Inter-American Development Bank

Consumer Loans, Heterogeneous Interest Rates, and Inequality

Department of Research and Chief Economist

Cezar Santos

DISCUSSION PAPER Nº IDB-DP-998

March 2023

Consumer Loans, Heterogeneous Interest Rates, and Inequality

Cezar Santos

Inter-American Development Bank and CEPR

March 2023

IDB
Inter-American Development Bank

Abstract

Using the Brazilian administrative credit registry data with the universe of all consumer loans originated by banks in the country from 2013 to 2019, we document high borrowing interest rates, which vary systematically with individual's characteristics. In particular, even after controlling for several observable individual attributes (such as income, occupation, and default probabilities, low-income), individuals pay higher interest rates than high-income borrowers.

JEL classifications: E21, G51, O17
Keywords: Interest rates, Dispersion, Consumption smoothing, Inequality

The views expressed in this article are those of the authors and do not necessarily represent those of the Inter-American Development Bank.

1 The Project

Financial intermediaries such as banks play a critical role in the economy by connecting those seeking to borrow with those seeking to save, improving the allocation of resources with consequences for efficiency and welfare. Consequently, consumer credit is key to allowing individuals to smooth consumption over time when they face uninsurable idiosyncratic income risk. Credit markets in developing countries are characterized by high and dispersed borrowing interest rates (e.g., Banerjee, 2003; Banerjee and Duflo, 2010). Expensive credit may hinder the ability of individuals to smooth their consumption.

Using the *Brazilian Public Credit Register*, which is a confidential loan level dataset, covering all unsercure credit operations in Brazil from January 2012 to December 2019 and linked with the *Brazilian matched employer-employee data set (RAIS)*, we document several features of the Brazilian credit market. We focus on two types of loans, which account for more than 80% of all unsecured consumer loans in Brazil. They are unsecured personal loans, available to all individuals, and payroll loans, consisting of personal loans for which the principal and interest payments are directly deducted from the borrower's payroll check. The latter are mainly available for civil servants and retired individuals. Average interest rates are substantially higher for personal loans than for payroll loans, and the former are much more dispersed than the latter - a factor of 5 difference in average interest rates and a factor of 16 difference in standard deviation. Default rates are 3 times large for personal loans (6pp) than for payroll loans (2pp).

For both types of loans, we show that interest rates vary systematically with individual's characteristics. In particular, even after controlling for loan characteristics (e.g., maturity and loan size), several observable individual attributes (e.g., income, age, gender, race, occupation and financial literacy), and default probabilities, low-income individuals pay higher interest rates than high-income borrowers. Therefore, a large part of interest rate spreads are not explained by individual characteristics and the risk of the credit operation. We then calculate a risk-cost free rate by subtracting from the realized interest rate the expected cost of default, assuming a conservative zero recovery rate. We report the interest rate wedge which is the

realized interest rate minus the risk-cost free rate. For individuals earning 1-2 minimum wages, the interest rate wedge is approximately twice (78pp) the wedge of individuals earning more than 20 minimum wages for personal loans (40pp). For payroll loans, the the wedge is about 18.5 percentage points for individuals earning 1-2 minimum wages and 16 percentage points for those earning more than 20 minimum wages. Default rates are about 3 times large for personal loans (6pp) than for payroll loans (2pp).

Related Literature Our contribution is both empirical and theoretical. Empirically, we first document new facts about unsecured consumer loans in a developing economy using detailed credit register data. The fact that spreads are large, vary systematically with individual characteristics, and cannot be explained by default probabilities is overlooked in the macro/default literature. We then extend a standard model with unsecured debt and equilibrium default (e.g., Athreya, Tam and Young, 2012; Chatterjee et al., 2007; Livshits, MacGee and Tertilt, 2007, 2016) in ways consistent with our data and perform several policy evaluations.

Recent papers have focused their attention on heterogeneity in returns to financial and physical capital (see Benhabib, Bisin and Zhu, 2011; Benhabib and Bisin, 2018; Gabaix et al., 2016). Heterogeneity in returns does not arise merely from differences in wealth allocation between safe and risky assets: returns are heterogeneous even within asset classes and positively correlate to wealth (Fagereng et al., 2020). We also study heterogeneity in interest rates but focus on borrowing rates instead. We show that there are extremely high levels of heterogeneity in borrowing rates using the Brazilian credit market data and assess its consumption and welfare implications in an otherwise standard model of consumption smoothing with idiosyncratic shocks.

