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Monetary Policy effects on gender and racial inequality: a survey of the empirical literature

Efeitos da Política Monetária sobre a desigualdade de gênero e racial: uma revisão da literatura empírica

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Abstract: The purpose of this paper is to survey the literature that empirically evaluates the distributional impacts of monetary policy concerning gender and race. In the first two sections, we present the empirical strategies and their results. Most of the surveyed papers find asymmetric effects of monetary policy. For racial minorities, we find clear evidence of higher sensitivity to interest rate shocks and changes. Regarding gender, the literature has mixed results for labor market outcomes, but more clear evidence for wealth distribution. We suggest that central bankers and policymakers promote more empirical and theoretical studies on the effects of monetary policy on racial and gender distribution.

Keywords: Monetary Policy; Gender; Race; Income Distribution.
JEL Classification: D31; E52; E43; J16; J15.

Resumo: O objetivo deste artigo é analisar a literatura que avalia empiricamente os impactos distributivos da política monetária em relação a gênero e raça. Nas duas primeiras seções, apresentamos as estratégias empíricas e seus resultados. A maioria dos artigos analisados encontra efeitos assimétricos da política monetária. Para as minorias raciais, encontramos evidências claras de maior sensibilidade a choques e variações nas taxas de juros. Em relação ao gênero, a literatura apresenta resultados mistos para os indicadores do mercado de trabalho, mas evidências mais claras para a distribuição de riqueza. Sugerimos que banqueiros centrais e formuladores de políticas promovam mais estudos empíricos e teóricos sobre os efeitos da política monetária na distribuição racial e de gênero.

Palavras-chave: Política monetária; Gênero; Raça; Distribuição de renda
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1. Introduction

The growing inequality in recent decades has attracted increasing attention from policymakers, academics, and the public. Various explanations for this inequality have been proposed, but since the Great Financial Crisis, the distributional impact of monetary policy have increasingly stood out as a significant contributing factor (Furceri, 2018; Bennani, 2023; Kappes, 2023; Rochon et al., 2024).

Colciago et al. (2019) and Kappes (2023) represent seminal contributions to the literature on the distributive effects of monetary policy, as both provide systematic surveys of empirical findings. Nevertheless, their analyses remain confined to personal income distribution across income groups and the general population, without addressing distributional outcomes along specific minorities groups. While Colciago et al. (2019, p. 1224) conclude that "the empirical evidence on the effect of conventional monetary policy on income and wealth inequality yields mixed findings," Kappes (2023, p. 16) finds that "regarding conventional monetary policy, the strongest evidence suggests that expansionary monetary policy decreases inequality, or that contractionary monetary policy increases income inequality."

Economic crises and business cycles over the past several decades have disproportionately affected economically and socially marginalized groups (Fukuda et al., 2013). Considering the persistent rise in inequality, questions naturally arise concerning the outcomes for social minorities. Several studies have presented descriptive evidence highlighting the central role of race and gender in shaping social inequality, with some scholars even suggesting that racial and gender disparities played a central role in the Great Financial Crisis (Prügl, 2012).

Empirical evaluations of the impact of monetary policy on race and gender inequality, however, have been sparse and largely absent from both heterodox and mainstream economic research—with a few notable exceptions within feminist economics. Addressing this gap is essential for understanding how monetary policy affects racial and gender disparities.

In this paper, we conduct an extensive survey of the empirical literature that investigates the effects of monetary policy on gender- and race-based economic outcomes. Our aim is to provide a more comprehensive understanding of these dynamics by identifying the main contributions and persistent gaps. This study constitutes a novel effort, as it is the first

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systematic review focused specifically on the intersection between monetary policy, gender, and race.

Our survey database exclusively includes peer-reviewed papers published in journals and empirical studies published by central banks and the International Monetary Fund (IMF), given their roles as key monetary policymaking institutions[3]. We also focus solely on papers that directly evaluate the effects of interest rates and money supply on gender and race outcomes[4].

The paper is organized as follows. The second section gives an overview of the empirical strategies applied to assess the impacts of monetary policy on race and gender distributive measurements. The third section presents the survey of the empirical literature, with the findings analyzed and discussed in the fourth section. A final section closes the paper with concluding remarks.

2. Empirical strategies

Estimating the impacts of monetary policy on distribution requires several key steps: choosing the distributive dimensions and their corresponding demographic groups to be evaluated, identifying the monetary policy (interest rate) shocks, and determining the appropriate econometric techniques to measure the outcomes. In this section, we discuss how the literature has addressed these steps.

Regarding the distributional dimensions, the literature deals with a diverse set of variables, aimed at capturing the effects of different transmission channels and providing a broader understanding of the economic conditions faced by different demographic groups.

White and black populations are the most studied, followed by hispanic populations, and, to a lesser extent, Asian and other ethnic minorities. Regarding gender, the literature only considers the division between men and women. Intersectional analyses between gender and race are frequent. Among the economic outcomes studied, the most frequent are those related

[3] We also include working papers published on the National Bureau of Economic Research (NBER) for its high prestige on the economic literature.
[4] We use the following scientific databases: Scopus, JSTOR, Scielo and Google Scholar. We also use the references and citations in the papers as a network to identity and collect other papers.

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to the labor market, with some papers focusing on other variables such as wealth and consumption.

For the labor market distribution, the key variables are the unemployment rate, employment-population ratio, labor force participation rate, unemployment duration rate, wage variables, and job separation rate.

Since the unemployment rate does not fully capture the true conditions of the labor market, these other labor market variables are required. For example, employment levels can increase or decrease without corresponding changes in the unemployment rate, due to variations in the labor force. Additionally, the unemployment rate does not adequately reflect the disparity in the duration of unemployment across different groups, as one group may be disproportionately the first to be laid off and the last to be rehired. Wage variables are intended to identify the effects on labor income, as different levels of employment and unemployment can impact the average labor compensation.

For wealth distribution, empirical studies primarily focus on housing, though other assets and liabilities are also measured, including stock prices, dividends, treasury securities, and mortgages. Some analyses also consider portfolio composition, which is particularly important as demographic groups often exhibit distinct asset and liability profiles. This diversity leads to an asymmetric transmission of monetary policy, as different assets and liabilities respond unevenly to changes in interest rates, affecting the wealth of agents differently across groups.

The literature also examines overall income distribution, which integrates both labor earnings and net portfolio income. This integrated analysis of labor earnings and capital income aims to assess the net effect of monetary policy. Additionally, the effect of monetary policy on consumption is estimated because consumption can be a proxy for the well-being of agents.

For the monetary policy rate, the key variable employed is usually the short-term interest rate. Hull (1983) and Abell (1991) depart from this approach by using money supply growth, while Cirillo et al. (2024) use the yearly average interest rate on 10-year public bonds. Berisha et al. (2022), by their turn, adopt a measure based on zero-coupon yields with maturities from 1 to 30 years, and De et al (2021) adopt a measure with eight treasury interest rates of different maturities plus the bank prime loan rate. When a database includes periods at the zero lower

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bound (ZLB), a common strategy is to use the shadow interest rate, as proposed by Wu and Xia (2016).

In addition to the choice of the key interest rate variable, the identification of the monetary policy shock is a crucial aspect of empirical studies, i.e., the measurement of unexpected movements in the monetary variable. Despite the widespread adoption of identification methods in most empirical works, there are some exceptions in the literature. Braunstein and Heintz (2008) use the short-term deviation from the long-term trend as their monetary policy variable. Hull (1983) employs a statistical comparison of standardized Z-statistics for money supply growth. Seguino and Heintz (2012), Braunstein and Seguino (2018), Chundakkadan (2023), Cirillo et al. (2024), Zamanzadeh et al. (2020), and Couto and Brenck (2024) simply adopt changes in the short-term interest rate between two periods. Regarding the period-to-period change method, these studies are often linked to databases of subnational regions or monetary union areas, where the conduct of monetary policy tends to be exogenous to the economic variables of these regions.

