RBGDR

DETERMINANTS OF MONETARY POVERTY IN BRAZILIAN FEDERATIVE UNITS: EVIDENCE FROM 2012-2023

DETERMINANTES DA POBREZA MONETÁRIA NAS UNIDADES DA FEDERAÇÃO BRASILEIRA: EVIDÊNCIAS DE 2012 A 2023

RBGDR

REVISTA BRASILEIRA DE GESTÃO E DESENVOLVIMENTO REGIONAL
V.22, N°1, Jan-Abr/2026 | Taubaté/SP - Brasil | ISSN 1809-239x

DETERMINANTS OF MONETARY POVERTY IN BRAZILIAN FEDERATIVE UNITS: EVIDENCE FROM 2012-2023

DETERMINANTES DA POBREZA MONETÁRIA NAS UNIDADES DA FEDERAÇÃO BRASILEIRA: EVIDÊNCIAS DE 2012 A 2023

Marcieli Ferreira da Fonseca Nieto[1] | Jandir Ferrera de Lima[2]

Received: 06/28/2025
Accepted: 02/25/2026

[1] Master's degree in Economics (UNIOESTE).
Administrative technician in education at the Federal Institute of Paraná.
Assis Chateaubriand - PR, Brazil.
Email: marcieli.nieto@ifpr.edu.br

[2] PhD in Regional Development (UQAC).
Professor at the State University of Western Paraná.
Toledo - PR, Brazil.
Email: jandir.lima@unioeste.br

ABSTRACT

This study estimates and analyzes effects of main determinants of monetary poverty in Brazil between 2012 and 2023. Poverty is defined using a unidimensional measure based on per cap-ita household income. Annual microdata from Continuous National Household Sample Survey (PNAD Contínua) are used to estimate a panel data regression model for 27 Federative Units. Results indicate that labor market participation is factor with greatest impact on poverty re-duction. Findings also show that increases in average years of schooling among adult popula-tion and in proportion of white individuals are associated with lower poverty rates. Converse-ly, higher income inequality is associated with an increase in proportion of individuals living in poverty in country.

Keywords: Monetary poverty. Human development. Human capital. Regional analysis.

RESUMO

Este artigo tem como objetivo estimar e analisar os impactos dos principais determinantes da pobreza monetária no Brasil entre os anos de 2012 e 2023. A partir da definição unidimensional da pobreza com base na renda domiciliar *per capita* e utilizando os microdados anuais da Pesquisa Nacional por Amostra de Domicílios Contínua (PNAD Contínua), foi estimado um modelo de regressão com dados em painel para as 27 Unidades da Federação. Os resultados indicaram que a inserção no mercado de trabalho foi o fator com maior impacto na redução da pobreza. Verificou-se, ainda, que o aumento nos anos médios de escolaridade da população adulta e na proporção de indivíduos brancos também está associado à diminuição da pobreza. Por outro lado, o aumento da desigualdade de renda está relacionado ao crescimento da proporção de pessoas em situação de pobreza no país.

Palavras-chave: Pobreza. Desenvolvimento humano. Capital humano. Análise regional

INTRODUCTION

Concern about poverty lies at center of government agendas and academic debates, not only because of its direct effects on living conditions of population but also because it constrains economic dynamism by limiting workforce productivity and potential expansion of domestic market (Albuquerque, 1995; Mideros, 2012). Although consensus exists on need to overcome this problem, debate on poverty has advanced toward conceptual discussion involving two main approaches: monetary approach, in which income serves as criterion to define and measure poverty; and multidimensional approach, which considers different forms of deprivation, including social and political dimensions (Mestrum, 2002; Rocha, 2006; Codes, 2008). Consequently, poverty resulting from low income affects development process in multiple dimensions, including regional dimensions.

This article adopts monetary (one-dimensional) perspective to analyze poverty, considering that income strongly influences individuals' ability to access several dimensions of well-being, regardless of spatial scale. Under this perspective, an individual is considered poor when per capita household income is insufficient to meet basic needs required for dignified life (Oster, 1978; Rocha, 2006).

In this context, Brazil presents substantial regional disparities, as poverty tends to concentrate more intensely in certain regions, reflecting differences in capacity to generate income, employment, and access to opportunities. These disparities directly affect regional development, since regions with high incidence of poverty face greater constraints on expansion of economic activity and improvement of population living conditions (Moreira; Braga; Toyoshima, 2010; Couto; Brito; Silva, 2021).

Poverty rates in Brazil have followed fluctuating trajectory, with periods of increase and decline and differentiated regional impacts across Federative Units. Although the country achieved noteworthy progress in poverty reduction, particularly during 2000s, persistence of phenomenon indicates that overcoming poverty remains major national challenge. Progress observed in poverty reduction began to reverse after 2014 amid political and economic crisis that lasted until 2016. During this period, deterioration in labor market conditions and decline in household income contributed to increase in poverty (Souza; Hecksher; Osório, 2022; Saboia *et al.*, 2021). COVID-19 pandemic in 2020 further intensified socioeconomic difficulties faced by most vulnerable population. Between

2015 and 2021, average income of Brazilians declined by 7.6%. This reduction was particularly severe among the poorest 10% of the population, whose income fell by 39.3%, while income of the richest 10% decreased by only 4.6% (Hoffmann; Jesus, 2023; World Bank, 2022).

Given this recent increase in poverty, an important question arises: what factors determine incidence of monetary poverty across Brazilian Federative Units? This article therefore estimates and analyzes effects of main determinants of monetary poverty in Brazil during period 2012–2023. On the other hand, it also contributes to regional public policy debate by providing empirical evidence on poverty patterns at federative level and its determinants.

This article is organized into five sections. Following this introduction, Section 2 reviews the literature related to poverty determinants. Section 3 presents the methodology, including the empirical model and variables employed. Section 4 discusses the econometric results, while the last section (Section 5) provides the conclusion.

