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Time Poverty in Brazil in 2022: Evidence of the Gender Gap

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Abstract

This article aims to identify the main determinants of time poverty in Brazil, considering gender differences, based on data from the 2022 Continuous National Household Sample Survey (PNADC). By constructing lower and upper time poverty thresholds and applying a logit model, the analysis was conducted both for Brazil as a whole and disaggregated by age group, adolescents and adults, as well as by gender. The results show that time poverty is more prevalent among women, especially those with children under 14 years of age, living in urban areas and metropolitan regions, as well as in the Northeast, Southeast, South, and Midwest regions of the country. Furthermore, it was observed that white individuals are less likely to experience time poverty, reinforcing the existence of structural racial inequalities.

Keywords: *care, Gender, time use*

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1. Introduction

Over the past decades, the concept of time poverty has become established as a fundamental dimension of social inequality by demonstrating that deprivation of well-being is not limited to insufficient income but also encompasses the scarcity of time available for rest, leisure, self-care, and social participation (Hyde et al., 2020).

Studies have shown that women are disproportionately affected by time poverty, regardless of whether they live in urban or rural areas. On average, women devote two to three times more hours than men to unpaid activities, including childcare, household tasks, and family caregiving (UN Women, 2020). This disproportionate burden limits their opportunities for personal and professional development, negatively affecting both their physical and mental health while constraining their freedom of choice (Sun et al., 2024).

The COVID-19 pandemic made these inequalities even more apparent. Women, particularly mothers, faced a triple burden consisting of remote work, home-schooling, and continuous caregiving responsibilities, resulting in critical levels of physical and emotional exhaustion (Nichols, 2025).

The combination of time constraints and the lack of discretionary time reinforces the view that time poverty also constitutes a form of social injustice, one that is often overlooked by traditional statistical measures (Whillans & West, 2022).

In this context, time poverty should not be understood merely as a consequence of poor individual time management or low productivity. Rather, it reflects social structures that produce unequal distributions of tasks and responsibilities, disproportionately burdening women, particularly those living in vulnerable socioeconomic conditions (Zehba et al., 2025).

Against this backdrop, the present study aims to identify the main determinants of time poverty in Brazil in 2022, with particular emphasis on the gender gap, using data from the Continuous National Household Sample Survey (PNAD Contínua) conducted by the Brazilian Institute of Geography and Statistics (IBGE). Specifically, the study addresses the following research question: Are women more likely to experience time poverty than men? The hypothesis is that gender inequalities persist, leading women to face a higher likelihood of time poverty than men. In addition, the analysis is stratified by young adults and adults to examine whether this pattern remains consistent across different age groups.

The paper is organized into four sections, in addition to this introduction and the concluding remarks. Section 2 presents the theoretical and empirical background, discussing the theory of time allocation as well as the international and Brazilian literature on time poverty. Section 3 describes the data and methodology employed in the analysis. Finally, Section 4 provides a descriptive analysis of the variables used and discusses the main empirical findings.

2. Literature Review

The allocation of time between paid and unpaid work is one of the topics examined in economic theory. Becker (1965) argues that the allocation and efficient use of time devoted to unpaid work are relevant to economic well-being by extending the opportunity cost framework. In this context, the fundamental constraint is that time can be converted into goods through monetary income, implying a trade-off between leisure and work within a fixed total time endowment. Individuals therefore decide how to allocate their available time between paid employment and household production in order to maximize their utility.

When the household consists of multiple members, Becker (1965) further argues that time allocation differs among family members. Those who are relatively more productive in market activities tend to devote more time to paid work, while other household

members reallocate their time toward domestic production. This occurs because the time allocation decisions of each family member are interdependent and influenced by the choices of the others.

Heckman (2015) explains that, by recognizing that the marginal value of time varies across alternative uses, Becker expanded existing economic models to account for the increasing participation of women in the labor market during that period, thereby complementing the earlier contributions of Long and Mincer on the supply and demand for female labor. Consequently, Becker's work advanced the analysis of consumer decision-making by incorporating both income and substitution effects into time allocation choices.

Although Becker's contributions represented a significant advancement, his framework has been criticized for assuming that individuals are rational agents who make optimal choices while overlooking other relevant constraints, particularly gender inequality within both the household and the labor market. For women, for instance, labor supply decisions are closely linked to family circumstances, as they may forgo participation in paid employment in order to perform unpaid domestic work (Nelson, 1995; Biroli, 2016).

Drawing on the theory of time allocation, the literature suggests that income poverty may be closely associated with time poverty. One of the pioneering contributions was made by Vickery (1977), who conceptualized poverty as comprising two dimensions (income and time) and argued that individuals can be considered free from poverty only when they possess sufficient resources in both dimensions. Furthermore, the author distinguishes between voluntary time poverty, in which individuals deliberately choose more leisure while maintaining adequate income, and involuntary time poverty, in which insufficient discretionary time undermines well-being. Vickery (1977) also emphasizes that social policies focused exclusively on income may overlook important differences in time constraints across households.