The reason for adopting measures of unexpected movements (shocks) in the monetary variable lies in the endogenous nature of monetary policy, which leads to the risk of simultaneity bias and multicollinearity; that is, the "difficulty in disentangling the genuine effects of monetary policy from those produced by exogenous developments to which monetary policy reacts" (Ampudia et al., 2018, p. 5). Within the surveyed literature, several approaches can be distinguished, and some papers adopt multiple identification strategies to enhance robustness.

Abell (1991), Zavodny and Zha (2000), Thorbecke (2001), Carpenter and Rodger (2004), Rodger (2008), and Takhtamonova and Sierminska (2009) relies on the Cholesky decomposition method for the orthogonalized components of innovations in the error term of the monetary policy equation in the vector autoregression. Ume and Williams (2018) and De et al. (2021) employ a shock identification analogous to the previous orthogonalized innovations approach, but following Uhlig's (2005) sign restriction methodology.

Thorbecke (2001), Carpenter and Rodger (2004), Rodger (2008), Bartcher et al. (2022), Puig (2022), Bennani (2023), and Flamini et al. (2023) employ an identification methodology

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based on Romer and Romer (1989, 1994, 2004). The identified shocks enter as an independent variable in the regression, which imply no orthogonalized decomposition methods.

Bennani (2023), Li and Zhang (2023), Albert and Gomez (2024), Faia et al. (2024), and Bergman et al. (2024) adopt the High-Frequency Identification (HFI) methodology to identify monetary shocks. HFI relies on market reactions observed in narrow time windows around the short-term monetary policy announcements. As in the previous empirical strategy, shocks enter the regression as an independent variable and do not need an orthogonalized decomposition method (Brennan et al., 2024; Bergman et al., 2024).

Berisha et al. (2022) adopt the definition of a monetary shock as proposed by Bu et al. (2021). This empirical construction is similar to the High-Frequency Identification approach; however, they adopt the sum of monthly orthogonalized movements in zero-coupon bond yields with maturities ranging from 1 to 30 years as their monetary variable.

Finally, estimating the impact of monetary policy on distribution requires an appropriate empirical estimation technique. Similar to shock identification, a wide variety of econometric techniques are employed in the related literature. Most empirical analyses focus on the macro level, particularly regarding gender and race variables, while Puig (2022), Li and Zhang (2023), Chundakkadan (2023), and Cirillo et al. (2024) provide household- and firm-level estimations. Two major econometric approaches stand out: Vector Autoregressive (VAR) and Local Projection (LP) models. Studies using cross-country or regional data typically employ panel data frameworks combined with the previous two methods.

Regarding the Vector Autoregressive approach, it is possible to find a variety of forms in the literature, such as reduced-form, recursive, structural, factor-augmented, and Bayesian[5]. Derived from the Wold decomposition theorem, VAR techniques mostly rely on impulse response functions to measure the impact of monetary shocks on distributional variables (Stock and Watson, 2001).

The Local Projection is a more recent econometric method developed by Jordà (2005), and it is more predominant in recent papers. This empirical technique does not rely on the Wold decomposition theorem, once it provides a univariate time series regression for each period

[5] Chundakkadan (2023) is the only paper that apply probit regression in the VAR econometric technique.

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ahead. Local Projection also utilizes Impulse-Response Function analysis, where the values of the estimated parameters for each future period are used to construct the response function over the specified time horizon (Jordà, 2005; 2024).

Some papers depart from the two previously discussed methods. Hull (1983) employs a simple standardized Z-statistic for inference. This choice can be explained by the fact that the VAR methodology was still in its early stages of widespread adoption at that time. Braunstein and Heintz (2008) adopt a long-term trend analysis using a Hodrick–Prescott filter, in which episodes of inflation reduction and interest rate behavior are compared with their long-term trends and their interrelationship. Zamanzadeh et al. (2020) use a Bayesian quantile mixed-effects model to minimize the influence of outliers in their longitudinal data estimations. Finally, Bergman et al. (2024) employ a simple linear regression using data from 895 labor market areas in the U.S. economy, while Couto and Brenck (2024) apply a similar approach to a database from 13 Brazilian states.

Thorbeck (2001), Carpenter and Rodger (2004), Rodger (2008) and Takhtamanova and Sierminska (2009) employ additional techniques to VAR and Local Projection. Thorbeck (2001) uses univariate autoregression, while Carpenter and Rodger (2004) and Rodger (2008) apply an Autoregressive Distributed Lag (ADL) technique. The ADL is similar to VAR but focuses on one dependent variable and offers more flexibility in terms of lag lengths for each independent variable. Takhtamanova and Sierminska (2009) also adopt a single equation estimation without a monetary policy shock.

Table 1 summarizes all the discussions above, along with the estimated impact of monetary policy on distribution variables related to gender and race. The analysis of these estimated impacts will be presented in the following section.

3. A survey of the empirical literature

Our survey begins with an examination of labor market estimates, followed by analyses of wealth, consumption, and their net effect on income. Given that some studies address multiple distributive dimensions, we present findings for each dimension in sequence to emphasize the monetary policy's specific effects. For clarity, papers are listed alphabetically within their respective dimensions, as detailed in Table 1.

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TABLE 1 – Summary of the Empirical Literature

Paper	Distributive Variable	Monetary Variable	Monetary Policy/Shock	Demograpich Group	Sample	Empirical Method	Distributive Impact
Abell (1991)	Unemployment rate	Money supply	Expansionary monetary shock	Race (black and white) and Gender by race.	US, 1974-1987	VAR	Increase inequality between white men and the others group (all period). Decrease between black women and white women in 1981-1987 period.
Albert and Gòmez (2024)	Consumption, Unemployment rate and gap, wage gap and portfolio data	Short-term interest rate	Expansionary monetary shock	Race (black, white and hispanic)	US, 1984-2020 and SFC 2019	Bayesian Proxy Structural VAR, OLS, Oaxaca-Blinder, and Simulation	Decrease race inequality in unemployment rate and gap. Decrease race inequality in wage gap. Increase race inequality in net-worth in short and medium term. Increase race inequality in consumption in short/medium term.
Bartscher et al. (2022)	Wealth, wage and earning gap, unemployment gap, and portfolio data	Short-term interest rate	Expansionary monetary shock	Race (black and white) and marriage status.	US, 1960-2017 and SFC 2019	Local Projection and Simulation	Decrease race inequality in unemployment gap. No sig. effect in weekly earning gap and hourly wage gap inequality. Increase race inequality in wealth. Increase race inequality in income (net effect).
Bennani (2023)	Unemployment rate and gap	Shadow and short-term interest rate	Expansionary monetary shock	Race (black, white, and hispanic), gender and age by race.	US, 1969-2015	Local Projection	Decrease race inequality in unemployment. Increase gender inequality in unemployment. Age and business cycle expand the asymmetric effect.
Berisha et al. (2022)	Weekly wage	short-term interest rate (conventional and unconventional)	Expansionary monetary shock	Race (black, white, and asian) and wage distribution by race	US, 2000-2021	VAR with Theil Index	Increase overall wage inequality between different wage distribution points. Decrease race inequality in wage in the first decile and third quartile. No sig. effect in the ninth quartile.
Bergman et al (2024)	Two years employment rate growth	Short-term interest rate	Expansionary monetary policy/shock	Race (black, white) and gender	895 US local market, 1990-2019	Panel Data and OLS	Decrease race and gender inequality. The tighter the labor market, higher is the effect.
Braunstein and Heintz (2008)	Employment rate deviation from long-run trend	Short-term interest rate and Average short-term interest rate, and Inflation reduction ep.	Contractionary and expansionary monetary policy in inflation reduction period	Gender	17 low/Middle income countries, 1973-2002	Hodrik-Prescott Filter and Sacrifice Ratio	67% of contractionary inflation reduction ep. increase gender inequality trend. No distinction in expansionary. Evidences of increasing gender inequality after contractionary monetary policy.

