captured by the analysis. The results should therefore be interpreted as associations and model-based counterfactual differences rather than as causal effects. From a policy perspective, they suggest that the distributional consequences of economic and fiscal policy may be relevant for how citizens evaluate government performance, particularly among lower-income groups.

## References

- Baccini, L., Hicks, J., and Retzl, P. (2025). Populism and Political Trust: Evidence from Latin America. *Working Paper*.
- Bargain, O. and Callan, T. (2010). Analysing the effects of tax-benefit reforms on income distribution: a decomposition approach. *The Journal of Economic Inequality*, 8(1):1–21.
- Becher, M., Longuet-Marx, N., Pons, V., Brouard, S., Foucault, M., Galasso, V., Kerrouche, E., León Alfonso, S., and Stegmüller, D. (2024). Government Performance and Democracy: Survey Experimental Evidence from 12 Countries during COVID-19. *The Journal of Politics*, 86(4):1162–1176.
- Castro, L., Aguiar, V., and Sáenz, M. (2014). Análisis de la reforma tributaria en el Ecuador, 2001-2012 | CEPAL. Technical Report ISSN 1680-8843, CEPAL.
- Chernozhukov, V., Fernández-Val, I., and Melly, B. (2013). Inference on Counterfactual Distributions. *Econometrica*, 81(6):2205–2268. Publisher: [Wiley, Econometric Society].
- de la Torre, C. (2013). Latin America’s Authoritarian Drift: Technocratic Populism in Ecuador. *Journal of Democracy*, 24(3):33–46. Publisher: Johns Hopkins University Press.
- Decoster, A., Pirttilä, J., Sutherland, H., and Wright, G. (2018). SOUTHMOD: Modelling Tax-benefit Systems in Developing Countries. *International Journal of Microsimulation*, 12(1):1–12.
- DiNardo, J., Fortin, N. M., and Lemieux, T. (1996). Labor Market Institutions and the Distribution of Wages, 1973-1992: A Semiparametric Approach. *Econometrica*, 64(5):1001–1044. Publisher: [Wiley, Econometric Society].
- Duryea, S. and Robles, M. (2017). Social Pulse in Latin America and the Caribbean 2017: Family Legacy, Breaking the Mold or Repeating Patterns? *IDB Publications*. Publisher: Inter-American Development Bank.
- Fairlie, R. W. (1999). The Absence of the African-American Owned Business: An Analysis of the Dynamics of Self-Employment. *Journal of Labor Economics*, 17(1):80–108. Publisher: [The University of Chicago Press, Society of Labor Economists, NORC at the University of Chicago].
- Fairlie, R. W. (2005). An extension of the Blinder-Oaxaca decomposition technique to logit and probit models - Robert W. Fairlie, 2005. *Journal of Economic and Social Measurement*.
- Fairlie, R. W. (2017). Addressing Path Dependence and Incorporating Sample Weights in the Nonlinear Blinder-Oaxaca Decomposition Technique for Logit, Probit and Other Nonlinear Models. *Stanford Institute for Economic Policy Research (SIEPR)*.
- Firpo, S., Fortin, N. M., and Lemieux, T. (2009). Unconditional Quantile Regressions. *Econometrica*, 77(3):953–973. \_\_eprint: <https://onlinelibrary.wiley.com/doi/pdf/10.3982/ECTA6822>.
- Foresi, S. and Peracchi, F. (1995). The Conditional Distribution of Excess Returns: An Empirical Analysis. *Journal of the American Statistical Association*, 90(430):451–466. Publisher: [American Statistical Association, Taylor & Francis, Ltd.].
- Fortin, N., Lemieux, T., and Firpo, S. (2011). Chapter 1: Decomposition Methods in Economics. In *Handbook of Labor Economics*.
- Gelbach, J. B. (2016). When Do Covariates Matter? And Which Ones, and How Much? *Journal of Labor Economics*, 34(2):509–543. Publisher: [The University of Chicago Press, Society of Labor Economists, NORC at the University of Chicago].