Empirical evidence has documented the prevalence of time poverty in several countries. Bittman (2002) examined the relationship between social exclusion and time poverty in Australia, finding that certain groups are particularly vulnerable to leisure deprivation resulting from time scarcity. These groups include individuals with long paid working hours or substantial domestic responsibilities, women, and single-parent households or families with young children. Similar findings were reported by Strazdins et al. (2016), who also analyzed Australian data and concluded that time poverty may have detrimental effects on individuals' physical and mental health.

Kalenkoski et al. (2011) examined time poverty in the United States and found that households with children have less discretionary time, with each additional child reducing an adult household member's free time by approximately 35 minutes per day. The authors also found that the presence of more than one adult in the household does not necessarily lead to a more equitable division of household responsibilities or a reduction in time poverty. Furthermore, household income was not found to be a statistically significant determinant of time poverty.

For Canada, Nichols (2025) found that, during the COVID-19 pandemic, women in Ontario experienced severe time poverty due to the combined demands of paid employment, domestic responsibilities, and children's remote schooling, highlighting substantial gender inequalities in time use. The analysis focused on women with at least one child engaged in remote learning during the pandemic. The author also concluded that time poverty was further exacerbated by inequalities associated with travel restrictions and limited access to transportation services.

In Kochi, India, Zehba et al. (2025) found that low-income women are disproportionately affected by time poverty because they devote substantial time to unpaid caregiving activities, even when they also participate in paid employment. In addition, the authors argue that inadequate public transportation further disadvantages women by limiting their urban mobility, as they often face long commuting times between destinations, a finding consistent with that reported by Nichols (2025).

Regarding health-related outcomes, Kaki and Hashimoto (2025) found that time poverty in Tokyo was associated with a higher prevalence of smoking among single mothers with preschool-aged children, whereas no significant effect was observed among men. Based on these findings, the authors suggest that time poverty may be associated with smoking behavior, reflecting the influence of socially assigned roles and gender-related responsibilities.

Finally, within the Brazilian literature, Ribeiro and Marinho (2012) found that the profile most commonly associated with time poverty in Brazil is that of an adult Black woman with low educational attainment living in an urban area of the Northeast region, regardless of income poverty status. The authors further note that these women typically reside in households with relatively few members and are mothers of children under the age of 14, a circumstance that increases their responsibility for unpaid domestic and caregiving activities, thereby intensifying their time burden.

Overall, the empirical evidence indicates that gender inequality is a central feature of time poverty, with women consistently experiencing higher levels of time deprivation than men. Moreover, the presence of children tends to exacerbate time poverty, as childcare responsibilities require substantial time investments that further constrain individuals' discretionary time.

3. Data and Methods

This study uses data from the Continuous National Household Sample Survey (Pesquisa Nacional por Amostra de Domicílios Contínua (PNADC)) for the year 2022, conducted by the Brazilian Institute of Geography and Statistics (IBGE). The PNADC is a nationally representative household survey that provides essential information on the labor market, income, education, and other sociodemographic characteristics (IBGE, 2017). The selection of the 2022 wave is justified by the timeliness of the data and its suitability for addressing the research objectives.

To examine time poverty, the sample was divided into two groups: adults and adolescents. Adults were defined as individuals aged 18 to 64 years, following the criteria established by Brazilian legislation regarding the age of civil majority (18 years or older) and the eligibility rules for retirement benefits or the Continuous Cash Benefit (Benefício de Prestação Continuada (BPC)), which may be granted to individuals aged 65 years or older who have not accumulated sufficient social security contributions to qualify for retirement benefits (Brasil, 1993, 2002). Adolescents were defined as individuals aged 15 to 17 years, as this age group may engage in paid employment. Although individuals under the age of 16 are generally prohibited from formal employment, Brazilian legislation allows them to work as apprentices under the Young Apprentice Program (menor aprendiz) (Brasil, 1943).

The construction of the Time Poverty Thresholds considers the total number of hours per week devoted to the main job, secondary job or other paid work, together with the hours allocated to unpaid household activities (t_i), must exceed a predetermined time poverty threshold (t). These measures are calculated using the following indicators: the time poverty headcount ratio (Equation 1), the

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time poverty gap (Equation 2), and the squared time poverty gap (Equation 3), defined as follows:

$$P_0 = \frac{N_p}{N} \tag{1}$$

$$P_1 = \frac{1}{N_p}\sum_{i=1}^{N_p}\left(\frac{t_i - t}{t}\right) \tag{2}$$

$$P_2 = \frac{1}{N_p}\sum_{i=1}^{N_p}\left(\frac{t_i - t}{t}\right)^2 \tag{3}$$

In Equation (1), N_p represents the number of individuals experiencing time poverty, for whom $t_i > t$, while N denotes the total population. Equation (2) measures the average time deficit relative to the time poverty threshold t, thereby capturing the intensity of time poverty. Equation (3) is analogous to Equation (2), but it emphasizes the severity of time poverty by squaring the individual time deficits before aggregation. These indicators are computed after estimating the total hours devoted to work and leisure.

