

Fintech and Financial Inclusion: An Analysis of Brazil

Giulia Ricca

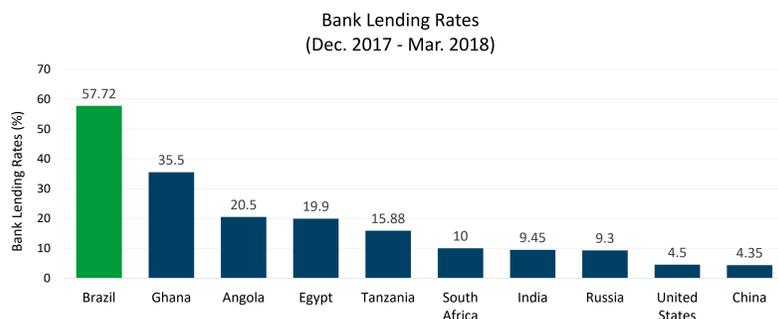


Abstract

Fintech has become a ubiquitous buzzword, but there is little literature on their role in the financial market in upper-middle income countries. As the Brazilian fintech market experiences a boom, analyzing the effect these companies have on allocation of financial services can be a factor in government policy. This paper uses regression analysis to examine whether Brazilian lending fintechs impact financial inclusion through the mechanism of lower interest rates.

Introduction

The Brazilian banking market is extremely concentrated, with the top five banks in Brazil holding 84% of total loans (Macedo et al., 2017). Brazil also has the highest bank lending rate in the world, as Graph 1 shows, which drives high consumer interest rates.



Graph 1.

In its mission, the Brazilian Central Bank includes the promotion of financial inclusion as the “effective process of access and use by the population of financial services adequate to the their needs, contributing to their quality of life” (Banco Central do Brasil, 2015). Brazil lags in the quality of services related to a customer’s needs. Compared with the richest 60% of Brazilians, of which 15% borrowed from a financial institution in 2015, only 7% of the poorest 40% took loans (Macedo et al., 2017).

Data and Methodology

There is insufficient data on any one Brazilian Fintech, so a two-regression approach is necessary to determine whether fintechs promote financial inclusion through lower interest rates.

The first regression uses time series data, collected monthly from January 2010 to September 2017, to discover whether fintechs promote financial inclusion. The independent variable is number of active fintechs. The dependent variable is the percent growth in the gross number of active personal financial relationships in Brazil, a proxy for financial inclusion based on the World Bank’s methodology.

The second regression uses cross-sectional data to determine whether Brazilian fintechs charge lower interest rates banks. The independent variable is monthly interest rates on personal, unsecured loans. The dependent variable is a binary variable for fintech. The monthly interest rates for banks reported by the Brazilian Central Bank were valid from October 10th to 17th, 2017. Fintech monthly interest rates are the median of the range shown on each fintech’s website on October 30th, 2017.

Regression Models

Regression 1: Fintechs and Financial Inclusion

$$\text{Growth in Active Personal Fin. Relations}_t = \beta_0 + \beta_1 \text{Active Fintechs}_t + u_t \quad (\text{Eq. 1})$$

$$\text{Growth in Active Personal Fin. Relations}_t = \beta_0 + \beta_1 \text{Active Fintechs}_t + \beta_2 \text{Unemployment}_t + u_t \quad (\text{Eq. 2})$$

$$\text{Growth in Active Personal Fin. Relations}_t = \beta_0 + \beta_1 \text{Active Fintechs}_t + \beta_2 \text{Unemployment}_t + \beta_3 \text{Loans as GDP\%}_t + u_t \quad (\text{Eq. 3})$$

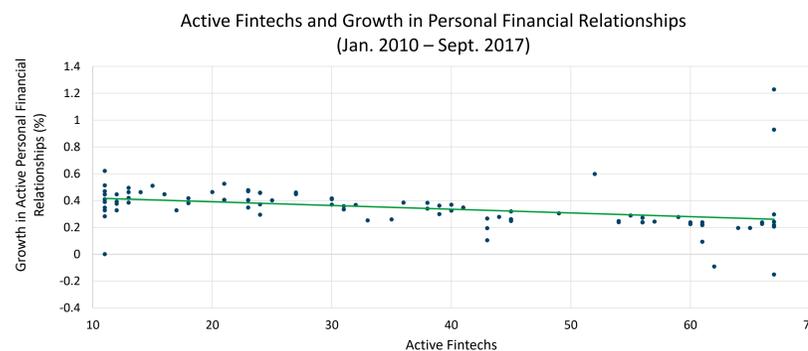
Regression 2: Fintechs and Interest Rates

$$\text{Monthly Interest Rates}_i = \beta_0 + \beta_1 \text{Fintech}_i + u_i \quad (\text{Eq. 4})$$

$$\text{Monthly Interest Rates}_i = \beta_0 + \beta_1 \text{Fintech}_i + u_i + \beta_2 \text{Employees}_i + u_i \quad (\text{Eq. 5})$$

Financial Inclusion Results

Fintechs have a **significant and negative** relationship with financial inclusion.