- Grugel, J. and Riggirozzi, P. (2018). New directions in welfare: rights-based social policies in post-neoliberal Latin America. *Third World Quarterly*, 39(3):527–543. Publisher: Routledge \_eprint: <https://doi.org/10.1080/01436597.2017.1392084>.
- IMF (2015). Ecuador: 2015 Article IV Consultation-Press Release; Staff Report; and Statement by the Executive Director for Ecuador. Technical Report Volume 2015: Issue 289.
- INEC-ANDA (2025). Catálogo de Metadatos y microdatos.
- Inglehart, R. (1977). *The silent revolution: changing values and political styles among western publics*. Princeton University Press, Princeton N.J.
- Izurieta, G., Palacio Ludeña, M. G., Jara, H. X., and Mideros Mora, A. (2024). *Transformaciones y desafíos de la asistencia social en Ecuador: 1980-2021*. Editorial PUCE. Book Title: Política social, pobreza y desigualdad en el Ecuador Pages: 60-93.
- Jara, H. X., Deza Delgado, 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(1):69–113.
- Jara, H. X., Montesdeoca, L., Colmenarez, M. G., and Moreno, L. (2025). Two decades of tax-benefit reforms in Ecuador: How much have they contributed to poverty and inequality reduction? *World Development*, 190:106976.
- Kaiser, C. and Lepinteur, A. (2025). Measuring the Unmeasurable? Systematic Evidence on Scale Transformations in Subjective Survey Data. arXiv:2507.16440 [econ] version: 2.
- Kinder, D. R. and Kiewiet, D. R. (1981). Sociotropic Politics: The American Case. *British Journal of Political Science*, 11(2):129–161. Publisher: Cambridge University Press.
- Kriekhaus, J., Son, B., Bellinger, N. M., and Wells, J. M. (2013). Economic Inequality and Democratic Support. *The Journal of Politics*, 76(1):139–151. Publisher: [The University of Chicago Press, Southern Political Science Association].
- Meehl, P. E. (1977). The Selfish Voter Paradox and the Thrown-Away Vote Argument. *The American Political Science Review*, 71(1):11–30. Publisher: [American Political Science Association, Cambridge University Press].
- OECD, Inter-American Center of Tax Administrations, Inter-American Development Bank, and Economic Commission for Latin America and the Caribbean (2016). Revenue Statistics in Latin America and the Caribbean 2016. *Revenue Statistics in Latin America and the Caribbean*, 2016. ISBN: 9789264251939 Publisher: OECD Publishing.
- Oswald, A. J. (2008). On the curvature of the reporting function from objective reality to subjective feelings. *Economics Letters*, 100(3):369–372.
- Singh, S. P. and Mayne, Q. (2023). Satisfaction with Democracy: A Review of a Major Public Opinion Indicator. *Public Opinion Quarterly*, 87(1):187–218.
- Sutherland, H. and Figari, F. (2013). EUROMOD: the European Union tax-benefit microsimulation model. *International Journal of Microsimulation*, 6(1):4–26. Publisher: International Microsimulation Association.
- Villalba, U. (2013). Buen Vivir vs Development: a paradigm shift in the Andes? *Third World Quarterly*, 34(8):1427–1442. Publisher: Routledge.
- Weisbrot, M., Johnston, J., and Merling, L. (2017). Decade of Reform: Ecuador’s Macroeconomic Policies, Institutional Changes, and Results. Technical report, CEPR.

Wu, Q. and Kaplan, D. M. (2025). Regression and decomposition with ordinal health outcomes. *Journal of Health Economics*, 102:103012.

## A Data construction and validation checks

The analysis starts from the ENEMDU data provided by INEC, which contain demographic and employment characteristics as well as information on satisfaction with the government. These data serve as inputs to ECUAMOD. First, we run the model under the tax-benefit rules corresponding to each survey year to obtain year-specific information on income, taxes, and benefits. Second, we apply the 2007 tax-benefit rules to the 2014 population and market-income data to construct counterfactual income, tax, and benefit variables. This appendix describes the construction of the income variables and presents a series of validation checks.

### A.1 Price base: constant 2014 prices

The ECUAMOD files report monetary values in nominal prices for the corresponding year. For the pooled analysis of the 2007 and 2014 waves, all per-capita monetary variables are converted to constant 2014 prices using  $CPI_{2007} = 84.713$ ,  $CPI_{2010} = 100$ , and  $CPI_{2014} = 116.842$ :

$$x^{2014} = x^{\text{nominal}} \times \frac{CPI_{2014}}{CPI_{\text{year}}}, \quad \text{factor}_{2007} = 1.3793, \quad \text{factor}_{2014} = 1.0000.$$

### A.2 Income concepts

Two per-capita disposable-income measures are used in the analysis (Table 5). The key distinction is between *simulated* and *observed* income:

- **yds** – SOUTHMOD *simulated* disposable income, constructed from `ils_dispy`. The accounting identity

$$\text{ils\_dispy} = \text{ils\_origy} + \text{ils\_ben} - \text{ils\_tax} - \text{ils\_sicee} - \text{ils\_sicse}$$

holds to within rounding for 98.7% of individuals, and the per-capita identity check identifies no observation with a discrepancy larger than \$1. Pensions (`ils_pen`) are not included in `ils_dispy`.