The next step involved defining and constructing the lower and upper time poverty thresholds. The variables used for this purpose included the number of weekly hours devoted to the main job, secondary job, and other paid work, as well as the time allocated to unpaid household activities, such as domestic chores and caregiving. Only individuals who were employed in the labor market were included in the analysis.

In the literature, time poverty thresholds are typically defined using 50% to 70% of the median of the time-use distribution, as adopted in international studies such as Bittman (2002), Strazdins et al. (2016), and Kalenkoski et al. (2011). For Brazil, however, Ribeiro and Marinho (2012) employed the mean rather than the median, arguing that the Brazilian data exhibit a relatively symmetric distribution. Following their approach, the present study also uses the mean to establish the time poverty thresholds.

The calculation is based on total weekly hours (H_t), sleeping hours (H_s), personal care hours (H_p), working hours (H_h), and study hours (H_e). These measures are then used to estimate weekly leisure time for adults (H_{ladultos}), as defined by Equation 4, and for adolescents, as defined by Equation 5.

$$H_{\text{ladultos}} = H_t - H_s - H_p - H_h - H_e \tag{4}$$

$$H_{\text{lmenores}} = H_t - H_s - H_p - H_h - H_e \tag{5}$$

For total weekly hours, corresponding to the total number of hours in a day (24 hours) multiplied by the number of days in a week (7 days), the study assumes $H_t = 168$ weekly hours. For sleep time, a total of 8 hours per day was considered, following the average amount recommended in the literature by Hirshkowitz et al. (2015), resulting in $H_s = 56$ weekly hours. For personal care activities, the study adopts the 2 hours per day reported in the literature by Burchardt (2008), totaling $H_p = 14$ weekly hours. For study time, the analysis considers a standard of 4 hours per school day, resulting in $H_e = 20$ weekly hours.

Regarding working hours, the total includes time devoted to both paid and unpaid work. Paid work comprises hours allocated to the labor market, including the main job, secondary job, and other employment activities. Unpaid work includes household activities, encompassing both direct care work (caregiving responsibilities) and indirect care work (domestic chores).

Finally, a logit model was employed to estimate the determinants of time poverty in Brazil, using data from the PNADC for the year 2022. The model specification is represented by Equation 6

$$\begin{aligned} P = {} & \beta_0 + \beta_1 rend + \beta_2 rend^2 + \beta_3 ida + \beta_4 ida^2 \\ & + \beta_5 Dsexo + \beta_6 Draça + \beta_7 esc + \beta_8 nPess \\ & + \beta_9 Dme5nc_i + \beta_{10} Dme14_i + \beta_{11} Dma65_i + \beta_{12} Durb \\ & + \beta_{13} Dmetro + \beta_{14} DNe + \beta_{15} DSe + \beta_{16} DSul \\ & + \beta_{17} DCO + \varepsilon_i \end{aligned} \tag{6}$$

where the variable P_i is defined as the logarithmic probability of individual i being in a state of time poverty, as expressed in Equation 7

$$P_i = \ln\left[\frac{p_i}{1 - p_i}\right] \tag{7}$$

and the error term ε_i also follows logistic probability distribution.

Table 1. Variable Description

Variable	Description
$rend$	Monthly household per capita income
$rend^2$	Squared monthly household per capita income
ida	Age in years
ida^2	Squared age in years
$Dsexo$	Dummy variable equal to 1 if female, and 0 otherwise
$Draça$	Dummy variable equal to 1 if White, and 0 otherwise
esc	Years of schooling
$nPess$	Total number of household members
$Dme5nc_i$	Dummy variable equal to 1 if the individual lives with children aged 0 to 5 years who do not attend early childhood education, and 0 otherwise
$Dme14_i$	Dummy variable equal to 1 if the individual lives with children aged 6 to 14 years, and 0 otherwise
$Dma65_i$	Dummy variable equal to 1 if the individual lives with adults aged 65 years or older, and 0 otherwise
$Durb$	Dummy variable equal to 1 if the individual lives in an urban area, and 0 otherwise
$Dmetro$	Dummy variable equal to 1 if the individual lives in a metropolitan area, and 0 otherwise
DNe	Dummy variable equal to 1 if the individual lives in the Northeast region of Brazil, and 0 otherwise
DSe	Dummy variable equal to 1 if the individual lives in the Southeast region of Brazil, and 0 otherwise
$DSul$	Dummy variable equal to 1 if the individual lives in the South region of Brazil, and 0 otherwise
DCO	Dummy variable equal to 1 if the individual lives in the Central-West region of Brazil, and 0 otherwise

Source: Authors' own elaboration based on survey data.

According to Equation (6), the selected variables are described in Table 1. In the first estimation, all individuals in the sample are considered. For the subsequent estimations, the analysis is stratified by gender, and therefore the variable *Dsexo* is excluded from Equation (6).

The estimates are initially obtained for Brazil as a whole, considering both the upper and lower time poverty thresholds. Additionally, estimates are calculated for each demographic group, including men, women, boys, and girls, as well as young people and adults. This segmentation was conducted to identify differences in the determinants of time poverty across population groups.