DETERMINANTS OF POVERTY: THEORETICAL FOUNDATIONS AND EMPIRICAL EVIDENCE

In general, scholars agree that several sociodemographic factors are associated with incidence and persistence of poverty at both national and regional levels. In Brazilian context, empirical studies highlight relevance of variables such as labor market participation, educational attainment—which influences workforce qualifications—gender and racial inequalities, and geographic location of households as key determinants of poverty dynamics and persistence of low levels of development (Barros; Corseuil; Leite, 2000; Raiher, 2016; Bastos; Mattos; Santos, 2018; De Oliveira, 2025).

Participation in labor market and corresponding remuneration are widely recognized as central mechanisms through which individuals secure resources required for dignified standard of living. In this regard, Barros *et al.* (2004) emphasize vital role of labor market in determining household income and, consequently, poverty levels, since employment constitutes primary income source for most Brazilian families. Therefore, access to productive activities and quality of labor market participation emerge as key determinants of poverty reduction, reinforcing importance of public policies that expand employment opportunities and improve job quality.

Consistent with this perspective, Barros, Corseuil, and Leite (2000) argue that poverty levels are intricately linked to how labor market absorbs and remunerates workforce. According to the authors, exclusion from labor market restricts access to income and increases material deprivation, so that rising unemployment tends to intensify poverty.

Regarding education, literature emphasizes relationship between educational attainment and individuals' income-generating capacity. Higher levels of schooling are generally associated with higher earnings. From this perspective, Marinho, Linhares, and Campelo (2011) show that increases in average years of schooling among adult population are associated with reductions in poverty incidence. Access to quality education enables individuals in vulnerable situations to secure better positions in labor market, thereby contributing to interruption of intergenerational transmission of poverty. The authors also find that reductions in male unemployment tend to directly benefit individuals located near poverty line—that is, those experiencing moderate deprivation but remaining economically vulnerable. Conversely, income concentration and higher proportion of female-headed households are strongly associated with greater intensity and severity of poverty, particularly in regions distant from major urban centers.

In debate on gender inequalities and poverty, Souza *et al.* (2020) examined feminization of poverty in Brazil between 2001 and 2015 using an approach that integrates monetary indicators with structural household characteristics. Their findings indicate that, despite overall decline in poverty rates during analyzed period, gap between households headed by poor women and those headed by men widened. According to the authors, this increase in inequality is mainly associated with factors such as low educational attainment among female household heads, barriers to labor market participation, and presence of children in household. These elements intensify economic vulnerability, particularly among women residing in North and Northeast regions. Furthermore, the study also highlights that poverty disproportionately affects Black and mixed-race populations, revealing persistence of historical patterns of social exclusion, especially in households headed by Black or mixed-race women.

Intersection between gender, race, and poverty is also examined by Raiher (2016), who shows that certain socio-spatial and household characteristics increase likelihood that female-headed households experience poverty. Residence in North or Northeast regions, identification as Indigenous, Black, or Brown, precarious or absent formal employment, and absence of a partner were identified as factors that intensify

vulnerability. Conversely, women's educational attainment plays an important mitigating role, significantly reducing probability that these households fall below poverty line, particularly in peripheral regions.

In contrast, Oliveira and Ferrera de Lima (2023), when analyzing multidimensional poverty among female-headed households in Northeast region, find that those living with a spouse exhibit higher levels of deprivation, particularly in dimensions of employment, income, and consumption. This result challenges conventional interpretations that associate presence of a marital partner with economic protection, suggesting that, in certain contexts, such arrangements may reproduce rather than alleviate deprivation.

In rural areas, Bastos, Mattos, and Santos (2018) emphasize that absolute poverty is aggravated by lack of infrastructure and distance from urban centers. Absence of adequate transportation, paved roads, and essential public services restricts economic integration of households, limiting income generation and perpetuating situations of poverty. These findings reinforce the need for territorially differentiated public policies.

Additionally, Oliveira *et al.* (2015), when analyzing territorial development policy in Meio Oeste Contestado territory in the state of Santa Catarina, found that important segments of the poorest rural population do not benefit from these initiatives because they lack representation in sociopolitical organizations. This finding indicates that rural environments face additional institutional and structural barriers to overcoming poverty. Moreover, this rural population is concentrated in border areas and in northern plateau of Santa Catarina, highlighting need for public policies designed to address regional specificities.

Analyses of monetary poverty in Brazil indicate that, beyond factors directly related to income generation, distribution of resources across social strata plays leading role in persistence of poverty. Barros, Henriques, and Mendonça (2001) argue that improvements in income distribution have significant potential to reduce poverty incidence, particularly by promoting larger income gains among population groups with the lowest purchasing power. According to these authors, income inequality constitutes main determinant of poverty in Brazil. From this perspective, persistence of large population segments in conditions of deprivation does not result from scarcity of resources but from high concentration of income, which restricts equitable access to minimum standards of well-being.

Similarly, De França (2010) shows that reductions in inequality have stronger effects on poverty reduction than increases in average income alone. This study also indicates that states located in North and Northeast regions show greater resistance to effectiveness of public policies aimed at poverty reduction compared with other regions of the country.

Silva and Lima (2015) deepen this discussion by examining interrelationships between poverty, inequality, and education, emphasizing that these phenomena reinforce each other and form persistent cycle of social exclusion. Limited access to quality education constitutes one of the main mechanisms through which poverty is reproduced, as it restricts opportunities for skilled labor market participation and constrains development of individual autonomy and critical capacity. In this context, educational deprivation operates as factor that perpetuates both poverty and inequality, reinforcing barriers to social mobility and equity.

Given this scenario, the authors argue that breaking this cycle requires formulation of public policies aimed at expanding access to and improving quality of education. Investment in education emerges as essential strategy to promote social mobility by equipping individuals with technical and cognitive skills necessary for productive labor market integration and full participation in society, thereby contributing to reduction of inequality and poverty in the country.