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TABLE 1 – Continued.

Paper	Distributive Variable	Monetary Variable	Monetary Policy/Shock	Demograpich Group	Sample	Empirical Method	Distributive Impact
Braunstein and Seguino (2018)	Relative employment and unemployment ratio and rate.	Short-term interest rate	Contractionary monetary policy	Gender	18 Latin America Countries, 1990-2010	OLS and Panel Data	No sig. effect on gender employment inequality. Very small decrease inequality on gender unemployment.
Carpenter and Rodgers (2004)	Employment-pop rate gap, unemployment rate gap and labor force gap	Short-term interest rate	Contractionary monetary shock	Race (black, white, and hispanic). Age and education by race	US, 1973-2002	VAR and ADL.	Increase race inequality in employment and unemployment. Age and education expand the effect.
Chundakkadan (2023)	Firms' financial constraints.	Short-term money market rate	Contractionary and expansionary monetary policy	Gender	18 countries, WBES for 2008, 2009, 2012, 2018 and 2019.	Panel Data with ordered probit.	Gender inequality increases in contractionary policy, i.e., the probability of female-owned firms worsening their financial constraints increases more than male-owned firms. The reverse happens in expansionary policy. Gender Gap Index affect the previous output.
Cirillo et al (2024)	Functional income distribution by household	Average interest rate on 10-years bond rate.	Contractionary and Expansionary monetary policy	Gender	27 European countries, 2008-2016	Panel Data, and Simulation	Expansionary pol. increase gender inequality in labor income and wage, and decrease gender inequality in capital income. Contractionary policy is the reverse scenario.
Couto and Brenck (2024)	Unemployment rate gap	Short-term interest rate	Contractionary monetary policy	Race (black and white) and gender by race.	13 Brazilian states, 2012-2021	Panel Data	Increase inequality between white and black men. Decrease inequality between white men and white and black women. Less the black pop. share on the region, higher the effect on inequality.
De et al. (2021)	Unemployment rate, employment-pop. rate, labor force participation rate.	Treasury int. rate and bank prime loan rate	Contractionary monetary policy shock	Race (black and white) and gender by race (only for unemployment)	US, 1973-2017	Factor-augmented VAR	Increase unemployment and employment-pop rate racial inequality. For gendered racial data, black male has more sensitive responses, following by black fem., white male and white fem.
Faia et al. (2024)	Job separation rate	Short-term interest rate	Contractionary and symmetric monetary shock	Race (non-white and black) and Gender	US, 1989-2019	Local Projection	No sig. effect on race and gender groups for above the median income. Higher effect for race and gender groups for below the median income.

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TABLE 1 – Continued.

Paper	Distributive Variable	Monetary Variable	Monetary Policy/Shock	Demograpich Group	Sample	Empirical Method	Distributive Impact
Flamini et al (2023)	Employment rate and gap, unemployment rate gap and labor force rate gap.	Short-term interest rate	Contractionary and expansionary monetary shock	Gender and employment sector by gender	22 countries, 1990-2019	Local Projection	Decrease gender employment and unemployment rate inequality in contractionary shock. Less rigid labor laws and higher wage gap inequality increase the effect. No sig. effect in expansionary shock. Asymmetric type of monetary policy.
Hull (1983)	Unemployment rate gap	Money supply	Contractionary monetary policy	Race (black and white) and youth by race.	US, 1968-1983	Standardized Z Statistics	Increase race inequality
Li and Zhanq (2023)	Housing entry, exit and return.	Short-term interest rate	Contractionary monetary shock	Race (black, white, and hispanic)	US, 1993-2020	Local Projection	Increase race inequality in entry market data. Increase race inequality in housing return. No sig. effect on exit market data.
Puig (2022)	Consumption of durable goods	Short-term interest rate	Contractionary monetary shock	Race (black and white) and gender by race. All data are for mortgagor households.	US, 1987-2007	Local Projection	Decrease race inequality for durable goods; Some very small evidence of increase gender inequality between white male and white female household durable consumption.
Rodgers (2008)	Unemployment duration (weeks)	Short-term interest rate	Contractionary monetary shock	Race (black and white)	US, 1979-2006	VAR and ADL	Stronger ripple effect on both populations. In VAR, blacks stay longer in unemployment. ADL show mixed results.
Seguino and Heintz (2012)	unemployment rate gap	Short-term interest rate	Contractionary monetary policy	Race (black and white) and gender	38 US states, 1979-2008	Panel Data	Increase race and gender inequality. Confirm the Threat hypothesis
Takhtamanova and Sierminska (2009)	Relative employment ratio	Short-term money market rate	Contractionary monetary policy and shock	Gender and employment sector by gender	9 OCDE countries, 1980-2004	VAR and Single Equation estimation	For single equation: No overall significant difference in gender inequality. The few exceptions are in the decrease inequality in the service sector in Finland and agriculture in Italy, and small increase inequality in Switzerland and UK. For VAR: Mixed results. Decrease gender inequality in Canada, Finland, Japan, Spain, and UK. Increase gender

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Aprovado em: 14/12/2025
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inequality in the US. All results have small statistical significance.

TABLE 1 – Continued.

Paper	Distributive Variable	Monetary Variable	Monetary Policy/Shock	Demograpich Group	Sample	Empirical Method	Distributive Impact
Thorbecke (2001)	Unemployment rate and rate gap	Short-term interest rate	Contractionary monetary shock and period.	Race (black, white, and Hispanic)	US, 1973-1996 and 1954-1996	VAR and Narrative Approach	Increase race inequality, and Hispanics are marginally more affected than blacks.
Ume and Williams (2018)	Employment rate and Unemployment rate	Shadow short-term interest rate	Expansionary monetary shock	Race (black and white) and Age by race	US, 2009-2017	Structural VAR	Decrease employment rate race inequality in the long-run. Increase unemployment rate race inequality.
Zamanzadeh et al. (2020)	Average Unemployment Duration	Short-term interest rate	Contractionary monetary policy	Gender	10 OCDE countries, 1997-2017	Bayesian quantile mixed effect	A close to zero increase in men average unemployment duration, and non-effect on women duration.
Zavodny and Zha (2000)	Unemployment rate and gap	Short-term interest rate	Contractionary and expansionary monetary shock	Race (black and overall)	US, 1972-1999	Bayesian VAR	Contractionary shock increase race inequality. Expansionary decrease race inequality.

Source: elaborated by the authors.

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3.1 Labor market outcomes

Abell (1991) evaluates the impact of both fiscal and monetary policy on unemployment rates by gender and race. The paper uses United States data from 1974 and 1987 but separates the sample into two periods (1974-1980 and 1981-1987) to avoid bias due to the shift in economic ideology between the Carter and Reagan administrations. The paper employs a VAR Impulse-Response Function[6], where the growth rate of the money supply (M2) is the monetary variable and the variation in the unemployment rate is the distributional.