- **ingpc** – *observed* per-capita disposable income reported by INEC and constructed directly from the ENEMDU survey.

Table 5: Per-capita income concepts (constant 2014 USD per month).

| Variable | Source   | Concept                                                                    |
|----------|----------|----------------------------------------------------------------------------|
| yds      | SOUTHMOD | Simulated disposable income (net of simulated tax and SIC; excl. pensions) |
| ingpc    | INEC     | Observed disposable income (derived directly from ENEMDU)                  |

### A.3 Validation checks

**Construction validation of the merged INEC income measure.** Because the ECUAMOD input data are constructed using the INEC data, the INEC income measure after merging and household aggregation should reproduce the corresponding source value. It does so almost exactly: the correlation is 1.0000, and the per-person difference is zero for 75,063/75,069 matched observations in 2007 and 114,440/114,440 in 2014, with a median difference of zero. These results confirm the correct implementation of the merge, household aggregation, and conversion to constant 2014 prices.

**Agreement between simulated and observed income (yds vs. ingpc).** Simulated disposable income closely tracks observed income in both rank and distributional shape (Table 6). The Pearson correlation is 0.992 in 2007 and 0.983 in 2014, while the Spearman rank correlation is approximately 0.99 in both years. Around 78–79% of individuals are assigned to the same weighted income decile under the two measures, with almost all remaining observations falling in an adjacent decile. Overall, 36.5% of individuals differ by no more than 1%, a further 32.4% differ by between 1% and 10%, and 31.1% differ by more than 10%. Among observations for which the two measures differ, 78.6% have simulated income below observed income.

Table 6: Agreement between simulated and observed per-capita disposable income.

|                           | 2007  | 2014  |
|---------------------------|-------|-------|
| Pearson correlation       | 0.992 | 0.983 |
| Spearman rank correlation | 0.988 | 0.991 |
| Same weighted decile      | 78.0% | 79.3% |

**Differences between the INEC and SOUTHMOD income measures.** The diagnostic checks indicate that the differences between the two income measures are not driven by the merge or by the household-size denominator. The household-size denominator equals the number of INEC-matched household members for 100% of observations, implying that the per-capita base is the same in both measures. Instead, the differences are systematically related to the simulated tax-benefit wedge:

- Where SOUTHMOD simulates no personal tax or social-insurance contributions, the two income measures are identical. The mean percentage gap becomes progressively more negative as the personal fiscal wedge increases: for fiscal-wedge deciles 7–10, the corresponding gaps are  $-2.8\%$ ,  $-6.6\%$ ,  $-9.0\%$ , and  $-13.6\%$ .
- The difference varies systematically across the income distribution. In the poorest INEC income decile, the simulated-to-observed income ratio is 1.13, reflecting the role of simulated benefits at the bottom of the distribution. In the richest decile, the corresponding ratio is 0.91, consistent with the role of simulated taxes and social-insurance contributions at the top.
- The differences also vary with labour-market and demographic characteristics. Respondents in private employment, those with tertiary education, urban residents, and respondents covered by health insurance exhibit the largest gaps, whereas informal, rural, and Indigenous respondents are most often assigned similar values under the two measures. An OLS regression of the absolute percentage gap yields a fiscal-wedge coefficient of approximately 50 ( $t \approx 8.5$ ).

Taken together, these patterns are consistent with the expected behaviour of a tax-benefit microsimulation relative to survey-reported income. The two measures coincide where the simulated fiscal wedge is absent and diverge systematically where simulated taxes, social-insurance contributions, and benefits alter disposable income.

## A.4 Validation figures

Figures 7–9 compare SOUTHMOD-simulated disposable income with the corresponding INEC observed income measure. They show close agreement in ranks and distributional shape, alongside the systematic level differences associated with the simulated fiscal components discussed above.