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4. Results and Discussion

4.1. Descriptive Analysis

Working hours were calculated for both adolescents and adults, as presented in Table 2. While boys and men spend more time in paid employment, girls and women devote more time to unpaid household work, including caregiving and domestic chores. When considering the total number of hours dedicated to both paid and unpaid work, girls and women exceed boys and men, respectively.

Table 2. Working hours for adolescents and adults, 2022

Description	Boys	Girls	Total	Men	Women	Total
Main job	30,7	27,4	29,4	41,5	37,2	39,7
Secondary job	0,8	0,5	0,7	0,5	0,6	0,6
Other jobs	0	0	0	0,3	0,3	0,3
Total	31,5	27,9	30,1	42,3	38,1	40,6
Household/care work	6,0	10,2	7,6	9,4	17,0	12,6
Total	37,5	38,1	37,7	51,7	55,1	53,2

Source: Authors' own elaboration based on survey data.

For the purpose of calculating leisure hours per individual, whether adolescent or adult, the total values were used in Equations (4) and (5), considering the parameters established in the literature. Therefore, $H_{h_\text{adolescents}} = 37.7$ and $H_{h_\text{adults}} = 53.2$. Applying Equations (4) and (5), the leisure time per individual totals 43.8 weekly hours for both adolescents and adults. The similar result between the two groups is explained by the fact that 82.49% of adolescents are enrolled in school, while 8.55% of adults are engaged in educational activities, which offsets the differences between groups. Furthermore, the working hours observed among adolescents are justified by the fact that the analysis of time poverty considers only individuals who participate in the labor market.

Table 3. Lower and upper thresholds for leisure hours among adolescents and adults, 2022

Description	Adolescents	Adults
Lower threshold	49	64
Upper threshold	60	75

Source: Authors' own elaboration based on survey data.

Based on these values, it is possible to calculate the upper and lower time poverty thresholds for 2022, expressed in weekly hours. The upper threshold is defined as the average number of weekly working hours plus half of the total weekly leisure hours, while the lower threshold is calculated as the average number of weekly working hours plus one-quarter of total leisure hours, following the methodology proposed in the literature (Ribeiro & Marinho, 2012). The lower and upper thresholds are presented in Table 3. Therefore, as an example, an adolescent with fewer than 49 hours of leisure time per week is considered time poor according to the lower threshold.

Using the lower and upper thresholds, Equations (1), (2), and (3) were estimated, and the results are presented in Table 4. Based on the lower threshold, the findings indicate that 59% of adolescents experience time poverty. When disaggregated by gender, the proportion reaches 59.71% among boys and 62.74% among girls, showing that girls are more affected by time poverty compared with both the overall average and boys. Among adults, the overall proportion is lower than that observed for adolescents, reaching 44.8%. However, when analyzed by gender, women present a substantially higher proportion than the overall average, with 53.32%, whereas men account for 38.45%, remaining below the overall average. These results are concerning, particularly among adolescents, as they suggest that those who participate in the labor market may experience greater time constraints than adults.

Table 4. Lower and upper thresholds for leisure hours among adolescents and adults, 2022

Description	Boys	Girls	Total	Men	Women	Total
Headcount ratio						
Lower threshold	0,5971	0,6274	0,5900	0,3845	0,5332	0,4480
Upper threshold	0,8786	0,9121	0,8913	0,8006	0,8287	0,8126
Gap						
Lower threshold	0,1178	0,1159	0,1170	0,1206	0,1387	0,1289
Upper threshold	0,1680	0,1752	0,1708	0,1542	0,2001	0,1742
Squared gap						
Lower threshold	0,0209	0,0227	0,0216	0,0265	0,0341	0,0303
Upper threshold	0,0414	0,0452	0,0429	0,0406	0,0621	0,0500

Source: Authors' own elaboration based on survey data.

Regarding the time poverty intensity measure, also based on the lower threshold, the results indicate an intensity of 11.7% among adolescents overall, with 11.78% for boys and 11.59% for girls. Among adults, the intensity measures are 12.89% for the total sample, 12.06% for men, and 13.87% for women. For adults, the results once again demonstrate that women experience greater time poverty intensity, indicating not only a higher prevalence of time poverty among women but also that the deprivation experienced by them is more severe compared with men.

Regarding the severity of time poverty, 2.16% of adolescents overall experience extreme time poverty. When analyzed by gender, this proportion corresponds to 2.09% among boys and 2.27% among girls. Among adults, the values are 3.03% for the total sample, 2.65% for men, and 3.41% for women. Once again, the results show that women and girls experience higher levels of extreme time poverty compared with men and the overall average.

Given the gender inequalities identified, the literature provides evidence that women devote more time to unpaid caregiving activities than men and less time to paid employment, which may explain the higher prevalence of time poverty among women.

4.2. Logit Model Estimates

The logit model estimates from Equation (6) are presented in Tables 5 and 6. Table 5 reports the estimated coefficients of the determinants associated with being in a state of time poverty in Brazil, considering the lower and upper thresholds as dependent variables. Table 6 follows the same structure as Table 5 but differs by disaggregating the analysis by age group (adolescents and adults) and gender, in order to identify differences in the determinants of time poverty across these groups.