A different strand of the literature focuses on dispersion in borrowing rates from the firm's perspective. Gilchrist, Sim and Zakrajšek (2013) provide evidence on dispersion in borrowing costs among large (Compustat) firms in the United States. Bai, Lu and Tian (2018) report similar evidence for Chinese firms, whereas Banerjee (2003) and Banerjee and Duflo (2005, 2010) document that this is a pervasive characteristic of credit markets in developing countries. Cavalcanti et al.

(2021) report substantial variation in financing costs for firm-level credit in Brazil and show that such variation has important effects on firm dynamics and development. We contribute to this literature on dispersion in borrowing costs by focusing on consumer loans in a credit market for a developing economy (Brazil) and analyze the welfare implications of this dispersion.

2 Conclusion

Using Brazilian administrative credit registry data, this paper reports high and dispersed interest rate spreads for consumer loans in Brazil. Default rates explain a relative small fraction of such spreads, and loan interest rate wedges are negatively correlated with income. Informal workers pay relative higher interest rates.

References

Athreya, Kartik, Xuan S Tam, and Eric R Young. 2012. "A quantitative theory of information and unsecured credit." *American Economic Journal: Macroeconomics*, 4(3): 153–183.

Bai, Yan, Dan Lu, and Xu Tian. 2018. "Do Financial Frictions Explain Chinese Firms' Saving and Misallocation?" National Bureau of Economic Research, Inc NBER Working Papers 24436.

Banerjee, Abhijit V. 2003. "Contracting Constraints, Credit Markets, and Economic Development." *Advances in Economics and Econometrics: Theory and Applications, Eighth World Congress*, , ed. Mathias Dewatripont, Lars Peter Hansen and Stephen J.Editors Turnovsky Vol. 3 of *Econometric Society Monographs*, 1–46. Cambridge University Press.

Banerjee, Abhijit V., and Esther Duflo. 2005. "Growth Theory through the Lens of Development Economics." In *Handbook of Economic Growth*. Vol. 1A, , ed. Philippe Aghion and Steven N. Durlauf, 473–552. Amsterdam:Elsevier.

Banerjee, Abhijit V, and Esther Duflo. 2010. "Giving credit where it is due." *Journal of Economic Perspectives*, 24(3): 61–80.

Benhabib, Jess, Alberto Bisin, and Shenghao Zhu. 2011. "The Distribution of Wealth and Fiscal Policy in Economies With Finitely Lived Agents." *Econometrica*, 79(1): 123–157.

Benhabib, Jess, and Alberto Bisin. 2018. "Skewed Wealth Distributions: Theory and Empirics." *Journal of Economic Literature*, 56(4): 1261–91.

Cavalcanti, Tiago V, Joseph P Kaboski, Bruno S Martins, and Cezar Santos. 2021. "Dispersion in Financing Costs and Development." National Bureau of Economic Research Working Paper 28635.

Chatterjee, Satyajit, Dean Corbae, Makoto Nakajima, and José-Víctor Ríos-Rull. 2007. "A Quantitative Theory of Unsecured Consumer Credit with Risk of Default." *Econometrica*, 75(6): 1525–1589.

Fagereng, Andreas, Luigi Guiso, Davide Malacrino, and Luigi Pistaferri. 2020. "Heterogeneity and Persistence in Returns to Wealth." *Econometrica*, 88(1): 115–170.

Gabaix, Xavier, Jean-Michel Lasry, Pierre-Louis Lions, and Benjamin Moll. 2016. "The Dynamics of Inequality." *Econometrica*, 84(6): 2071–2111.

Gilchrist, Simon, Jae W. Sim, and Egon Zakrajšek. 2013. "Misallocation and financial market frictions: Some direct evidence from the dispersion in borrowing costs." *Review of Economic Dynamics*, 16(1): 159–176. Special issue: Misallocation and Productivity.

Livshits, Igor, James C MacGee, and Michele Tertilt. 2016. "The democratization of credit and the rise in consumer bankruptcies." *The Review of Economic Studies*, 83(4): 1673–1710.

Livshits, Igor, James MacGee, and Michèle Tertilt. 2007. "Consumer Bankruptcy: A Fresh Start." *American Economic Review*, 97(1): 402–418.