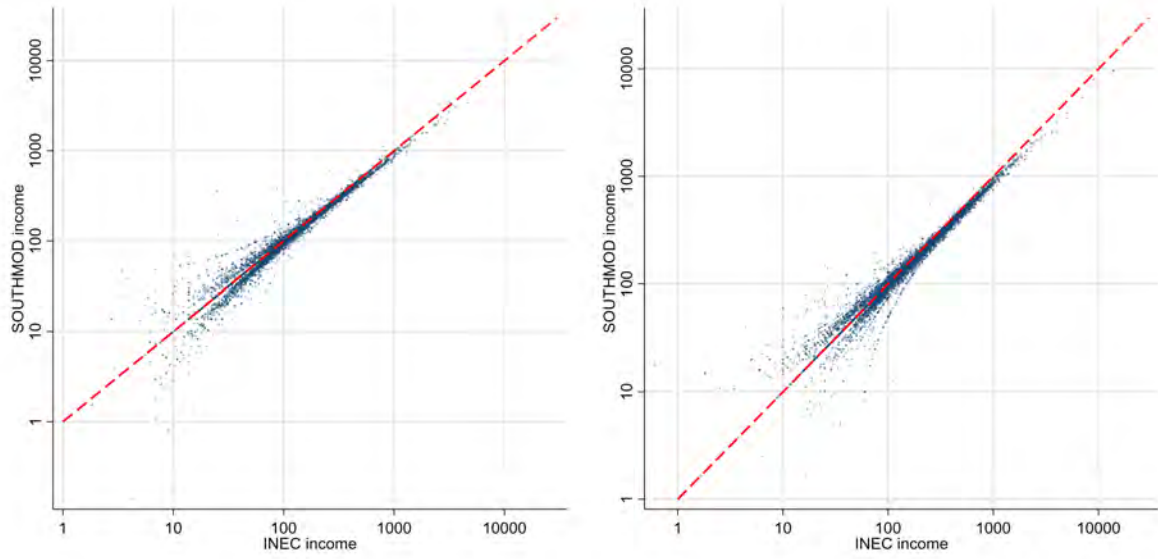


Figure 7: SOUTHMOD-simulated and INEC-observed per-capita disposable income in constant 2014 USD, on a log–log scale, for 2007 (left) and 2014 (right). The 45-degree line indicates equality between the two measures.

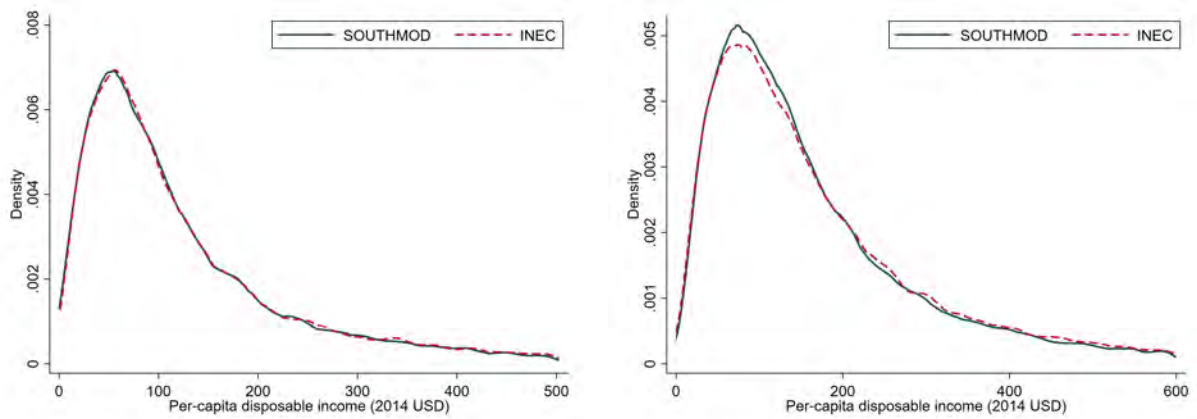


Figure 8: Kernel density estimates of SOUTHMOD-simulated and INEC-observed income, restricted to observations at or below the 95th percentile, for 2007 (left) and 2014 (right). The two distributions are very similar.