For the 1974-1980 period, the paper estimates a reduction in the unemployment rate growth for all groups after an expansionary shock. However, the white male unemployment growth has a higher response to the shock, i.e. decrease more, followed by the black male, black female and white female[7]. For the 1981-1987 period, white males still exhibit the highest response, but they are now followed by black females, black males and white females. The overall results indicate that expansionary monetary policy increased race and gender inequality in the United States, placing white males at the top of the hierarchy, while simultaneously reducing the unemployment rate for all demographic groups.

Albert and Gómez (2024) combine micro and macro data to determine whether monetary policy has a racially asymmetric impact on net worth, consumption, wage gap, and the unemployment rate and gap in the United States from 1984 to 2020. The paper employs several empirical techniques to estimate the effects of monetary policy, including a simulation exercise based on the elasticities found in 2019 Survey of Consumer Finance (SCF) data. The paper uses a high-frequency monetary policy shocks identification, focusing on expansionary shocks, in a Bayesian VAR. The main race groups investigated are white, Hispanic, and black populations. Asian, American Indian, Alaska Native, Native Hawaiian, Pacific Islander, and other races also appear in the paper, but mainly for descriptive portfolio composition data.

For the labor market outcome, the authors find a decrease in the unemployment rate for all races after an expansionary monetary shock. The black Americans faced a higher decrease

[6] It is also worth mentioning that Abell (1991) is, chronologically, the first paper to use the VAR technique and monetary shocks, both of which have since become the most widely used approaches in the literature.
[7] It is possible to infer that both white females and black females do not show significant differences, even though white females exhibit a higher peak response. However, Abell (1991) proposes a hierarchy based on the cumulative response after 12 months. The study does not provide a confidence interval to assess whether the two female groups have a statistically significant difference

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in their unemployment rate - the opposite of Abell (1991) findings -, followed by the hispanic and the white. For wages, the authors do not find statistical significance in the wage gap between races, except for the white-black gap in the first three months of the impulse-response.

Bartscher et al. (2022) investigates the distributional effects of monetary policy on earnings and wealth differentials between black and white households. Their paper employs Local Projection with an expansionary shock based on Romer and Romer's (2004) identification method. The paper also simulates the behavior of wealth components using the elasticities found in the SCF data. The author uses United States data from 1960 to 2017, along with the 2019 SFC. Regarding the labor market, the paper investigates the unemployment gap and the hourly wage gap between the white and black populations.

For the labor market outcome, the paper estimates a decrease in the black-white unemployment gap after an expansionary shock, but they do not find any effect on the hourly or weekly wage gap.

Bennani (2023) employs a Local Projection with Romer and Romer (2004) identification to estimate the impact of an expansionary monetary shock on the unemployment rates of white, black, and hispanic populations - including stratifications by gender and age. The sample consists of United States data from 1969 to 2015.

The paper estimates that black unemployment is the most sensitive to monetary policy, followed by white and hispanic unemployment (both with equal sensitivity). When estimating the effect on gendered racial unemployment, black male unemployment remains the most sensitive, followed by black female, white male and white female unemployment. There is no data available for gendered hispanic unemployment. When focusing on teenagers, black teenagers experience a larger decrease in unemployment than white teenagers. Their paper also finds that recession periods amplify the effects of monetary policy on unemployment rates across all racial groups: during recessions, black unemployment rate has the highest decrease after an expansionary monetary policy, followed by hispanic and white unemployment.

Berisha et al. (2022) investigates wage inequality by constructing a Theil Index that incorporates the weekly wages of asian, black, and white populations who work full-time, focusing on three points in the wage distribution: the first decile, third quartile, and ninth decile. The paper uses a VAR model to quantify the overall effects of monetary policy shocks on wage

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inequality, employing Bu et al.'s (2021) identification method. The paper uses United States data from 2000 to 2020.

After an expansionary shock, they estimate an overall increase in weekly wage inequality, where the highest point in the wage distribution gains more than the lower points. For racial wage gap, the paper finds small evidence of a decrease in racial inequality only in the first and third quartile of the weekly wage distribution.

Bergman et al. (2024) estimate the effect of expansionary monetary policy on employment by race and gender considering varying levels of labor market tightness. Labor market tightness was measured across 895 metropolitan areas in the United States from 1990 to 2019. The estimations are conducted using a panel data technique with two monetary policy measurements: A period-to-period change in the federal funds rate[8] and an unexpected shock, measured by high-frequency identification. For the employment data, their work adopts a two-year employment rate growth for each demographic group.

For the period-to-period federal funds rate, their paper finds a decrease in racial inequality concerning the two-year employment rate growth, where black employment is more positively responsive than white employment. Regarding gender, the paper does not find any statistically significant differences in the parameters. When contrasting less tight and more tightly areas, the paper estimates an additional 9% impact on black employment growth between the 10% least tight and the 10% most tight labor markets. The paper does not find statistical significance for the white data or the gender analysis when comparing areas with different tightness.

When using the high-frequency monetary shock measurement, the paper also shows a higher elasticity for black employment than for white employment. However, for the gender analysis, the estimations show a decrease in the gender gap, where female employment has more responsiveness to the shock.

Braunstein and Heintz (2008) investigate 17 low- and middle-income countries and aim to answer two questions: What is the impact of inflation reduction on gender employment inequality; and how are real interest rates connected to deflationary episodes and gender-

[8] The average rate over a quarter using the three-monthly federal funds rates spanning the quarter

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specific employment effects? Their paper uses long-term trend controls to analyze the behavior of inflation reduction, short-term interest rates, and the employment ratio of women to men.

Regarding the empirical technique, first they identify inflation reduction episodes using Ball's (1993) method. In this approach, they smooth the inflation data series with a three-year moving average and identify the peaks and troughs. An inflation reduction period is defined as the interval from a peak year to the subsequent trough year. For the long-run employment and interest rate trends, the paper adopts a Hodrick-Prescott filter to the employment data (by gender) and interest rate series. Once the inflation reduction period is identified, they calculate the percentage deviation of female and male employment from their long-run employment trends for each period, creating a "sacrifice ratio" to measure the deviation gap between men and women.

Their estimations infer that in 67% of contractionary inflation reduction episodes[9], the rate of change of the female-to-male employment ratio fell below its long-run trend, indicating that women's employment was disproportionately affected. However, in expansionary inflation reduction episodes, there was no clear distinction. Concerning monetary policy, they conclude that countries with real interest rates above the long-run trend in inflation reduction episodes are more likely to experience a slowdown in the growth of employment, with higher losses for females. On the other side, countries with negative real interest rates do not appear to be able to increase employment growth.

Braunstein and Heintz (2018) adopt OLS with panel data techniques to investigate structural changes in gender employment inequality in Latin America from 1990 to 2010. Their sample includes 18 countries. The paper analyzes a series of macroeconomic and structural variables, with the effects of monetary policy being one of them. For monetary policy, the paper adopts period-to-period real interest rate changes as their key variable. After a one percent increase in the real interest rate, the paper does not find any statistically significant effect on female-to-male employment, female employment, or male employment. On the other hand, the paper finds a decrease in the female-to-male unemployment ratio gap, which is counterintuitive, mostly explained by a higher decrease in female unemployment data.

[9] A contractionary inflation reduction episode is one in which the episode is accompanied by a reduction in overall employment. The expansionary inflation reduction episode is the opposite.

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Carpenter and Rodgers (2004) provide a broad empirical investigation of the differential impact of contractionary monetary policy on the labor market outcomes of racial groups (black, white, and hispanic), teenagers, out-of-school youth, and less-skilled individuals. Their sample includes United States data from 1973 to 2002. They adopt two econometric techniques: VAR and ADL. The paper uses orthogonalized innovations for VAR and Romer and Romer (1994) identification techniques for ADL model.