Ribeiro, Batista, and Staduto (2019), when examining determinants of average per capita household income across Brazilian Federative Units, highlight that income inequality negatively affects income levels among the poorest population groups. However, their findings suggest that, although schooling and labor market participation are important determinants, associated returns are substantially higher among upper-income groups, which limits their potential to promote socioeconomic mobility among the most vulnerable segments of population.

Determinants of monetary poverty do not operate in isolation, as their effects are conditioned by characteristics associated with level of regional development, which directly influence opportunities for income generation and returns to individual attributes such as schooling and labor market participation. In this context, more developed regions tend to provide more favorable conditions for labor absorption and expansion of economic opportunities, thereby contributing to poverty reduction. Conversely, less developed regions face structural constraints that restrict these opportunities and favor persistence of monetary poverty over time (Myrdal, 1968; Moreira; Braga; Toyoshima, 2010; Silva; Lima, 2015).

METHODOLOGY

The variables analyzed in this study were constructed from annual microdata of Continuous National Household Sample Survey (PNAD Contínua), made available by the Brazilian Institute of Geography and Statistics (IBGE), and accessed through IPEADATA platform maintained by the Institute for Applied Economic Research (IPEA). Data compilation relied primarily on accumulated information from the first PNAD Contínua interview. However, for years 2020 and 2021, due to unavailability of these microdata from IBGE, information from the fifth interview was used instead.

This study covers the period between 2012–2023, which includes relevant events that affected economic dynamics and living conditions of Brazilian population. Initial year corresponds to beginning of the PNAD Contínua historical series and also encompasses period of deceleration in economic growth observed in Brazil after expansion cycle of 2000s and early 2010s. Analysis period also includes economic recession of 2015–2016, which led to deterioration of labor market conditions, decline in household income, and increase in social vulnerability. In addition, period captures effects of COVID-19 pandemic beginning in 2020 onwards, which generated significant disruptions in employment, income, and social protection systems, substantially affecting economic activity and labor market absorption capacity.

Furthermore, analyzed interval includes post-pandemic recovery phase, characterized by gradual economic recovery and reconfiguration of socioeconomic conditions. Thus, the adopted period captures distinct phases of recent economic cycle, contributing to analysis of determinants of poverty in context of economic transformations observed in country (Hoffmann; Jesus, 2023; Souza; Hecksher; Osório, 2022).

Since this study adopts a monetary approach to poverty, poverty line is defined as per capita household income below half (1/2) of minimum wage, a benchmark widely used in literature on regional poverty in Brazil (Kageyama; Hoffmann, 2006; Barros; Corseuil; Leite, 2000; Raiher, 2016; Struminski; Raiher, 2017). This threshold also aligns with official eligibility criteria applied in public policies targeting vulnerable populations, as established by Decree No. 11,016 of March 29, 2022, and Law No. 8,742 of December 7, 1993.

Because all income values were previously adjusted to average prices of 2023, poverty line adopted in this study is also anchored to minimum wage in force during that year. In nominal terms, minimum wage was R$ 1,302.00 during first four months (January–April) and R$ 1,320.00 during remaining eight months (May–December). To ensure consistency of values throughout year, weighted average was calculated according to duration of each wage level. Based on this amount, poverty line was defined as R$ 657.00, corresponding to half of weighted average value of 2023 minimum wage. Individuals with per capita household income below this threshold were therefore classified as living in poverty.

ECONOMETRIC MODEL

Considering socioeconomic factors identified in the reviewed literature as associated with poverty, a panel data regression model was adopted to investigate determinants of poverty across Brazilian Federative Units during analyzed period. This econometric approach allows simultaneous examination of variation across federative units (cross-sectional dimension) and over time (temporal dimension) (Gujarati; Porter, 2011).

Estimation can be performed using three alternative specifications: the pooled Ordinary Least Squares (OLS) model, which assumes absence of unobserved heterogeneity across units; the fixed effects model (FEM), which controls for potential omitted variables responsible for differences between units by allowing unit-specific intercepts; and the random effects model (REM), which assumes that unobserved heterogeneity across units is incorporated into the error term and remains uncorrelated with explanatory variables (Gujarati; Porter, 2011).

To identify most appropriate model, the following tests were applied: the Chow test, which assesses whether fixed effects model (FEM) provides a better fit than pooled OLS model; the Hausman test, which compares FEM and REM; and the Breusch-Pagan test, which indicates whether REM is preferable to the pooled model (Gujarati; Porter, 2011).

Accordingly, the empirical specification adopted in this study takes the following form[1]:

1 O modelo foi estimado por meio do *software Stata SE* 12.

$$Poor\_prop_{it} = \beta_0 + \beta_1 Education_{it} + \beta_2 White\_prop_{it} + \beta_3 Urbanization_{it} + \beta_4 Men\_prop_{it} + \beta_5 Ocupation_{it} + \beta_6 Gini_{it} + \varepsilon_{it} \quad (08)$$

Where:

$Poor\_prop_{it}$ = dependent variable of the model corresponding to proportion of individuals living in poverty;

$Education_{it}$ = average years of schooling among population aged 25 years or older;

$White\_prop_{it}$ = proportion of individuals identified as white in population;

$Urbanization_{it}$ = urbanization rate of population;

Men_prop_{it} = proportion of men in population;

$Ocupation_{it}$ = proportion of population employed;

$Gini_{it}$ = Gini's index (proxy for income inequality)

i = denotes the Federative Units;

t = denotes the years analyzed.

β_0 = constant term representing estimated average poverty rate when all explanatory variables are equal to zero;

$\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, and\ \beta_6$ = slope coefficients of independent variables;

ε_{it} = error term or residuals of regression.

Adopting a panel data regression model is supported by empirical literature on determinants of poverty, as this approach allows control for unobserved heterogeneity across Federative Units while simultaneously capturing temporal and spatial variation of the phenomenon. This strategy is particularly appropriate for analyzing poverty in a country characterized by pronounced regional inequalities, enabling more robust estimates of effects associated with explanatory variables.