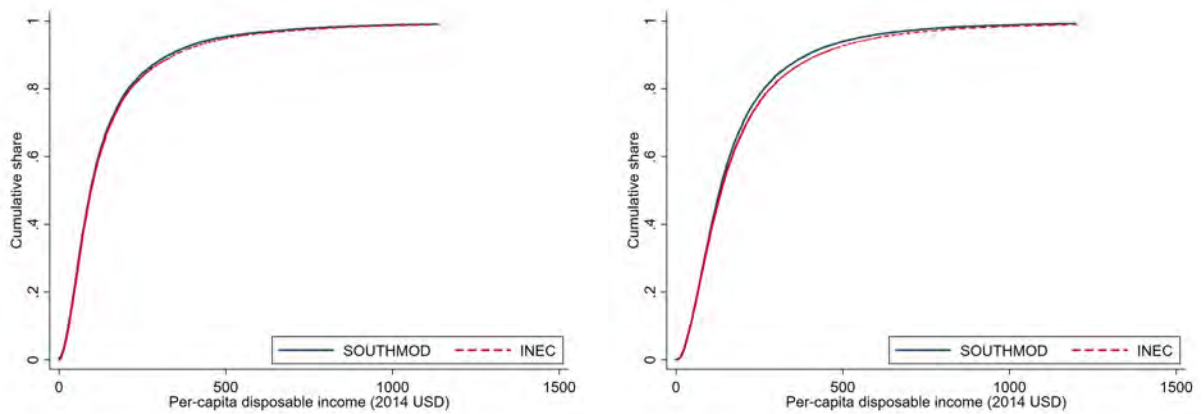


Figure 9: Empirical cumulative distribution functions of SOUTHMOD-simulated and INEC-observed income for 2007 (left) and 2014 (right).

## B Gini - Provinces

Figure 10 shows the Gini coefficients for all the provinces considered. They are Azuay, Bolívar, Cañar, Carchi, Cotopaxi, Chimborazo, El Oro, Esmeraldas, Guayas, Imbabura, Loja, Los Ríos, Manabí, Morona Santiago, Napo, Pastaza, Pichincha, Tungurahua, Zamora Chinchipe, Sucumbíos, Orellana. To ensure geographic comparability between 2007 and 2014, we harmonize provincial boundaries across survey years. Santa Elena and Santo Domingo de los Tsáchilas, which became separate provinces in 2007, are grouped with Guayas and Pichincha, respectively, corresponding to their pre-2007 administrative boundaries. Galápagos is excluded because it was not covered consistently by ENEMDU over the period considered. The resulting geographic classification therefore comprises 21 provincial units.

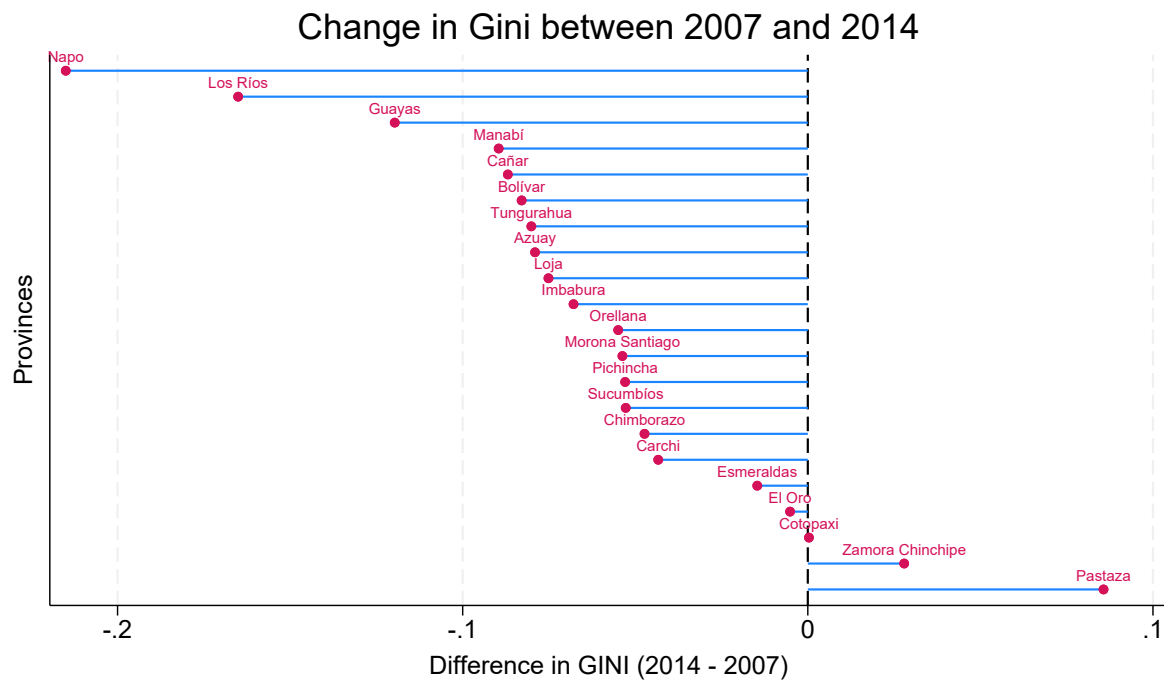


Figure 10: Provincial Gini comparison.