In the VAR estimation, their paper finds an increase in the black-white employment-population inequality, but does not find statistical significance for the hispanic-white data. For the unemployment rate gap, their estimations also find an increase in black-white unemployment, but do not find statistical significance for hispanic-white data. There is no statistical significance for labor force participation. When comparing data for teenagers, the black-white inequality effects are amplified. Similar results are found in their ADL estimations.

Cirillo et al. (2024) evaluate how macroeconomic policies affected the incomes of women and men during the financial crisis in Europe. Their data consists of millions of individualized household-level records from 27 European countries, covering the period from 2008 to 2016. Their key monetary variable is the change of the average interest rate on the 10-year bond.

Since the 2008-2016 European monetary policy was grounded in expansionary monetary measures, the paper estimates the outcomes of the expansionary monetary policy. The authors estimate that a one-percentage-point reduction in the 10-year bond interest rate increases overall household labor income by 4.6% and overall wages by 2.5%. For households headed by men, there is a 5.08% increase in labor income and a 3% increase in wage income. For households headed by women, the expansionary policy results in a 4.1% increase in labor income and a 2.13% increase in wage income. As a result, the paper provides evidence of increasing gender inequality in labor and wage income for European households during the expansionary period.

Couto and Brenck (2024) is the only paper that empirically focuses on a single country other than the United States. The authors use OLS with panel data to estimate the effect of contractionary monetary policy on unemployment rate inequality by race and gender in Brazil from 2012 to 2021. Their study disaggregates the Brazilian data into 13 states and 5 regions.

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For the monetary policy variable, their paper uses period-to-period changes in short-term interest rates. Since the Brazilian central bank does not base its monetary policy decisions on state-level data, this approach ensures the exogeneity of the interest rate.

For the 13 states, their estimation finds an increase in the unemployment gap between black men and white men, no significant effect on the gap between black women and white men, and a decrease in the gap between white women and white men. For the 5 regions, the paper finds a decrease in the unemployment gap between white women and white men in all regions, and an increase in the gap for black men and white men in the South-Southeast-Midwest cluster. For all estimations, the black population share of the state/region had a significantly negative effect on the parameters, i.e., the higher the black share of the population, the lower is the gap responsiveness.

De et al. (2021) evaluates the effect of a monetary policy shock on racial labor market differences. Their monetary policy measurement adopts a factor loaded with eight treasury interest rates of different maturities as well as the bank prime loan rate. Their database uses United State data from 1973 to 2017. After a contractionary shock, their factor-augmented vector autoregression model estimates that both white and black groups experience an increase in unemployment rates and a decrease in employment-population ratios. Additionally, the model shows a widening of the racial gap for these variables. They do not find significant differences in the labor force. For gendered racial data, their estimations indicate that black males' unemployment rate is the most sensitive to contractionary shock, followed by black female, white male and white female.

The authors also assess the quantitative impact of monetary policy shocks on cyclical labor market dynamics, offering evidence for medium- and long-term outcomes using a variation decomposition method. Their findings indicate that monetary policy shocks account for 17–22% of the variation in unemployment rates and the employment-to-population ratios of Black and White individuals over the medium to long term.

Faia et al. (2024) investigate the effects of contractionary and symmetric shocks (average results of the shocks) on job separation rates by race, gender, and age. Their empirical technique employs Local Projections with High-Frequency Identification. Additionally, the paper regresses the data using a dummy variable to indicate whether agents' income was above

Cadernos CEPEC, Belém, 14 (3): 254-289, jul./dez. 2025
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or below the median in the previous year. The sample consists of United States data from 1989 to 2019. Regarding the races in their data, the authors asses the data for non-white and black population, without the specific data for white.

For symmetric shocks, the authors find an overall increase in the job separation rate. For above the median income, only black population has increased job separation responses. For below the medium, black, female, younger and older population have job separations increased effects. For contractionary shocks, the authors do not find any statistically significant parameters for individuals with above-median income. However, for below-median income, their estimation indicates that non-white group has the highest parameter, followed by the black group, females, and older individuals. Hence, the paper suggests a higher increase in job separation rate for minorities with lower income.

Flamini et al. (2023) use data from 22 countries to study the effects of monetary policy shocks on employment gender gaps. Their sample includes data from 1990 to 2019. They employ a Local Projection with the Romer and Romer (2004) identification technique. The paper also explores whether expansionary and contractionary shocks have symmetric inverse effects and whether labor market characteristics can amplify the monetary effects.

After a contractionary shock, their find a decrease in gender inequality in the employment rate gap. For the unemployment rate gap, the same shock also decreases the inequality in the short run, but increases it in the long run[10]. In contrast, the authors do not find a statistically significant effect during an expansionary shock. Thus, the results indicate an asymmetric effect depending on the type of monetary policy. These asymmetric outcomes provide important evidence of the long-term gender inequality effects of monetary policy, as contractionary shocks are not offset by expansionary ones.

The authors also estimate that more flexible employment protection legislation amplifies the inequality-reducing effect of contractionary shocks: Lower firing and hiring costs, along with less stringent firing procedures, make male employment more responsive to demand fluctuations. Additionally, a higher gender wage gap further amplifies the effects of contractionary shocks, as it is cheaper to maintain female employees than male employees.

[10] A possible explanation relies on the labor force participation rate.

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Recebido em: 24/11/2025
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Hull (1983) examines how contractionary movements in money supply growth affect the unemployment rate gap between non-white and white populations in the United States from 1968 to 1983[11]. The author uses a statistical comparison of standardized Z statistics for the first difference in the money supply growth rate, identifying the most prominent periods of deceleration in money supply growth. Once the periods are identified, they are compared with the growth of the non-white to white unemployment rate gap.

The author identifies four periods of contractionary monetary policy: 1970-71; 1974-76; 1980-81; and 1981-83. In each period, the unemployment gap between non-white and white populations increased. The paper estimations suggest an increase in inequality due to contractionary policy, but they are based on a measurement technique that is outdated and no longer used in current literature.

Rodgers (2008) estimates how black and white populations differ in terms of unemployment duration following a contractionary shock (ripple effect). The paper employs two econometric techniques (VAR and ADL) with United States data from 1979 to 2006. The unexpected shocks are identified in the VAR model with Cholesky decomposition for orthogonalized innovations, while in the ADL model the shocks are identified using the Romer and Romer (1994).

The paper estimations find a ripple effect for both racial groups after a contractionary shock (regardless of the econometric technique). The VAR model estimates African Americans experiencing longer unemployment durations (more than 15 weeks) than white. On the other hand, the ADL model yields no conclusive results after 15 weeks. The author concludes that African Americans disproportionately bear the brunt of disinflationary monetary policy, suggesting that less productive and less educated workers are more likely to be laid off first.

Seguino and Heintz (2012) explore the race and gender effects of contractionary monetary policy in the United States from 1979 to 2008. Their study uses state-level panel data with period-to-period changes in interest rates as the key monetary policy variable. Their work uses white male data as the benchmark and stratified the state-level data in four categories: Full

[11] Hull (1983) is first empirical work published on the relationship between monetary policy and racial inequality.

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sample; states with less than 11% black share of the population (BSP); state between 11% and 25% BSP; and states with more than 25% BSP.

For the full sample, their paper estimates that a one percent increase in the short-term interest rate leads to an increase in the overall black-white male unemployment rate gap and an increase in the overall female-white male unemployment rate gap, i.e., gender and race inequality increase. The biggest increases are for black females, followed by black males and white females. Their paper also finds that the elasticity increases, on average, by more than 50% as the black population share moves from less than 11% BSP sates to higher BSP states[12].