For both tables, the Pseudo R^2 values were found to be adequate, indicating that the estimated models, whether for the Brazilian population as a whole, adolescents, or adults, have explanatory power regarding the probability of being in a state of time poverty. The Wald test performed for each model was also statistically significant, rejecting the null hypothesis that all coefficients are equal to zero. Therefore, the results indicate that the selected variables contribute to explaining the probability of experiencing time poverty, consistent with the evidence provided by the Pseudo R^2 values. Furthermore, the analysis of the results was conducted based on the lower threshold, which represents a more severe measure of time poverty among individuals.

In Table 5, the determinants that have a positive relationship with the probability of an individual experiencing time poverty are indicated by positive coefficient values. Thus, being female, having

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higher levels of schooling, living with children in the household, especially children under five years of age, residing in urban areas, metropolitan regions, and in the Southeast and South regions contribute to an increased probability of time poverty. Conversely, reductions in this probability are identified when the coefficients present negative signs.

On the other hand, determinants with negative coefficient values indicate an inverse relationship with the probability of being in a state of time poverty. Therefore, being White, having a greater number of household members, living with elderly individuals aged 65 years or older, and residing in the Northeast and Central-West regions are factors associated with a lower probability of individuals experiencing time poverty.

The income and age variables presented an inflection point pattern in their results, as the original variables (income and age) showed positive coefficients, while their squared terms presented negative coefficients. Therefore, the income and squared income variables indicate an initially positive effect on the probability of experiencing time poverty; however, this effect decreases as income increases, given that the coefficient of the squared income variable is negative. This suggests that individuals with higher income levels may experience a reduction in the probability of time poverty, whereas individuals with intermediate income levels may face greater time constraints due to the combination of paid and unpaid work responsibilities.

Regarding the age and squared age variables, the same pattern of an initially positive effect followed by a negative effect as age increases is observed. This suggests that time poverty tends to be concentrated during life stages characterized by greater workloads in terms of paid employment and caregiving responsibilities. Younger individuals may not yet be fully integrated into the labor market, while older individuals may be retired or have fewer occupational and family-related responsibilities.

Table 6, in turn, considers adolescents and adults, as well as gender, for the estimation of the model. Regarding adults, the determinants associated with an increased probability of time poverty, for the total sample, are being female, higher levels of schooling, living with children, and residing in urban areas, metropolitan regions, and the Southeast and South regions. These results are similar to those observed for men, considering the exclusion of the gender variable from the model. For women, the results indicate that, in addition to the variables previously identified for adults as a whole, race and residence in the Northeast and Central-West regions are also determinants associated with time poverty.

Regarding the determinants that may reduce the probability of experiencing time poverty, for adults overall, men, and women, as shown in Table 5, these include the number of household members and living with elderly individuals. For adults overall and men, the determinants of race and residence in the Northeast and Central-West regions are also associated with a reduction in the probability of time poverty.

Regarding adolescents, the results in Table 6 indicate that, for the total sample, being a girl, having higher levels of schooling, living with children, and residing in urban areas are determinants associated with an increased probability of experiencing time poverty. For boys, the results are similar to those observed for adolescents overall, except for the exclusion of the gender variable. For girls, in addition to the determinants identified for adolescents as a whole, the number of household members and living with elderly individuals are also factors associated with time poverty.

About the determinants that reduce the probability of time poverty, race and residence in the Northeast, Southeast, South, and Central-West regions are significant factors. For adolescents overall and boys, the determinants of the number of household members, living with elderly individuals, and residing in metropolitan regions are also associated with a lower probability of time poverty. For girls, living with children under five years of age is additionally identified as a determinant associated with a reduction in the probability of time poverty.

Table 5. Logit estimates of the probability of an individual being in a state of time poverty in Brazil, 2022

Variable	Lower threshold	Upper threshold
$rend$	0,0320*** (0,0000)	0,0032*** (0,0001)
$rend^2$	-0,0000*** (4,46e-07)	-9,70e-06*** (3,03e-07)
ida	0,0051*** (0,0001)	0,0482*** (0,0001)
ida^2	-0,0001*** (1,54e-06)	-0,0006*** (1,84e-06)
$Dsexo$	0,5654*** (0,0004)	0,1005*** (0,0005)
$Draça$	-0,0112*** (0,0004)	-0,0004 (0,0005)
esc	0,0139*** (0,0000)	0,0224*** (0,0008)
$nPess$	-0,1620*** (0,0002)	-0,1255*** (0,0002)
$Dme5nc_i$	0,3814*** (0,0005)	0,3160*** (0,0007)
$Dme14_i$	0,3059*** (0,0005)	0,2579*** (0,0006)
$Dma65_i$	-0,1942*** (0,0006)	-0,2495*** (0,0007)
$Durb$	0,1188*** (0,0007)	0,3459*** (0,0008)
$Dmetro$	0,0414*** (0,0004)	0,0562*** (0,0005)
DNe	-0,0659*** (0,0008)	-0,1277*** (0,0010)
DSe	0,1687*** (0,0008)	0,3897*** (0,0010)
$DSul$	0,1356*** (0,0009)	0,5532*** (0,0012)
DCO	-0,0607*** (0,0010)	0,2819*** (0,0013)
Constante	-0,4436*** (0,0035)	0,1574*** (0,0030)
Pseudo R^2	0,0300	0,0301
Teste de Wald	3586624.89***	2614183.85***
Nº de obs.	92.206.981	92.206.981

Source: Authors' own elaboration based on survey data.
Notes: Values in parentheses are the standard errors of the estimates. (*), (**), and (***) indicate statistical significance levels of 10%, 5%, and 1%, respectively.