## C Supplementary decomposition and counterfactual results

To examine heterogeneity beyond the income categories discussed in the main text, we re-estimate the cutpoint Fairlie decomposition and the counterfactual separately for each category of the remaining stratifying variables. In each figure, the left panel reports the decomposition of the 2007–2014 satisfaction gap, while the right panel reports the counterfactual difference obtained by applying the 2007 tax-benefit system to the 2014 population.

### Marital status.

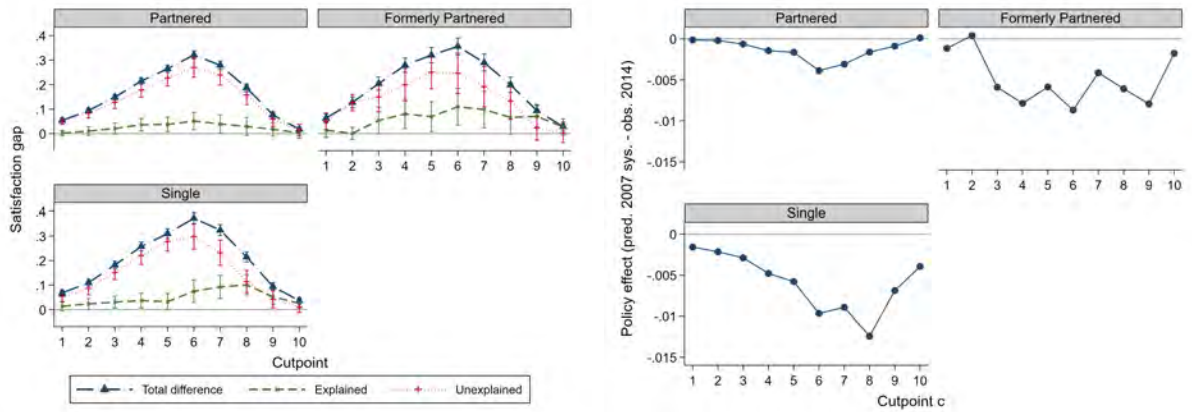


Figure 11: Cutpoint Fairlie decomposition (left) and counterfactual policy difference (right), by marital status.

### Education.

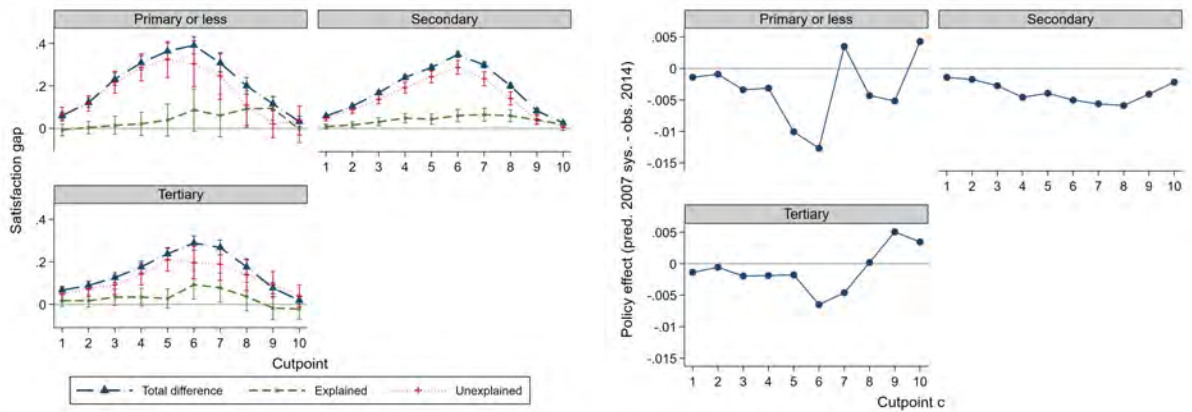


Figure 12: Cutpoint Fairlie decomposition (left) and counterfactual policy difference (right), by highest education level.