Takhtamanova and Sierminska (2009) investigate the economy-wide and sectoral employment effects of contractionary monetary policy by gender data across nine OECD countries from 1980 to 2014. Their paper employs two methodologies: VAR and single equation regression. For the VAR model, the contractionary monetary policy shock is identified through orthogonalized innovations, while the single equation regression does not account for any shocks. Takhtamanova and Sierminska (2009) use the money market rate as the interest rate variable.

Their paper does not find significant elasticities of employment in response to a positive change in the money market rate in the single equation regression. On the other hand, the VAR model presents more mixed results, where Canada, Finland, Japan, Spain and the United Kingdom experienced a slight decrease in gender employment inequality gap. Conversely, the United States faces an increase in gender inequality effects, while Norway and Switzerland show no significant differences.

Thorbecke (2001) explores whether minority groups faced disproportionately burden after a contractionary monetary policy shock in the United States. The paper employs two different empirical techniques to estimate these impacts: VAR and univariate autoregression. The shocks are identified with Romer and Romer (1994; 2004). Their database goes from 1973 to 1996 for the VAR model, and from 1954 to 1996 for the univariate autoregression.

[12] Their paper supports the threat theory, which suggests that a larger proportion of the Black population results in greater inequality. Interestingly, Couto and Brenck (2024) found the opposite for Brazil, where their paper rejects the threat theory and instead supports the contact theory.

Recebido em: 24/11/2025
Aprovado em: 14/12/2025
Publicado em: 22/12/2025

After a contractionary shock the VAR model estimates an increase in the unemployment rate for all races. Hispanic unemployment rate is the most affected, followed by black and white unemployment. These outcomes indicate an increase in racial inequality, particularly for the Hispanic community. However, it is worth noting that black unemployment level is higher than that for Hispanics. In this context, while the overall results suggest an increase in racial unemployment inequality, the inequality between black and hispanic groups marginally decreases – but at a higher cost for both.

For the univariate autoregression estimation, a contractionary shock also increases the unemployment rate for all races. The non-white population is most affected, followed by the white population - the univariate regression data only accounts for non-white and white populations.

Ume and Williams (2018) estimate the outcomes of expansionary monetary policy shocks on the employment-population ratio and unemployment rate responses for blacks and whites since the Great Financial Crises (GFC). Their econometric technique involves a Structural VAR, where the shock is identified through sign restriction in the impulse response function. The short-term interest rate is the shadow federal fund rate since they explore data during unconventional monetary policy periods. Their database uses United States data from 2009 to 2017.

After an expansionary shock, the authors estimate an increase in the employment-population rate for black and white population. For the black employment data, the expansionary shock effect is stronger than for white, which indicates that expansionary shock reduces the employment racial inequality during the period. Interestingly, the Black employment-population ratio experiences a small decrease during the first 6 months after shock. The authors suggest that this initial reduction can be explained by the employment behavior of black teenagers' data, once this group tends to hold part-time jobs, they are often replaced by full-time workers – especially whites in the first semester. Regarding race and gender intersectional data, their paper estimates that black men employment has the highest increase effect, followed by black women and white men, while white women does not have significant results.

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Regarding the unemployment rate, their paper finds more mixed outcomes, as the estimates from the main regression and the robustness check seem to differ. In the main regressions, the paper found an increase in the black unemployment rate, while the white unemployment rate decreased. However, the robustness estimation with Cholesky decomposition identification of the shocks indicates a decrease in the black unemployment rate, and does not show significant differences for the other group. It is also worth noting that the increase in black unemployment is not necessarily a negative outcome, as it may reflect an increase in labor force participation among the black population, possibly in response to the rise in employment.

Zamanzadeh et al. (2020) use a Bayesian quantile mixed-effects model to assess the impact of contractionary monetary policy on average unemployment duration among men and women. Their dataset includes 10 OECD countries from 1997 to 2017. The study finds that the average unemployment duration for men is more responsive to contractionary monetary policy than for women. Since the average unemployment duration for women has been lower during the period, these results widen the gender gap in unemployment duration. However, both estimates are close to zero, indicating an overall small effect.

Zavodny and Zha (2000) conclude our labor market section. Their paper uses a Bayesian VAR to estimate the impact of a monetary shock on black and overall unemployment rates. Their paper adopts orthogonalized innovations in the impulse response as their shock measurement. Their database uses United State data from 1972 to 1999.

The authors estimate that black unemployment rate is more sensitive to monetary policy shocks than the overall rate. This finding holds true for contractionary and expansionary shocks: A contractionary shock increases the black-overall unemployment rate gap, i.e., the black unemployment rate increases more than the overall rate, while the expansionary shock does the opposite outcome. However, the authors conclude that there is no evidence of asymmetric effects between black and overall data, as scaling the elasticity with the actual unemployment rates appears to indicate the same size effect on both the black unemployment rate and the overall unemployment rate.

3.2 Wealth outcomes

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In this section, we list the papers that empirically evaluate the role of monetary policy on measurements of wealth inequality. We consider works that study the housing market and firms' financial constraints as elements of wealth distribution. As mentioned before, some papers provide more than one distributional estimation. From the labor market section, Albert and Gòmez (2024), Bartscher et al. (2022), and Cirillo et al. (2024) also estimate the impact of monetary policy and shocks on the distribution of wealth. Chundakkadan (2023) and Li and Zhang (2023) complete the papers in this section. As in the previous section, we use alphabetical order to match Table 1.

Albert and Gòmez (2024) utilize a BSVAR model to analyze the effects of expansionary monetary policy on net worth distribution. Their approach involves assessing the impact of monetary policy shocks on key variables such as housing prices, stock prices, bond prices, and inflation. These estimated parameters are then applied as elasticities to the SFC 2019 dataset to simulate the resulting changes in net worth. The authors conduct simulations for time horizons of 1, 6, 12, and 36 months, using impulse response outcomes from the BSVAR model. This technique combines empirical analysis with simulation exercises and assumes a constant portfolio composition. Their database included United States data from 1984 to 2020.

After an expansionary monetary policy shock, their paper finds positive effects on the net worth for all horizons. In the first month, their paper estimates the following net worth hierarchy: White, other races, hispanic, and black. For the sixth and twelfth months, the hierarchy remains the same, but with diminishing elasticities. The 36-month horizon presents a different hierarchy: hispanic, black, other races, and white. The results above indicate an increase in net worth racial inequality in the first 3 years after the expansionary shock.

The authors point out important considerations about the previous outcomes: First, the decrease in inequality at the 36-month horizon is driven by the effect of housing prices, as they remain statistically significant at the end of the impulse response estimation and represent the main asset in the portfolio of minority groups. Second, the simulation has a bias due to the assumption of a constant portfolio composition. This assumption implies that the net gains over the period are not used to purchase other assets or maximize portfolio gains, which could result in increasing net worth inequality.

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Bartscher et al. (2022) use Local Projection to estimate the effect of expansionary shocks on net wealth racial inequality. Similar to Albert and Gòmez (2024), their paper estimates the impact on real economy and financial data and then simulates the results using the estimated elasticities on the 2019 SFC data for black and white households. Their United States database goes from 1960 to 2017.

Their analysis indicates an increase in racial wealth inequality following the expansionary shock. On average, after 3 years, the net wealth of white households increases by $25,300, while the net wealth of black households increases by only $3,900. Although both increases represent around 2.6% of their respective net wealth, the absolute difference widens the wealth gap. When accounting just for households of both races with the same portfolio composition, their estimations find a much smaller gap between the two groups, but the shock still results in a greater increase in the net wealth of white households. The paper concludes that expansionary shocks increase racial net wealth inequality.