The relationship between income, squared income, and time poverty among adolescents and adults presents a non-linear pattern. The models indicate that the probability of experiencing time poverty increases with income up to a certain point, after which it tends to decline, except among women. This may indicate that, in middle-income households, adolescents, especially girls, face greater time constraints, possibly due to the combination of paid work, education, and household responsibilities. This pattern is also observed in Table 5.

Regarding the estimates for age and squared age, the results in Table 6 vary by gender. For adolescents, the findings suggest that time poverty is initially lower and increases at later stages. For adults overall and adult women, the opposite pattern is observed, with an initial positive effect followed by a negative effect as age increases. This indicates that time poverty tends to be concentrated in life stages characterized by greater burdens of paid work and caregiving responsibilities, which may reflect gender inequalities in care work and the organization of daily time. This pattern is particularly evident among women and girls, as their coefficient values are higher than those of other groups, positive, and statistically significant. For adult men, the results are negative and statistically significant, indicating that the concentration of time poverty in specific life stages has a smaller effect compared with women.

Based on the results presented in Table 4, which provides descriptive statistics, and in Tables 5 and 6, which present the logit

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Table 6. Logit estimates of the probability of an individual being in a state of time poverty in Brazil, considering adolescents, adults, and gender, 2022

Variable	Adolescents						Adults					
	Boys		Girls		Total		Men		Women		Total	
	LT	UT	LT	UT	LT	UT	LT	UT	LT	UT	LT	UT
rend	0,3711*** (0,0094)	0,7564*** (0,0126)	0,5530*** (0,0078)	0,6576*** (0,0205)	0,4579*** (0,0051)	0,7092*** (0,0096)	0,0170*** (0,0003)	0,0061*** (0,0001)	-0,0140*** (0,0001)	-0,0009*** (0,0002)	0,0025*** (0,0000)	0,0027*** (0,0001)
$rend^2$	-0,0712*** (0,0022)	-0,1246*** (0,0028)	-0,0873*** (0,0009)	-0,1249*** (0,0032)	-0,0811*** (0,0008)	-0,1284*** (0,0015)	-0,0001*** (0,0000)	-6,45e-06*** (3,37e-07)	0,0000*** (2,94e-07)	-0,0000*** (1,40e-06)	-0,0000*** (3,83e-07)	-8,91e-06*** (3,02e-07)
ida	-1,1323*** (0,1881)	14,689*** (0,2913)	-7,5954*** (0,2423)	13,6999*** (0,4036)	-3,5457*** (0,1472)	13,2909*** (0,2380)	-0,0002*** (2,14e-06)	0,0586*** (0,0001)	0,0283*** (0,0001)	0,0739*** (0,0002)	0,0212*** (0,0001)	0,0652*** (0,0001)
ida^2	0,0367*** (0,0058)	-0,4548*** (0,0090)	0,2387*** (0,0075)	-0,4105*** (0,0125)	0,1111*** (0,0045)	-0,4103*** (0,0074)	-0,0184*** (0,0006)	-0,0007*** (2,47e-06)	-0,0003*** (2,48e-06)	-0,0010*** (3,13e-06)	-0,0003*** (1,61e-06)	-0,0008*** (1,93e-06)
Dsexo					0,1748*** (0,0042)	0,1803*** (0,0070)					0,5698*** (0,0004)	0,0985*** (0,0005)
Draça	-0,0047 (0,0057)	-0,2771** (0,0092)	-0,1054*** (0,0074)	-0,2780*** (0,0139)	-0,0178*** (0,0044)	-0,3058*** (0,0073)	-0,0184*** (0,0006)	-0,0231*** (0,0007)	0,0046*** (0,0007)	0,0369*** (0,0009)	-0,0120*** (0,004)	0,0011*** (0,0005)
esc	0,1138*** (0,0013)	0,1528*** (0,0018)	-0,0101*** (0,0026)	-0,4070*** (0,0062)	0,0844*** (0,0011)	0,0865*** (0,0018)	0,0224*** (0,0000)	0,0254*** (0,0001)	0,0025*** (0,0001)	0,0185*** (0,0001)	0,0151*** (0,0000)	0,0240*** (0,0000)