## Economic activity status.

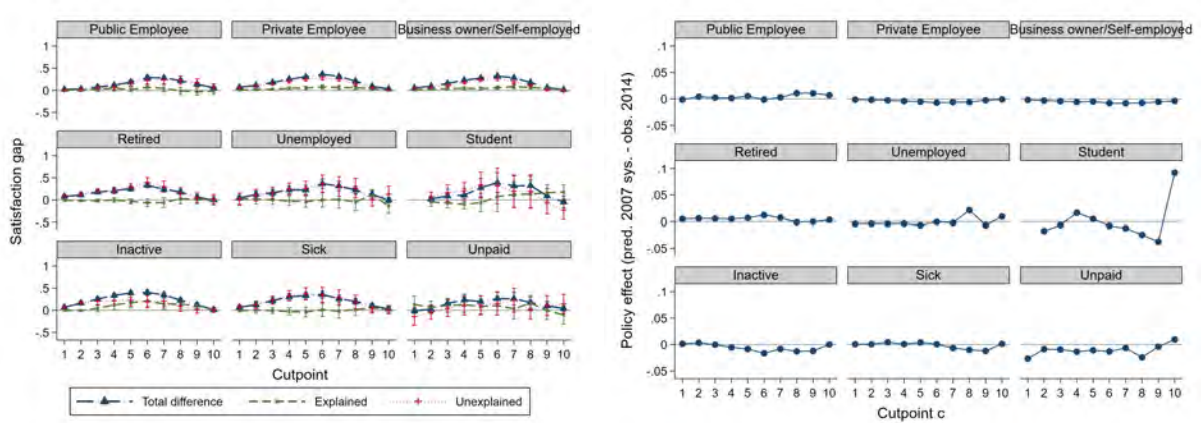


Figure 13: Cutpoint Fairlie decomposition (left) and counterfactual policy difference (right), by economic activity status.

## Region.

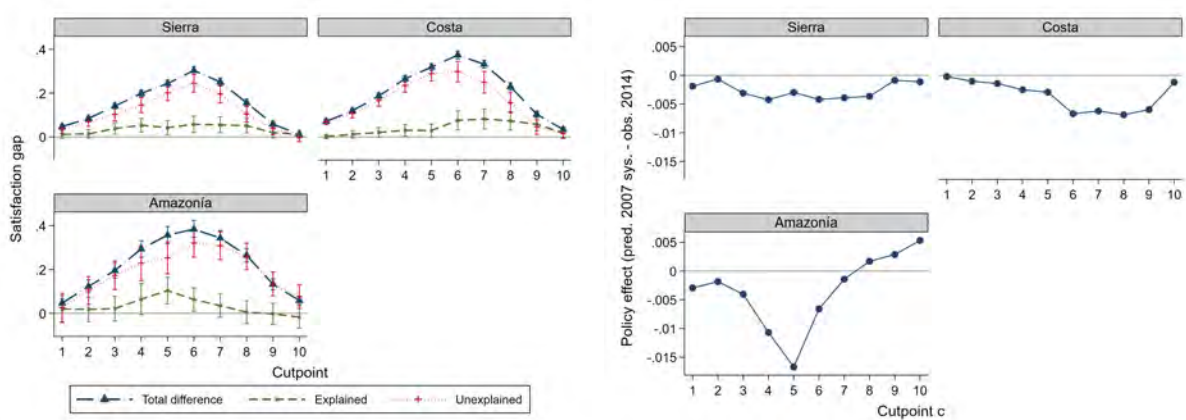


Figure 14: Cutpoint Fairlie decomposition (left) and counterfactual policy difference (right), by region.

## Urban/rural residence.

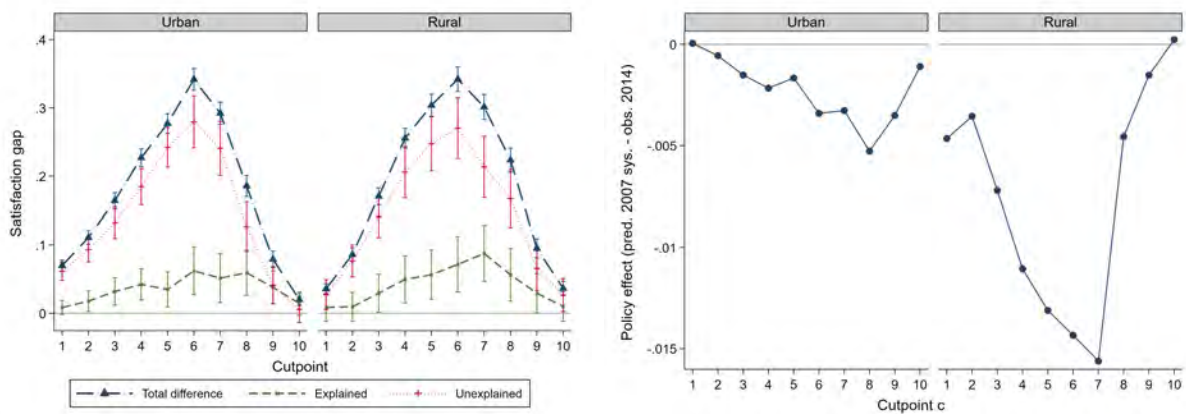


Figure 15: Cutpoint Fairlie decomposition (left) and counterfactual policy difference (right), by urban/rural residence.