Cirillo *et al*. (2024) use an OLS with panel data approach to estimate the impact of expansionary monetary policy on capital income by gender. Their paper uses European microdata from the European Union Statistics on Income and Living Conditions (EU-SILC) dataset for 2008-2016 period. Their paper estimates an increase in the capital income for men and women, while the capital income for women increases more than for men, i.e., a decrease in the gender capital income inequality. The authors also simulate the results by considering intra-household distribution, where a more unequal distribution between men and women intra-household family reverses the results, leading to an increase in gender inequality.

Chundakkadan (2023) investigates how changes in the money market rate affect firms' financial constraints based on male or female ownership and managership structures. Their paper explores 18 countries with non-continuous data for 2008, 2009, 2012, 2018, and 2019. The paper also examines how the Gender Gap Index (GGI) interacts with the effects of monetary policy. The author uses panel data with an ordered probit model for estimation. This method is chosen because the dependent variable is ordinal, representing the change status of the firms' access to finance. The gender ownership and managership structure are included as dummies, and the GGI is included as an independent variable for each country.

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The author's estimations indicate that an increase in the money market significantly raises the likelihood of women-owned or women-managed firms experiencing a worsening in access to credit compared to male-owned firms. On the other hand, when the money market rate decreases, women-owned and women-managed firms have a higher probability of improving their access to credit compared to male-owned firms. The Gender Gap Index (GGI) also influences these probabilities: in countries with a low GGI (indicating greater gender inequality), the probability gap widens, while in countries with a high GGI (indicating more gender equality), there is no significant difference in the probabilities for firms, in either contractionary or expansionary scenarios.

Li and Zhang (2023) conclude the section. Their paper estimates how contractionary monetary policy shocks affect homeownership and housing returns among blacks, hispanics, and whites in the United States. The study uses data from 13 million repeat sales between 1993 and 2020, covering 140 metropolitan areas. They employ a Local Projection technique combined with a High-Frequency Identification method.

After a contractionary shock, housing entries decrease for all races, but this effect is more than 2x higher on blacks and hispanics. There is no evidence that a significant racial gap in housing exists. Regarding housing returns, their estimations also find increasing racial inequality, with the contractionary shock leading to 15% lower returns for black and hispanic households compared to white households[13].

3.3 Consumption outcomes

Albert and Gòmez (2024) use the same empirical technique as mentioned in the previous sections. They estimate the impact of an expansionary shock on consumption measurements, such as total consumption, non-durables, services, and durable goods. They report a significant increase in white-black gap inequality in all forms of consumption. There are no significant differences for other racial gaps in the sample.

Puig (2022) provides a short investigation of how contractionary monetary policy shocks affect durable consumption for different households regarding the race of their household head. The paper uses Local Projection with unexpected monetary policy to

[13] Housing entries refer to new homebuyers, while housing exits pertain to individuals selling their properties. Housing returns indicate changes in household property prices.

Recebido em: 24/11/2025
Aprovado em: 14/12/2025
Publicado em: 22/12/2025

investigate the United States data from 1987 to 2017. The paper focuses on mortgage households since they are more sensitive to monetary policy changes. The author estimates that an unexpected contractionary shock reduces the durable goods consumption for white households, especially for white women, but does not have significant effects on blacks. Hence, it is possible to infer an increase in the gender gap for the white population.

3.4 Net effect measurements

We conclude our review section with empirical papers that provide estimates of the net effect of monetary policy on gender and racial inequality. The net effect refers to the combined results of labor and capital incomes. The aim of measuring the net effect is to assess the impact of monetary policy on income distribution, as changes in labor market inequalities can be overshadowed by changes in wealth inequalities.

Bartscher et al. (2022) estimate the net effect of monetary policy after an expansionary shock with a three-step approach, where the elasticities are estimated using Local Projections for United States data from 1960-2017 and the 2019 SFC database.

In the first step, the paper quantifies the effect of the shock on labor earnings. The authors begin by estimating its impact on the racial unemployment gap, finding a reduction in the gap (i.e., a decrease in inequality). Next, they calculate the difference in average labor earnings between employed and unemployed households. Finally, they apply the elasticity derived from the racial unemployment gap analysis to the average labor earnings difference, capturing the overall effect on labor income. For black households, the relative earnings increase by $39.30, meaning the average black household earns $39.90 more than white households following the expansionary shock.

Second, they analyze the capital gains gap between white and black households over the same horizon and multiply this gap by the average marginal propensity to consume, which is around 3.2% for capital gains. This methodology aims to capture the effective income gain alongside the net wealth effect, as variations in net wealth do not directly translate into income. Their paper estimates an additional capital income gap of $500 in the white-black differential.

The third and final step involves comparing both values to determine the net effect. The results from this exercise indicate an increase in racial inequality in income distribution; that is, the net effect of an expansionary monetary policy is asymmetric and favors white households

Recebido em: 24/11/2025
Aprovado em: 14/12/2025
Publicado em: 22/12/2025

($461,70 gap for white) These results have some limitations. For example, the authors assume an equal marginal propensity to consume for both races. Additionally, it is important to note that this technique does not provide a direct estimation of the net effect but rather involves simulation steps.

4. Discussion

After surveying the empirical literature, we need to discuss what conclusions can be drawn from the literature? For that, we must distinguish the effects of contractionary and expansionary policy.

Regarding the effects of contractionary monetary policy on labor market outcomes, we analyzed fifteen (15) papers and found a stronger tendency for racial inequality to increase, while the overall results for gender inequality were less clear.

Among the nine (9) papers that estimate the impact of contractionary monetary policy on racial distribution, eight (8) provide evidence of increased overall racial inequality following such policies, including longer unemployment durations for non-white populations[14].

For gender outcomes, we also reviewed nine (9) papers estimating the impact of contractionary monetary policy: three (3) found an increase in gender inequality, four (4) found a decrease[15], one (1) found no significant effect, and one (1) reported a higher effect on unemployment duration for men than for women. It is worth noting that some estimations showed an increase in racial inequality among both non-white populations and white women, suggesting that while gender inequality may have decreased, racial inequality increased within the same estimations.

Concerning the effects of expansionary monetary policy on labor market outcomes, our survey includes ten (10) papers. We found evidence that such policies tend to decrease racial inequality while producing mixed results for gender outcomes.

For racial inequality, we identified ten (10) estimations: six (6) papers reported a decrease in inequality[16], two (2) indicated an increase, and another two (2) found no significant

[14] We do not include Zavodny and Zha (2000) in this group, as they represent a special case; their work identified a more sensitive parameter for black unemployment after a contractionary shock, but they conclude that this sensitivity is not strong enough to significantly increase inequality when scaled up.
[15] Where one (1) indicates a decrease in labor and wage incomes.
[16] Including one related to the wage gap.

Recebido em: 24/11/2025
Aprovado em: 14/12/2025
Publicado em: 22/12/2025

effects. Notably, one of the studies showing increased racial inequality was conducted by Ume and Williams (2018), which estimated an increase in the unemployment rate but also reported a decrease in the racial employment gap. This suggests a positive trend in the labor market, as more non-white individuals are entering the workforce. Among the two (2) papers that reported no effects, one examined the average weekly wage gap, while the other analyzed differences within the top tenth wage decile group.

Regarding gender outcomes following expansionary policy, we reviewed six (6) estimations: two (2) found increased gender inequality, one (1) found a decrease, two (2) reported no significant effects, and one (1) presented mixed results.