All variables included in the model, both dependent and explanatory, were operationalized as proportions or averages calculated for each Federative Unit during analyzed period. With exception of the variable representing years of schooling, all variables were transformed into logarithmic

scales, allowing interpretation of estimated coefficients in terms of elasticities. Selection of variables incorporated into econometric modeling is based both on theoretical foundations established in literature on determinants of poverty in Brazil and on availability of comparable data for all Federative Units during period 2012–2023. Although multiple factors may influence poverty levels, this study prioritizes indicators most frequently used in empirical literature and those consistently measured in PNAD Contínua microdata.

Inclusion of proportion of employed population is supported by literature that recognizes labor market as main mechanism of income generation and therefore as key determinant of poverty, since exclusion from employment restricts access to income and increases economic vulnerability (Barros *et al.*, 2004; Barros; Corseuil; Leite, 2000). Variable representing average years of schooling among adult population is grounded in human capital framework, according to which higher levels of education increase productivity and earnings, thereby reducing probability of poverty (Silva; Lima, 2015; Marinho; Linhares; Campelo, 2011). Gini Index was incorporated as proxy for income inequality, given evidence that distributive concentration constitutes one of principal factors associated with persistence of poverty in Brazil by restricting access to economic resources among lower-income groups (Barros; Henriques; Mendonça, 2001; De França, 2010).

Sociodemographic variables, such as share of individuals identifying as white and share of men in population, are based on studies demonstrating existence of inequalities associated with race and gender that influence access to economic opportunities and exposure to poverty (Raiher, 2016; Souza *et al.*, 2020). Relationship between variables used in this study, together with their sources, respective dimensions, and expected signs in relation to poverty, is presented in Chart 1.

For construction of dependent variable—the proportion of individuals living in poverty—per capita household income variable vd5002 from the PNAD Contínua was used. It aggregates income received from all sources, including government cash transfer programs. However, this indicator does not include income paid through benefit cards, transportation, or food vouchers, nor amounts received by pensioners, domestic workers, and their families. Selection of this variable is justified by its continuous availability throughout the period analyzed.

Chart 1 | Relationship between variables, data sources, and dimensions

Data	Source	Use/dimension	Expected sign
Household income per capita (income from all sources)	PNAD Contínua/ IBGE	Proportion of individuals living in poverty	(dependent variable)
Gini's index	IPEADATA/IPEA database (based on PNAD Contínua microdata from IBGE)	Proxy for income inequality	(+)
Years of schooling	PNAD Contínua/ IBGE	Average years of schooling among population aged 25 years or older	(-)
Race or ethnicity (self-declared race)	PNAD Contínua/ IBGE	Proportion of individuals identifying as white or Asian in population	(-)
Household location (urban or rural)	PNAD Contínua/ IBGE	Urbanization rate	(-)
Sex (male or female)	PNAD Contínua/ IBGE	Proportion of men in population	(-)
Employment status	PNAD Contínua/ IBGE	Proportion of population employed	(-)

Source: Prepared by the author.
Note: All data were processed by Federative Unit and for each year of the period analyzed.

The Gini index was used as a measure of income inequality among individuals. This indicator ranges from 0 to 1, with values closer to 1 indicating higher levels of inequality in income distribution, whereas values closer to 0 reflect greater equality (Medeiros, 2012).

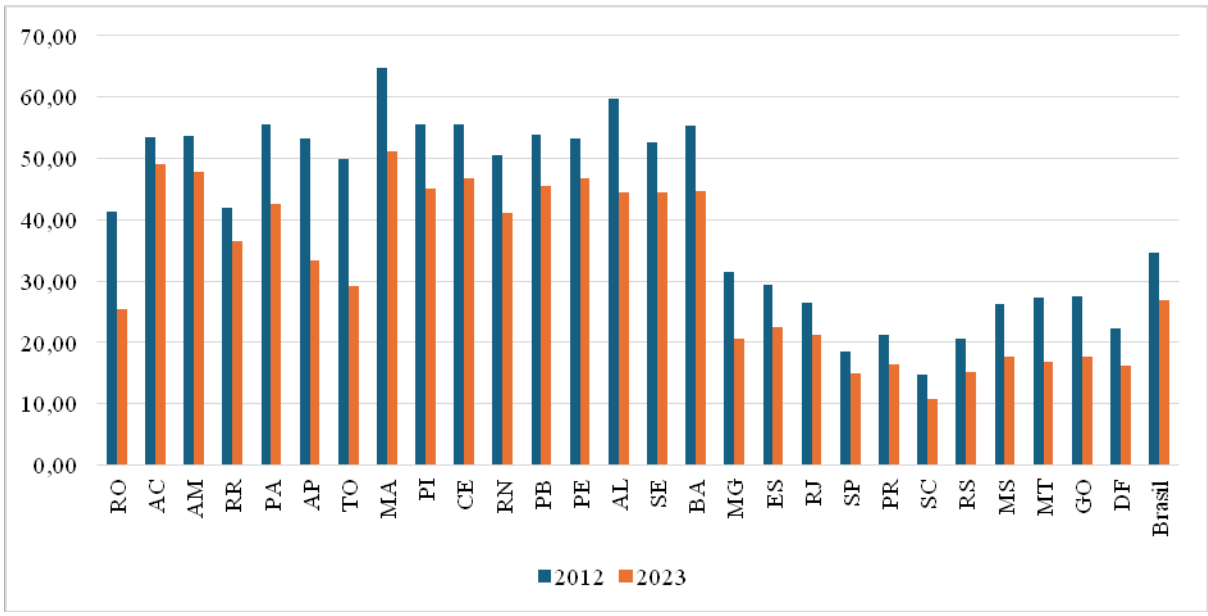
The schooling variable was restricted to individuals aged 25 years or older, consistent with standard methodological practices in the specialized literature. This choice is justified by the fact that, from this age onward, most individuals are expected to have completed formal education, thereby reducing distortions associated with ongoing schooling. This restriction allows a more robust and representative assessment of influence of education on income and, consequently, on poverty incidence. Economic literature indicates that higher levels of education tend to increase individual productivity, which is reflected in higher earnings and a lower probability of living in poverty (Rocha, 2006; Marinho; Linhares; Campelo, 2011).