## Health-insurance coverage.

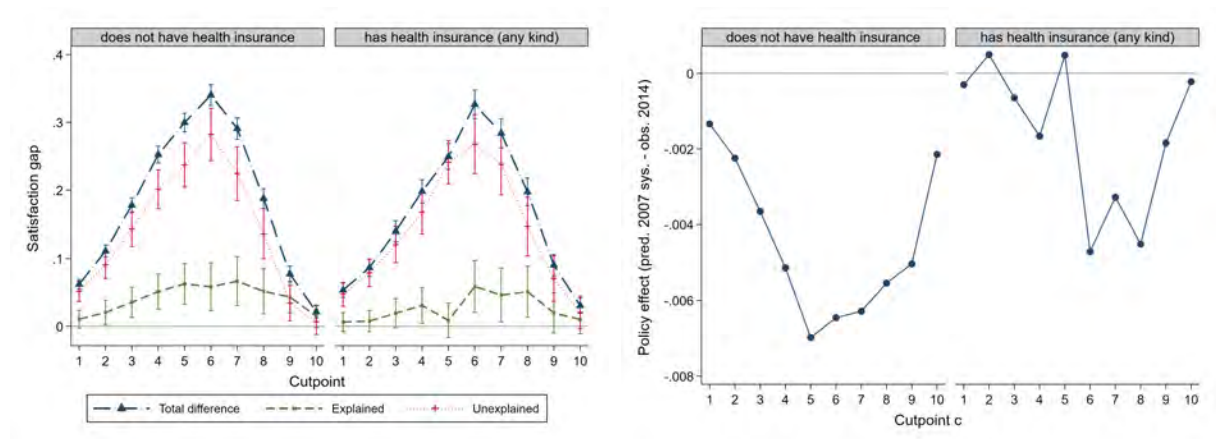


Figure 16: Cutpoint Fairlie decomposition (left) and counterfactual policy difference (right), by health-insurance coverage.

## Ethnicity.

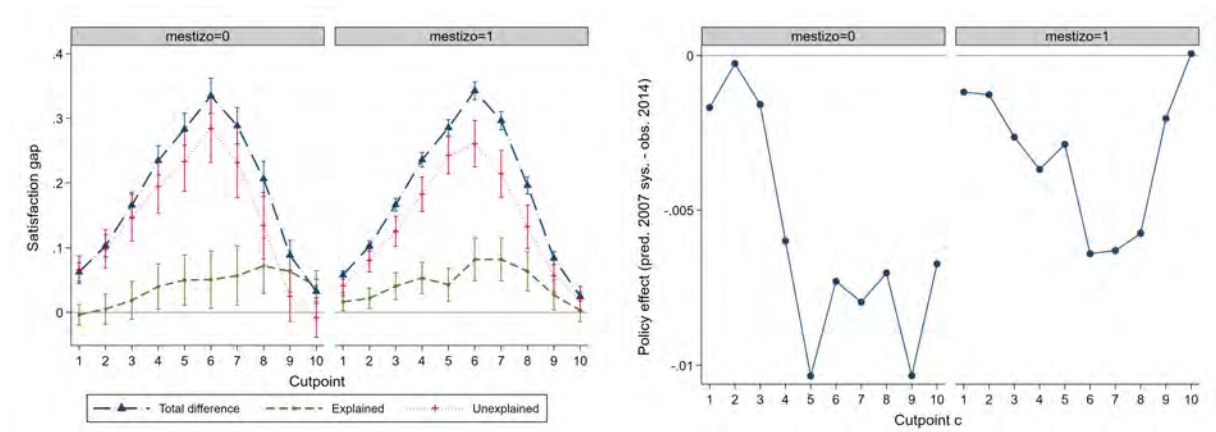


Figure 17: Cutpoint Fairlie decomposition (left) and counterfactual policy difference (right), by Mestizo status.