Based on the results discussed above, we conclude that racial minorities are more sensitive to monetary policy in terms of labor market outcomes. Regarding gender data, the evidence remains inconclusive and mixed, as different empirical exercises yield varying results. Caution is warranted when analyzing gender-related data, since the intersection of gender and race places both Black women and Black men in particularly disadvantaged positions. Moreover, careful consideration is needed when interpreting mixed gender findings, as many of these results stem from cross-country analyses. For instance, Takhtamanova and Sierminska (2009) use data from countries with high levels of gender equality, while Braunstein and Seguino (2018) employ cross-country data from Latin American economies, where exchange rate effects are estimated separately. Another important consideration is that opposing results are often found in studies covering different time periods, which may indicate the presence of hidden effects. This appears to be the case in Abell (1991), where the impact of affirmative action policies contributed to increased employment for Black women during the 1980s.

It is important to highlight that, particularly in the context of expansionary policies, an increase in racial inequality within the labor market does not necessarily indicate a deterioration in the actual conditions of social minorities. It is plausible that all social groups benefit from such policies, although these benefits tend to be more concentrated among dominant groups. Ume and Williams (2018) provide a clear illustration of this dynamic, noting that while racial inequality in the unemployment rate increases, there is also a concurrent rise in the overall employment rate across all groups.

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We find several explanations for the conclusions discussed above in the surveyed literature.

Regarding racial labor inequality, the main explanation focuses on the lower-skilled job positions typically held by Black and Hispanic workers. These groups are also often employed in sectors that are particularly sensitive to changes in interest rates, such as the construction industry.

The explanation for gender inequality primarily relates to differences in the sectoral composition of male and female employment. Female workers tend to be more prevalent in sectors that are less responsive to monetary policy—such as health care, education, caregiving, and government—while male workers are more concentrated in the industrial sector, especially in developed countries. Additionally, the lower average wages earned by female workers also contribute to these outcomes, as their labor is often less costly.

Discriminatory biases further reinforce these explanations, as stereotypes can lead to a perceived higher productivity among white workers. Finally, factors such as age, business cycles, marital status, and education level contribute to amplifying the unequal effects of monetary policy.

Regarding the wealth effects of monetary policy, we find significantly fewer empirical studies compared to those on labor market outcomes, and the overall results appear to be more consistent.

For the effects of contractionary policy on wealth, we identified three (3) papers in the literature: two (2) focusing on gender distribution and one (1) on racial distribution. All three studies estimate an increase in inequality following contractionary monetary policy.

The effects of expansionary policy also yield consistent findings. We identified four (4) estimations addressing wealth distribution: two (2) focusing on racial inequality and two (2) on gender inequality. Regarding racial wealth distribution, both studies report an increase in racial inequality after an expansionary policy. In contrast, for gender distribution, Chundakkadan (2023) finds a decrease in the financial constraint gap for female-owned firms, while Cirillo et al. (2024) estimate a reduction in gender inequality in capital income. However, the results reported by Cirillo et al. (2024) should be interpreted with caution, as different intra-household

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distributional dynamics could, in some cases, lead to an increase in gender inequality following expansionary monetary policy.

From the previous estimations, we conclude that, regardless of the direction of monetary policy changes, the evidence points to a deterioration in racial wealth distribution. Regarding gender, we find that contractionary policies tend to increase inequality in wealth distribution, while expansionary policies may produce the opposite effect. However, intra-household distribution dynamics (which can be interpreted as an expression of patriarchal structures[17]) have the potential to offset or even reverse the gains from expansionary policies. Overall, these findings are more consistent than those observed in the labor market, indicating that wealth distribution remains predominantly white- and male-oriented.

The composition of household portfolios is the primary explanation for the previous outcomes. Social minorities, including white women, tend to hold a lower volume of assets and concentrate their wealth in less interest-sensitive categories, primarily housing. White men, on the other hand, tend to possess a larger volume of interest-sensitive assets, such as stocks, as well as greater diversification in their portfolios. This composition has reinforcing effects, as it influences access to credit, which may help explain the results found by Chundakkadan (2023).

Regarding the consumption and net effects of monetary policy, it is difficult to draw definitive conclusions, as only two (2) papers estimate the impact of monetary policy on consumption—both reporting opposing results and limited in scope. For the net effect, we identified just one study that combines empirical estimation with simulation exercises, concluding that wealth effects may overshadow labor market outcomes.

After drawing overall conclusions from the surveyed literature, it is important to acknowledge a major database limitation, i.e., the strong overemphasis on studies conducted in the United States — with only Couto and Brenck (2024) providing a single-country empirical analysis for another nation. The primary reason for this concentration is the greater availability and accessibility of U.S. data. This is an important limitation, as countries and regions differ substantially in their racial and gender social structures. For instance, while Seguino and Heintz (2012) identified elements consistent with the Threat Hypothesis in the U.S. context, Couto and Brenck (2024) found the opposite relationship in Brazil. Similarly, Takhtamanova and

[17] See Chundakkadan (2023) and Cirillo et al. (2024) for the patriarchy element discussion.

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Sierminska (2009) illustrate this limitation, as their estimations reveal distinct outcomes for gender inequality in the United States compared to other regions such as Canada, Finland, Japan, Spain, and the United Kingdom.

Finally, it is worth mentioning that the existence of multiple econometric and identification techniques — although it makes direct comparisons difficult — can be viewed as a positive aspect of the literature. The use of heterogeneous methodologies that converge toward similar overall conclusions strengthens the evidence and enhances the robustness of the findings.

5. Concluding remarks

In our concluding remarks, we identify key gaps that future research could address and reflect on the role of Central Banks in shaping the dynamics of racial and gender inequality.

From a feminist perspective, an important gap in the literature concerns the absence of estimations on the effects of monetary policy on the unpaid reproductive sector. Monetary policy can influence this sector through its distributive impacts on the labor market. It is well known that information and data on unpaid reproductive work are much more difficult to access, which limits the applicability of conventional empirical techniques commonly employed in the literature. However, this limitation should not deter future research in the field, as the implications for women's rights are both significant and far-reaching.

We also emphasize the need to expand the volume of research on the wealth distributional effects of monetary policy. One explanation for the limited number of empirical studies in this area is the scarcity of wealth data, which has led some works to rely on simulation-based methods using incomplete or non-continuous databases. We therefore encourage the development of more comprehensive and transparent databases on wealth — not only to better assess the distributive impacts of monetary policy, but also to improve the transparency and understanding of social resource allocation.

We conclude our discussion by addressing the role of Central Banks in relation to the distributional outcomes previously highlighted. Specifically, how should they proceed in light of the well-documented evidence on the distributive effects of monetary policy, and to what extent can they design or implement measures that promote greater equality?

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Regarding policy procedures, central bankers should recognize that the social costs of their actions—particularly under contractionary stances—are significantly higher than what average unemployment rates alone may suggest, once the broader repercussions of their decisions are considered. Thorbeck (2001) argues that this awareness should be explicitly incorporated into Central Bank decision-making models, as it could help prevent premature decisions to raise interest rates. It is also worth noting that the Federal Reserve has recently acknowledged the need for greater attention to racial dimensions in its policies (Bennani, 2023), although there is still little evidence of how this awareness has influenced internal decision-making processes.

Given that this study evaluates monetary policy through interest rate adjustments, it is difficult to envision how such tools alone could promote structural equality. Interest rate policies operate through transmission channels embedded in pre-existing social and economic structures. Therefore, unless there are long-lasting hysteresis effects resulting from sustained interest rate movements that indirectly foster equity, Central Banks and governments must seek distributional improvements through alternative monetary mechanisms, such as regulatory measures and policies that enhance financial inclusion.

Finally, we encourage Central Banks and policymakers to support further empirical and theoretical research on the distributive effects of monetary policy by race and gender. A deeper understanding of these dynamics can contribute to the design of monetary frameworks that not only ensure macroeconomic stability but also promote more equitable and inclusive societies.

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