nPess	-0,1649*** (0,0022)	-0,0320*** (0,0029)	0,0139*** (0,0030)	-0,1322*** (0,0059)	-0,1051*** (0,0017)	-0,0675*** (0,0025)	-0,1982*** (0,0002)	-0,1514*** (0,0002)	-0,1221*** (0,0003)	-0,0938*** (0,0003)	-0,1646*** (0,0002)	-0,1272*** (0,0002)
$Dme5nc_i$	0,3610*** (0,0071)	0,0935*** (0,0102)	-0,0811*** (0,0125)	0,1085*** (0,0189)	0,2260*** (0,0057)	0,1099*** (0,0087)	0,4737*** (0,0007)	0,4657*** (0,0009)	0,2951*** (0,0008)	0,1223*** (0,0011)	0,3903*** (0,0005)	0,3254*** (0,0007)
$Dme14_i$	0,1909*** (0,0061)	0,1915*** (0,0090)	0,3036*** (0,0083)	0,6152*** (0,0163)	0,2257*** (0,0048)	0,3303*** (0,0077)	0,3009*** (0,0007)	0,3087*** (0,0009)	0,2924*** (0,0008)	0,1484*** (0,0010)	0,2946*** (0,0005)	0,2436*** (0,0006)
$Dma65_i$	-0,3971*** (0,0072)	-0,0916*** (0,0105)	0,5429*** (0,0130)	0,6456*** (0,0242)	-0,1444*** (0,0060)	0,0597*** (0,0094)	-0,1997*** (0,0009)	-0,3064*** (0,0010)	-0,1874*** (0,0010)	-0,1555*** (0,0012)	-0,1952*** (0,0006)	-0,2519*** (0,0008)
Durb	0,0562*** (0,0073)	0,4441*** (0,0097)	0,1809*** (0,0119)	0,6598*** (0,0178)	0,1077*** (0,0060)	0,4976*** (0,0084)	0,0698*** (0,0009)	0,3267*** (0,0010)	0,1711*** (0,0013)	0,3779*** (0,0015)	0,1171*** (0,0007)	0,3418*** (0,0008)
Dmetro	-0,2953*** (0,0059)	-0,0142 (0,0099)	0,0639*** (0,0072)	0,1870*** (0,0124)	-0,1414*** (0,0045)	0,0420*** (0,0076)	0,0783*** (0,0006)	0,0596*** (0,0007)	0,0080*** (0,0006)	0,0590*** (0,0009)	0,0463*** (0,0004)	0,0598*** (0,0005)
DNe	-0,7081*** (0,0096)	-0,4118*** (0,0130)	-0,4318*** (0,0163)	-0,0516** (0,0237)	-0,6072*** (0,0081)	-0,3405*** (0,0114)	-0,1842*** (0,0011)	-0,2566*** (0,0012)	0,1127*** (0,0014)	0,0953*** (0,0016)	-0,0594*** (0,0009)	-0,1264*** (0,0010)
DSe	-0,4424*** (0,0096)	-0,1654*** (0,0138)	-0,5794*** (0,0151)	0,5073*** (0,0229)	-0,5166*** (0,0079)	0,0423*** (0,0118)	0,1092*** (0,0011)	0,3758*** (0,0012)	0,2633*** (0,0013)	0,4264*** (0,0016)	0,1752*** (0,0008)	0,3904*** (0,0010)
DSul	-0,7530*** (0,0108)	0,5735*** (0,0182)	-0,1658*** (0,0164)	1,0676*** (0,0281)	-0,5519*** (0,0088)	0,6787*** (0,0152)	0,1334*** (0,0012)	0,6080*** (0,0015)	0,1495*** (0,0015)	0,4817*** (0,0019)	0,1393*** (0,0009)	0,5470*** (0,0012)
DCO	-0,5504*** (0,0110)	0,131*** (0,0168)	-0,5229*** (0,0168)	0,4033*** (0,0258)	-0,5746*** (0,0090)	0,1558*** (0,0139)	-0,1152*** (0,0014)	0,2915*** (0,0016)	0,0115*** (0,0016)	0,2660*** (0,0020)	-0,0616*** (0,0010)	0,2750*** (0,0013)
Constante	8,7689*** (1,5134)	-118,3*** (2,3367)	60,4621*** (1,9508)	-108,71*** (3,2424)	28,116*** (1,1841)	-106,88*** (1,9098)	-0,5635*** (0,0036)	-0,0226*** (0,0041)	-0,4023*** (0,0041)	-0,2901*** (0,0052)	-0,7827*** (0,0027)	-0,1999*** (0,0032)
Pseudo R^2	0,0365	0,0751	0,0265	0,1062	0,0239	0,0716	0,0219	0,0412	0,0108	0,0178	0,0310	0,0310
Nº de obs.	677.655		413.853		1.091.508		52.225.584		38.889.889		91.115.473	

Source: Authors' own elaboration based on survey data.

Notes: Values in parentheses are the standard errors of the estimates. (*), (**), and (***) indicate statistical significance levels of 10%, 5%, and 1%, respectively.

model estimates, it was possible to conclude that women and girls have a higher probability of experiencing time poverty. This finding can be explained by the burden of the double work shift and the sexual division of labor, in which activities socially perceived as feminine, such as domestic work and childcare, are predominantly assigned to women. This evidence is supported by the literature, including Madalozzo et al. (2010), Ribeiro and Marinho (2012), Sousa and Guedes (2016), Qi and Dong (2018), Rodgers (2023), and Zehba et al. (2025).