Proportion of employed individuals was calculated using variable vd4002 from the PNAD Contínua, which reports employment status of respondents. This variable makes it possible to identify, among labor force participants (economically active population), those who are actually employed, encompassing different forms of labor market participation, including formal employment, informal work, self-employment, employers, and unpaid family work. To ensure statistical representativeness of estimates, all calculations were weighted using sample expansion factors provided by variable v1032 from the same database. Results of empirical analysis are presented in following section and interpreted in light of existing literature and recent evidence.

EVOLUTION OF THE POPULATION LIVING IN POVERTY ACROSS BRAZILIAN FEDERATIVE UNITS, 2012–2023

Figure 1 presents the proportion of individuals living in poverty in the 27 Federative Units (FUs) and in Brazil in 2012 and 2023, based on poverty line defined as per capita household income below half of minimum wage. Results indicate a generalized decline in poverty across all Federative Units during analyzed period, although magnitude of reduction varied across regions.

Figure 1 | Brazil: Proportion of individuals living in poverty in Federative Units (FUs) (%) – 2012 and 2023



Source: Research results based on PNAD Contínua data for 2012 and 2023

In 2012, most states in Northern and, particularly, Northeastern regions recorded poverty rates exceeding 50% of population living below poverty line, with Maranhão standing out, where the rate surpassed 60%. In contrast, states in Southern and Southeastern regions, such as Santa Catarina, Rio Grande do Sul, and São Paulo, presented lowest percentages, generally below 20%.

By 2023, although poverty declined across all regions of the country, results indicate persistence of historical regional pattern of poverty in Brazil, with higher concentration in Northern and Northeastern regions. This pattern is consistent with findings reported in previous studies, including Raiher (2016), Struminski and Raiher (2017), and Souza *et al.* (2020).

However, this reduction did not occur continuously throughout the period analyzed. Years between 2012 and 2023 were marked by episodes of economic and social instability, including the recession of 2015–2016 and the crisis associated with COVID-19 pandemic, both of which directly affected household income and population well-being. In this context, comparison between extreme years of the period provides a broader perspective on long-term trends, even though the course was marked by cyclical fluctuations (Hoffmann; Jesus, 2023; Souza; Hecksher; Osório, 2022).

DETERMINANTS OF POVERTY ACROSS BRAZILIAN FEDERATIVE UNITS, 2012–2023

To investigate factors associated with proportion of individuals living in poverty across Brazilian Federative Units, a panel data econometric model was adopted. This approach allows simultaneous consideration of temporal variation (2012–2023) and regional heterogeneity across Federative Units.

As an initial step, pooled data model and fixed effects model were estimated to identify specifications providing best fit to the data. The Chow test rejected the null hypothesis in favor of the pooled model, indicating presence of significant heterogeneity across Federative Units. This result suggests that unit-specific factors influence poverty rates, reinforcing the relevance of a model capable of accounting for these regional differences.

Next, the Breusch–Pagan test rejected the null hypothesis of the absence of random effects, providing additional evidence of robustness, reinforcing that the model can capture unobserved heterogeneity across Federative Units.

Finally, the Hausman test was applied to compare fixed and random effects models. With a p-value of 0.0034, the null hypothesis of equivalence between the estimated coefficients was rejected at 1% significance level. This result indicates that fixed effects model provides more consistent estimates for the analyzed data. Accordingly, this specification was adopted, as it controls for time-invariant characteristics specific to each Federative Unit.

Table 1 reports estimation results obtained from pooled OLS, fixed effects, and random effects models, estimated using Stata software (version 12). Results of the Chow, Hausman, and Breusch–Pagan tests are also presented.

In the fixed effects model, explanatory variables account for approximately 54% of within-unit variation in poverty rates, as indicated by within R^2 value of 0.5416, highlighting the relevance of factors included in the analysis.

Table 1 | Estimation results from panel data models

Proportion of individuals living in poverty	Pooled data (OLS)	Random effect Coefficient	Fixed effect
Education level	-0.1753922*	-0.1151285*	-0.1015104*
Urbanization	-0.0466921****	-0.4463678**	-0.2381074****
Men	0.5729928****	-0.2582466****	-0. 0979173****
Employed	-2.082152 *	-1.58657*	-1.703329*
Individuals identifying as white	-0.4801915 *	-0.4530326*	-0.1350861***
Gini's index	1.182285 *	0.8547675*	0.7016737*
Constant	0.9379827 **	0.4074174****	-0.1235986****
R^2	0.9274	-	-
R-sq: within=	-	0.5179	0.5416
between =	-	0.9437	0.9313
overall =	-	0.9221	0.8926
(LM) Breusch Pagan	chibar2(01) = 581.74	Prob > chibar2 = 0.0000*	
Chow test	F(26. 291) = 28.36	Prob > F = 0.0000*	
Hausman test	chi2(6) = 19.48	Prob>chi2 = 0.0034*	

Source: Research results based on PNAD Contínua data for 2012 and 2023.
Note: Significance level: *: Significant at 1%; **: Significant at 5%; ***: non-significant.

Literature widely recognizes a relationship between schooling and poverty (*e.g.*, Barros, Corseuil, and Leite, 2000; Silva and Lima, 2015; Raiher, 2016), and the results obtained in this study corroborate this connection. Holding other variables constant, an additional year of schooling among population aged 25 years or older is associated, on average, with a 10.15% reduction in poverty rate. This effect reflects fact that higher educational attainment tends to increase employment opportunities, raise earnings, and reduce socioeconomic vulnerability. Accordingly, this finding reinforces the central role of educational policies as an instrument for poverty reduction, consistent with the theoretical and empirical contributions of Silva and Lima (2015), Marinho, Linhares, and Campelo (2011), Raiher (2016), and Ribeiro, Batista, and Staduto (2019).