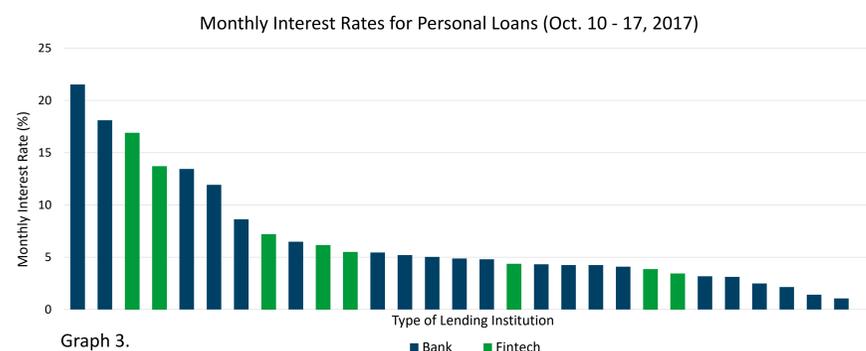


Graph 2.

In all three specifications, the number of active fintechs has a statistically significant and negative relationship with financial inclusion. The log-linear model implies that the founding of one fintech results in a 0.006 percent decrease in the growth of financial inclusion. Although the relationship proved significant, all three models fit very poorly: the adjusted R² never rises much above 0.12, demonstrating the weak explanatory power of the equations.

Interest Rate Results

Type of institution **does not** have a significant relationship with interest rates.



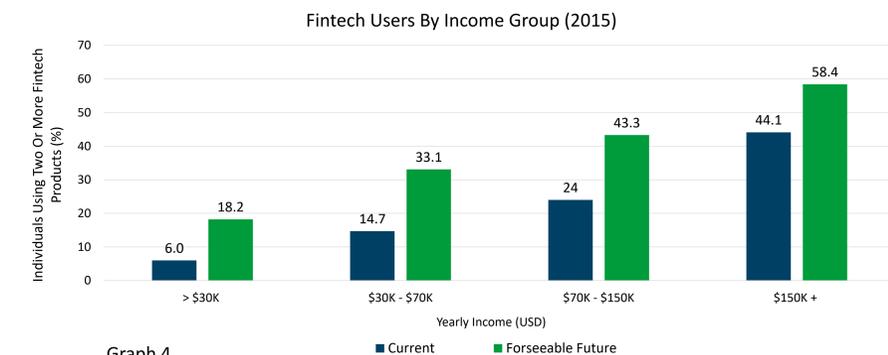
Graph 3.

Both models are a very poor fit, with negative adjusted R² values. However, the data suggests that fintechs charge higher interest rates than traditional banks. The median rate for fintechs is 5.83%, while the median of traditional banks is 4.56%.

Financial Inclusion Analysis

While fintechs have a negative relationship with financial inclusion, the coefficients in the regression are not economically significant. In a country that had over 150 million active personal financial relationships in September of 2017, adding or eliminating 6000 does not have a great impact.

The demographics of adopters can help explain why the relationship between fintechs and financial inclusion is negative. Data suggests younger people and wealthier groups are more actively engage in the fintech landscape. They have poor reach in groups that are traditionally excluded from the system.



Graph 4.

Interest Rate Analysis

The second regression finds that interest rates between fintechs and banks are not significantly different. However, the data does suggest that the relationship could be economically significant as fintechs charge almost two percentage points more than banks.

The insignificant relationship contradicts the conception that fintechs are popular because they offer lower interest rates. While unexpected especially for the Brazilian market, this result has been found in previous work by Buchak et al. (2017). Consumers are willing to pay a premium for convenience. One of the Brazilian fintechs analyzed charges higher rates because its online technology systems can overcome the slowness of large Brazilian banks (JurosBaixos, 2016).

Data Appendix

For detailed data tables, including descriptive statistics of every variable and regression results, follow the instructions below:

- Point your phone’s camera at the QR Code.
- Click to open “I.ead.me”.
- Click “View PDF”.



References

1. Macedo, C. G., Cintra, M., Goncalves, S., & Catala, N. (May, 2017). Future of Finance: Fintech's Brazil Moment (Rep.).
2. Banco Central do Brasil. (n.d.). Retrieved October 14, 2017, from <http://www.bcb.gov.br/>
3. Bank Lending Rate. (n.d.). Retrieved from <https://tradingeconomics.com/country-list/bank-lending-rate>
4. Gulamhuseinwala, I., Bull, T., & Lewis, S. (Winter 2015). FinTech is Gaining Traction and Young, High-Income Users Are the Early Adopters. *The Journal of Financial Perspectives*, 3(3).
5. Buchak, Greg, Gregor Matvos, Tomasz Piskorski, and Amit Seru (2017) “Fintech, Regulatory Arbitrage, and the Rise of Shadow Banks,” NBER Working Papers 23288.
6. Teste dos Juros Baixos: Simplic é confiável? (2016, July 26). Retrieved October 29, 2017, from <https://jurosbaixos.com.br/conteudo/teste-dos-juros-baixos-simplic-e-confiavel/>