These results are also contrary to the objectives established by Sustainable Development Goal 5, which promotes gender equality, as women and girls are more affected by time poverty than boys and men. Even when there is equality in the allocation of time to economic activities, women and girls remain burdened by unpaid care work, as such activities tend to be more physically and emotionally demanding, according to Arora (2015). Furthermore, these inequalities have social and structural roots, which may intensify the perception of time poverty among women and girls (Zhao et al., 2024).

Regarding the fact that individuals live with children, either aged 0 to 5 years or 6 to 14 years, the results indicate an increased probability of experiencing time poverty. This finding is associated with the fact that children, particularly those under five years of age, require continuous care to ensure their development and well-being, which may result in greater time allocation to caregiving activities, as also identified by Kalenkoski et al. (2011). Conversely, there is a negative relationship between fertility and labor market participation, reducing women's likelihood of entering the labor market, according to Cunha and Vasconcelos (2016). Among girls, caregiving responsibilities may intensify when elderly individuals are present in the household, reinforcing structural inequalities in the distribution of care work.

The results also show that residing in urban areas is a determinant associated with an increased probability of time poverty, as well as living in metropolitan areas and the Northeast, Southeast, South, and Central-West regions, particularly among women. As indicated in the literature, living in urban centers may contribute to time poverty due to the amount of time individuals spend commuting between locations. Excessive commuting time can generate economic and social disadvantages, as demonstrated by Nichols (2025) and Tiznado Aitken et al. (2024).

Regarding the determinants associated with a lower probability of experiencing time poverty, the number of household members and living with elderly individuals aged 65 years or older deserve particular attention. This factor may be relevant for the distribution of domestic and caregiving responsibilities, as well as for the sharing of household costs, since elderly individuals in Brazil tend to receive retirement benefits or the Continuous Cash Benefit (Benefício de Prestação Continuada (BPC)) under Brazilian legislation (Brazil, 1993).

Furthermore, when men provide assistance with household tasks, the impact on reducing time poverty is greater, as women gain greater autonomy in fertility decisions and labor market participation, according to Santos and Cunha (2025). In turn, living in the same household with working-age adults affects the probability of experiencing time poverty, even in the absence of a marital relationship, according to Zilanawala (2014).

Finally, regarding race, the results indicate that White individuals have a lower probability of experiencing time poverty. This finding highlights the racial inequalities present in the country, as Black and Brown individuals, for example, may have a higher probability of experiencing time poverty, even when they have higher levels of education, due to structural racism, according to Souza and Godoy (2023).

Based on the empirical evidence identified throughout the research, it was possible to determine the main factors associated with time poverty in Brazil. The results indicate that individuals most vulnerable to this form of poverty are predominantly adult women, non-White individuals, with lower levels of education, and living in urban areas. Furthermore, regional distribution also plays a relevant role, with a higher incidence of time poverty among women in the Northeast, Southeast, South, and Central-West regions of the country.

Another important factor is related to household composition. Individuals living in households with fewer members, particularly those with children under 14 years of age, have a higher probability of experiencing time poverty. This finding suggests an overload of domestic and caregiving responsibilities concentrated among a smaller number of adults, generally women, reinforcing gender inequalities and limiting the time available for other activities, such as leisure, rest, or professional development. Thus, time poverty emerges as a multidimensional phenomenon, shaped by social and territorial factors that require attention from public policies.

5. Conclusion

The main objective of this study was to identify the key determinants associated with individuals experiencing time poverty in Brazil in 2022, with emphasis on gender differences. To achieve this purpose,

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microdata from the Continuous National Household Sample Survey (Pesquisa Nacional por Amostra de Domicílios Contínua (PNADC)) were used, along with the application of a logit econometric model. The analysis was initially conducted for men and women and subsequently disaggregated by age groups, considering adolescents and adults, in order to capture possible specificities within these groups. Additionally, the study examined gender differences to understand how these factors interact with the condition of time poverty.

The results obtained from the regression model estimates reinforce the idea that time poverty is intrinsically associated with specific social markers. Among the most relevant factors, being female stands out as a condition that considerably increases the probability of experiencing time poverty. Other elements that contribute to this condition include the presence of children under fourteen years of age in the household, residence in urban areas, and geographic location in the Northeast, Southeast, and South regions of the country. These findings indicate that time poverty is not evenly distributed across the population but is influenced by social, territorial, and demographic characteristics.

Another relevant determinant is the racial variable. The results found in this study indicate that White individuals have a lower probability of experiencing time poverty compared with other racial groups. This finding highlights the persistence of structural inequalities in Brazil, indicating that time poverty is not merely a consequence of an excessive workload but also an expression of the social disparities that characterize the country.

Given the evidence presented, the research hypothesis was confirmed, demonstrating that women, regardless of the age group considered, are more likely to experience time poverty than men. This finding reinforces the need to rethink public policies that address the gender inequalities that remain prevalent. Strategies such as improving urban mobility to reduce commuting time, promoting women's professional training, and expanding the availability of full-time public education may represent important pathways for reducing this inequality.

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