Estimated coefficient for urbanization rate was negative (–0.24), consistent with theoretical expectations, although it did not reach statistical significance. This suggests that, while the model does not identify statistically robust relationships between urbanization and poverty, there are indications that expansion of urbanization may contribute to reduction in poverty rates. Although not statistically conclusive, this result aligns with the literature showing higher prevalence of poverty in rural areas and emphasizing benefits associated with proximity to urban centers, such as greater access to employment opportunities, infrastructure, and public services (Gomes de Ramos and Ferrera de Lima, 2023; Bastos, Mattos, and Santos, 2018; Santos Neto *et al.*, 2021).

Regarding employment rate, results indicate that a 1% increase in the proportion of employed individuals is associated, on average, with a 1.70% reduction in poverty incidence. This finding reinforces a well-established conclusion in the literature that access to employment constitutes one of principal mechanisms for poverty reduction. Income generated through labor market participation contributes to access to goods and services essential for well-being (Barros, Corseuil, and Leite, 2000; Barros *et al.*, 2004; Souza *et al.*, 2020).

Although labor market participation plays a key role in reducing poverty, the literature emphasizes that quality of employment is equally relevant. Jobs characterized by informality, low wages, or instability tend to limit positive effects of employment on living conditions. It should be noted that the variable "employed," used in this analysis, includes both workers with formal employment contracts and those engaged in informal work, as PNAD Contínua captures both types of occupational status.

Variable representing share of individuals identifying as white was statistically significant and negatively associated with poverty levels. Specifically, results indicate that a 1% increase in this indicator is associated with an average reduction of 0.14% in poverty incidence. This finding highlights greater barriers faced by non-white population in accessing educational opportunities, skilled employment, and higher income levels, consistent with analyses presented by Raiher (2016) and Souza *et al.* (2020).

Finally, results show that a 1% increase in the Gini index—an indicator of income inequality—is associated with an average increase of 0.70% in proportion of individuals living in poverty. This evidence strongly corroborates findings in the literature that income inequality plays vital role in persistence and intensification of poverty (De França, 2010; Barros, Henriques, and Mendonça, 2001; Ribeiro, Batista, and Staduto, 2019). In this regard, Barros, Henriques, and Mendonça (2001) and De Oliveira (2025) argue that reduction of socioeconomic inequality at regional level contributes significantly to poverty reduction and broader development processes, as it promotes faster income growth among most vulnerable population groups relative to higher-income strata.

In the estimated model, the variable representing the share of men in the population did not show statistical significance, indicating absence of robust evidence of direct effect of this demographic characteristic on poverty. Nevertheless, the negative coefficient obtained is consistent with theoretical expectation that greater male participation in population may be associated with lower poverty rates, since men, on average, exhibit higher participation in formal employment and higher earnings (Souza *et al.*, 2020; Oliveira and Ferrera de Lima, 2023). In addition, Lopes *et al.* (2022) highlight that, even in sectors associated with solidarity economy, such as cooperatives, women remain underrepresented in leadership positions and are predominantly concentrated in care-related activities. This pattern reflects persistence of gender inequalities in Brazilian society that restrict women's access to positions of economic power and contribute to persistence of social exclusion and poverty.

Estimation results indicate that employment rate stands out as variable with the greatest influence on poverty reduction when compared with other coefficients in model. This finding underscores central role of employment as fundamental mechanism for increasing individual

income and, consequently, reducing poverty in its monetary dimension. In other words, Federative Units with more dynamic productive structures capable of generating employment on larger scale tend to experience greater improvements in socioeconomic conditions of population.

Overall, results indicate that incidence of monetary poverty across Brazilian Federative Units is strongly associated with factors reflecting conditions of regional development. Variables such as educational attainment, labor market participation, and income inequality exhibit significant influence on poverty rates, suggesting that poverty dynamics are closely linked to capacity of regional economies to generate employment opportunities and improve living standards. Findings also reinforce the view that monetary poverty is shaped by specific characteristics of regional context, including economic dynamism, productive structure, and degree of socioeconomic inequality.

By examining all Federative Units over period 2012–2023, this study contributes to the literature by providing empirical evidence that regional disparities in socioeconomic development represent a key element in understanding the dynamics of monetary poverty in Brazil. These findings highlight importance of public policies that address territorial inequalities and regional heterogeneity as instruments for effective poverty reduction.

FINAL CONSIDERATIONS

This study analyzed determinants of monetary poverty in Brazil during period 2012–2023, a time characterized by significant economic and social fluctuations that affected population well-being across different regions of country.

Based on estimation of panel data econometric model, in which poverty rate was used as dependent variable, empirical results indicate that higher levels of education, greater labor market participation, and a higher share of individuals identifying as white are associated with lower poverty incidence across Federative Units. Particularly noteworthy is strong effect of employment, reinforcing the main role of labor market participation in improving socioeconomic well-being. Conversely, income distribution inequality showed a positive association with poverty rates. This finding indicates that contexts characterized by high income concentration tend to exhibit higher levels of poverty, whereas progress toward more equitable income distribution contributes to its

reduction. These results reinforce the understanding that poverty is not solely result of absolute scarcity of resources but is also strongly influenced by distribution of those resources across society.

By providing updated evidence on the behavior of poverty during a period marked by economic crises in Brazil, this study contributes to broader understanding of socioeconomic mechanisms that sustain deprivation of well-being. Findings suggest that public policies aimed at poverty mitigation should prioritize expanding opportunities for labor market participation, particularly among most vulnerable population groups. At same time, addressing elevated levels of income inequality—one of structural characteristics of Brazilian economy—still remains essential. In this regard, redistributive mechanisms that expand access to income and productive resources among the poorest segments of the population, especially women, non-white individuals, and residents of rural areas, are fundamental for strengthening effectiveness of poverty reduction strategies.

For future research, adoption of poverty lines adapted to regional specificities is recommended, as this approach may capture socioeconomic disparities across different areas of the country more accurately. In addition, further investigation of the role of job quality in poverty dynamics is encouraged, particularly considering factors such as employment formalization and working conditions. These aspects directly affect household income and capacity of families to escape poverty but were not explicitly addressed in this study, which focused primarily on labor market participation.

ACKNOWLEDGMENTS

The authors thank the Federal Institute of Paraná (IFPR) for supporting this research and training activities. The authors also acknowledge financial support from the Coordination for the Improvement of Higher Education Personnel (CAPES) and the National Council for Scientific and Technological Development (CNPq) through research grants.

REFERENCES

ALBUQUERQUE, R. C. de. Estratégia de desenvolvimento e combate à pobreza. **Estudos avançados,** v. 9, p. 75-116, 1995. DOI: https://doi.org/10.1590/S0103-40141995000200004. Acesso em: 09 jan. 2025.

BARROS, R. P. de; CORSEUIL, C. H.; LEITE, P. G. Mercado de trabalho e pobreza no Brasil. In: HENRIQUES, R. **Desigualdade e pobreza no Brasil.** Rio de Janeiro: IPEA, 2000, p. 177-229.

BARROS, R. P. de; CARVALHO, M. de.; FRANCO, S.; MENDONÇA, R. **Acesso ao trabalho e produtividade no Brasil:** implicações para crescimento, pobreza e desigualdade. Rio de Janeiro: IPEA, 2004.

BARROS, R. P. de; HENRIQUES, R.; MENDONÇA, R. **A estabilidade inaceitável**: desigualdade e pobreza no Brasil. (Texto para discussão, n. 800). Rio de Janeiro: IPEA, 2001.

BASTOS, P. M. A; MATTOS, L. B.; SANTOS, G. C. Determinantes da pobreza no meio rural brasileiro. **Revista de Estudos Sociais**, v. 20, n. 41, p. 4–30, 2018. DOI: 10.19093/res6163. Disponível em: https://periodicoscientificos.ufmt.br/ojs/index.php/res/article/view/6163. Acesso em: 01 mai. 2024.

CODES, A. L. M. **A trajetória do pensamento científico sobre a pobreza**: em direção a uma visão complexa. (Texto para discussão, n. 1332). Brasília: IPEA, 2008.

COUTO, A. C. L; BRITO, E. C.; SILVA, C. da. Crescimento pró-pobre: uma análise da heterogeneidade nos estados brasileiros (2012-2019). **Acta Scientiarium**, v. 43, n.1, p. 56-101, 2021. Disponível em: https://www.redalyc.org/journal/3073/307372443002/307372443002.pdf. Acesso em: 17 fev. 2026.

DE FRANÇA, J. M. S. **Crescimento pró-pobre no Brasil**: Impactos regionais. 2010, 104 f. Tese (Doutorado em Economia). Escola de Pós-Graduação em Economia – EPGE, Fundação Getúlio Vargas, Rio de Janeiro, 2010.

DE OLIVEIRA, O. F. O desenvolvimento e suas concepções. **Informe GEPEC**, v. 29, n. 1, p. 205–220, 2025. DOI: 10.48075/igepec.v29i1.34158. Disponível em: https://e-revista.unioeste.br/index.php/gepec/article/view/34158. Acesso em: 23 fev. 2026.

GOMES DE RAMOS, S. A.; FERRERA DE LIMA, J. A pobreza multidimensional familiar: o caso das regiões paranaenses. **Capim Dourado: Diálogos em Extensão**, v. 6, n. 2, p. 196–227, 2023. DOI: 10.20873/v6/F. Disponível em: https://sistemas.uft.edu.br/periodicos/index.php/capimdourado/article/view/17698. Acesso em: 17 mai. 2024.

GUJARATI, D. N.; PORTER, D. C. **Econometria básica**. 5 ed. Porto Alegre: AMGH, 2011.

HOFFMANN, R.; JESUS, J. G. de. Pobreza no Brasil, 2012-2022. **RBEST - Revista Brasileira de Economia Social e do Trabalho**, v. 5, p. e023010, 2023.

INSTITUTO BRASILEIRO DE GEOGRAFIA E ESTATÍSTICA (IBGE). Estatísticas sobre trabalho e rendimento. **Pesquisa Nacional por Amostra de Domicílios Contínua Anual**. Disponível em: https://www.ibge.gov.br/estatisticas/downloads-estatisticas.html. Acesso em: 09 set. 2024.

INSTITUTO DE PESQUISA ECONÔMICA APLICADA (IPEA). **Dados sociais/ Ipeadata** Brasília: IPEA, 2024. Disponível em: http://www.ipeadata.gov.br/Default.aspx. Acesso em: 05 fev. 2024.

KAGEYAMA, A.; HOFFMANN, R. Pobreza no Brasil: uma perspectiva multidimensional. **Revista Economia e Sociedade,** v. 15, n. 1, p. 79-112, 2006.

LOPES, I. da S.; LIMA COSTA, B. A.; ROSA DA SILVA, G. L.; OLÍDIA, C. Cooperativismo e objetivos de desenvolvimento sustentável: agenda para equidade racial e de gênero. **Revista Brasileira de Gestão e Desenvolvimento Regional**, v. 18, n. 3, 2022. DOI: 10.54399/rbgdr.v18i3.6246. Disponível em: https://www.rbgdr.net/revista/index.php/rbgdr/article/view/6246. Acesso em: 21 jun. 2025.

MARINHO, E.; LINHARES, F.; CAMPELO, G. Os programas de transferência de renda do governo impactam a pobreza no Brasil? **Revista Brasileira de Economia,** v. 65, p. 267-288, 2011.

MEDEIROS, M. **Medidas de desigualdade e pobreza**. Brasília: EdUnB, 2012.

MESTRUM, F. **Mondialisation et pauvreté:** De l'utilité de la pauvreté dans le nouvel ordre mondial. Paris: L'Harmattan, 2002.

MIDEROS, A. M. Ecuador: Definición y medición multidimensional de la pobreza, 2006- 2010, **Revista de la CEPAL,** n. 108, p. 51-70, 2012. Disponível em: https://repositorio.cepal.org/server/api/core/bitstreams/92803c14-de43-4fb0-af53-c35d08167464/content. Acesso em: 05 ago. 2024.

MOREIRA, R. C.; BRAGA, M. J.; TOYOSHIMA, S. H. Crescimento e desigualdade: prosperidade versus armadilhas da pobreza no desenvolvimento econômico dos estados brasileiros. **Revista Economia,** v. 11, n. 4, p.133–162, 2010. Disponível em: https://www.anpec.org.br/revista/vol11/vol11n4p133_162.pdf. Acesso em: 17 fev. 2026.

MYRDAL, G. **Teoria econômica e regiões subdesenvolvidas**. 2. ed. Rio de Janeiro: Editora Saga, 1968.

OLIVEIRA, L. Z.; CAZELLA, A. A.; TECCHIO, A.; MIRESKI, M. C. Ações da política de desenvolvimento territorial para superar a pobreza rural: estudo de caso no território Meio Oeste Contestado (SC). **Revista Brasileira de Gestão e Desenvolvimento Regional**, v. 11, n. 1, 2015. Disponível em: https://www.rbgdr.net/revista/index.php/rbgdr/article/view/1620. Acesso em: 10 jun. 2025.

OLIVEIRA N. S. M. N. de; FERRERA DE LIMA, J. Pobreza das mulheres chefes de família da Região Nordeste do Brasil: uma análise multidimensional. **Revista Brasileira de Gestão e Desenvolvimento Regional**, v. 19, n. 3, 2023. DOI: 10.54399/rbgdr.v19i3.5928. Disponível em: https://www.rbgdr.net/revista/index.php/rbgdr/article/view/5928. Acesso em: 17 mai. 2024.

OSTER, S. **The definition and measurement of poverty.** Boulder: Westview Press Inc., 1978.

RAIHER, A. P. Condição de pobreza e a vulnerabilidade da mulher brasileira. **Informe GEPEC**, v. 20, n. 1, p. 116–128, 2016. DOI: 10.48075/igepec.v20i1.13531. Disponível em: https://e-revista.unioeste.br/index.php/gepec/article/view/13531. Acesso em: 04 mar. 2024.

RIBEIRO, M. L.; BATISTA, A. M.; STADUTO, J. A. R. Determinantes do rendimento domiciliar per capita por UF brasileira, 2010. **Revista Brasileira de Gestão e Desenvolvimento Regional**, v. 15, n. 6, 2019. Disponível em: https://www.rbgdr.net/revista/index.php/rbgdr/article/view/5189. Acesso em: 10 jun. 2025.

ROCHA, S. **Pobreza no Brasil**: afinal, de que se trata? 3 ed. Rio de Janeiro: FGV, 2006.

SABOIA. J.; NETO, J. H.; SIMÕES, A.; DICK, P. C. Mercado de trabalho, salário mínimo e distribuição de renda no Brasil no passado recente. **Revista de Economia Contemporânea**, v. 25, n. 2, p. 1-30, 2021. Disponível em: https://revistas.ufrj.br/index.php/rec/ article/view/47643/25688. Acesso em: 25 ago. 2023.

SANTOS NETO, G. C. dos; ESPÍRITO SANTO, M. M. do; AMARAL, T. S.; FERNANDES, D. S. O.; GOMES, A. da S.; PIRES, M. de M. Pobreza e desigualdade de renda: uma análise para a região imediata de Ilhéus-Itabuna, Bahia, Brasil. **Revista Brasileira de Gestão e Desenvolvimento Regional**, v. 17, n. 1, 2021. DOI: 10.54399/rbgdr.v17i1.6160. Disponível em: https://www.rbgdr.net/revista/index.php/rbgdr/article/view/6160. Acesso em: 10 jun. 2025.

SILVA, M. M. A. S.; LIMA, P. V. P. S. Indicadores educacionais e de renda e sua relação com pobreza e indigência no semiárido brasileiro. **Revista Econômica do Nordeste,** Fortaleza, v. 46, n. 2, p. 117-132, 2015.

SOUZA, P. H. G. F.; HECKSHER, M.; OSÓRIO, R. G. **Um país na contramão**: a pobreza no Brasil nos últimos dez anos. (Nota técnica, n. 102). Rio de Janeiro: IPEA, 2022. Disponível em: https://repositorio.ipea.gov.br/handle/11058/11563. Acesso em: 25 ago. 2023.

SOUZA, V. de; PENTEADO, C.; NASCIMENTO, R. do; RAIHER, A. P. A feminização da pobreza no Brasil e seus determinantes. **Informe GEPEC**, v. 24, n. 1, p. 53–72, 2020. DOI: 10.48075/igepec.v24i1.22710. Disponível em: https://e-revista.unioeste.br/index.php/gepec/article/view/22710. Acesso em: 04 mar. 2024.

STRUMINSKI, C. E. C.; RAIHER, A. P. Pobreza e seus determinantes nos municípios brasileiros: abordagem monetária, de privações e multidimensional. **RDE - Revista de Desenvolvimento Econômico**, v. 2, n. 37, p. 186–211, 2017.

WORLD BANK. **Brazil poverty and equity assessment:** Looking Ahead of Two Crises. Washington, 2022. Disponível em: https://openknowledge.worldbank.org/server/api/core/bitstreams/19298bfa-067d-504c-8e34-00b20e3139d2/content. Acesso em: 21 ago. 2023.


fapeti
FUNDAÇÃO DE APOIO À PESQUISA,
TECNOLOGIA E INOVAÇÃO


pós-
graduação


UNITAU
Universidade de Taubaté