Disentangling the Impact of Financial Inclusion on Household Well-Being: The Business Finance Channel *

Nandini Gupta† Ashish K. Sedai‡

November 17, 2023

Abstract

A large literature shows that bank access increases household well-being by increasing household access to credit. However, using a regression discontinuity design based on a major bank expansion program in India, we show that bank access increases household financial well-being by increasing borrowing by firms, not households. Following the expansion in bank access, firms borrow more, earn higher revenues, employ more workers, and household wage earnings rise, leading to increases in household consumption expenditures, savings, and investments. Heterogeneity analyses show that bank expansion predominantly spurs borrowing by urban, manufacturing and service sector firms, with limited impact on rural, agricultural firms.

Keywords: Financial Inclusion, Bank Branch Deregulation, Regression Discontinuity, Household well-being, Structural Transformation, Urbanization, Financial Development

JEL Codes: G21, G38, G51

*We are grateful to Rikhia Bhukta, Daniel Carvalho, CY Choi, William Crowder, Rick Harbaugh, Kristoph Kleiner, Pushkar Maitra, Ray Miller, Kunal Sachdeva, André F Silva, Ramaa Vasudevan, Emily Williams, Mahmut Yasar, and participants at Finance in the Tuscan Hills 2023, Florence School of Banking and Finance, and Northern Finance Association, 2023.

†Department of Finance, Kelley School of Business, Indiana University Email: nagupta@indiana.edu

‡Department of Economics, College of Business, University of Texas at Arlington. ashish.sedai@uta.edu

1 Introduction

A large literature finds that bank access raises household consumption, reduces poverty, and increases economic growth (Levine and Zervos, 1998; Burgess and Pande, 2005; Beck, Demirgüç-Kunt, and Levine, 2007). These studies attribute the improvement in household well-being to increased household access to credit (Burgess and Pande, 2005; Mian, Sufi, and Verner, 2019; Célerier and Matray, 2019; Barboni, Field, and Pande, 2022). However, this explanation is difficult to reconcile given the low rates of household bank borrowing in emerging markets (Badarinza, Balasubramaniam, and Ramadorai, 2019). For example, in 2021 nearly 70% of adults in the U.S. and Canada had borrowed from financial institutions, compared to about 11% in South Asia (World Bank, 2021).[1] In this paper, we study how financial inclusion increases household well-being without increasing household borrowing.

To study the causal impact of bank expansion, we utilize a regression discontinuity design based on a nationwide bank branch expansion policy in India. Using rich data on households and census data on the universe of enterprises, we show that bank expansion increases household real consumption expenditures, savings, and investments, but not borrowing. In fact, households take out fewer consumption loans, make lower interest payments, and there is no change in aggregate household debt. Instead, we find that firms increase bank borrowing, earn higher revenues, and hire more workers, with a corresponding increase in household income. We also find that bank expansion predominantly spurs borrowing by formal, manufacturing, and service sector firms in urban areas, with little impact on informal, agricultural firms in rural areas. Our results suggest that bank expansion in emerging markets benefits households through a "business finance channel" by easing financial constraints for productive firms, which increases jobs and household income and thereby, household well-being. This is distinct from the household demand view, which finds that the economic impact of credit expansion in developed countries is driven by an increase in household debt (Mian and Sufi, 2018; Mian, Sufi, and Verner, 2019).

Our main contributions are as follows: First, we separate the household demand and "business

[1] This is not explained by a lack of bank access since nearly 70% of South Asian adults had a bank account in 2021 (World Bank, 2021). In their review of household finance in emerging markets, Badarinza, Balasubramaniam, and Ramadorai (2019) show that emerging markets exhibit low levels of formal debt market participation across the board, including mortgages and secured debt.

finance" channels by which bank expansion affects household financial well-being; Second, we show that nationwide bank expansion increases household well-being without increasing household borrowing, which is in contrast to the evidence on the impact of credit expansion in developed countries (Mian and Sufi, 2018; Mian, Sufi, and Verner, 2019; Célerier and Matray, 2019), and of targeted credit programs in developing countries (Burgess and Pande, 2005; Breza and Kinnan, 2021; Barboni, Field, and Pande, 2022). Third, we show that bank expansion increases firm borrowing, and benefits households indirectly through the labor market with increases in jobs and earnings.[2] Fourth, we find that the benefits of a nationwide bank expansion are skewed towards urban households, driven by differential bank lending to urban versus rural firms. Our results show that bank expansion facilitates urbanization and structural transformation by allocating capital to more productive, manufacturing and service sector firms in urban districts, and not to less productive, agricultural firms in rural districts.

We investigate the causal mechanisms through which financial inclusion affects household financial well-being with a regression discontinuity (RD) design. Our RD design is built upon a significant policy intervention that oversaw the expansion of bank branches in India.[3] In 2005, the Indian central bank provided incentives for commercial banks to open new branches in underbanked districts with a population-to-branch ratio above the national average. We observe that in the five years following the bank branch expansion policy, the number of bank branches increase by nearly 20% in underbanked districts. We compare households and enterprises in treated districts with a population-to-branch ratio just above the national average (underbanked) to those in control districts with a ratio just below the national average (banked).

Our results show that the bank branch expansion policy has a significant and positive impact on household well-being, without increasing household debt. Six years after the policy, we observe that households in treated districts have 13% higher real consumption expenditures, 9% higher food expenditures, and a 9% higher likelihood of owning a motor vehicle compared to households in the control group. We also find that bank branch expansion increases household savings and investments. Lastly, we observe that households in treated districts have 33% fewer loans, are 8.2

[2]As we discuss in Section 1.1 below, Chodorow-Reich (2014); Bai, Carvalho, and Phillips (2018) and Dehejia and Gupta (2022) study the impact of banks on emerging market firms.

[3]This policy has also been used by Young (2017) and Cramer (2020), among others.

percentage points less likely to take out a consumption loan (for example for wedding or medical expenses), and do not have higher debt, compared to the control group.

To explain this puzzle, we study the impact of bank access on the labor market. First, we find that bank expansion increases wage earnings of treated households by 14% and revenues earned by household-owned small businesses by 25%, compared to the control group. Second, using census data on the universe of enterprises we show that, in contrast to households, treated firms are 36% more likely to rely on bank loans as the main source of external funds, relative to the control group. Third, we find that treated firms increase employment by 20% compared to the control group. Our results suggest that increased financial inclusion through bank expansion enables households to increase consumption expenditures, save and invest more, pay off their debt, and reduce dependence on loans for consumption because of an increase in job opportunities and income.

We find two important sources of heterogeneity in the impact of bank branch expansion on households and firms. First, we show that the increase in household consumption, savings and investments, wage income and business revenues, is driven by urban households and not rural households. We also find that the lowest income, most marginalized households in urban areas benefit more from bank expansion than other urban households, but there is no impact on the well-being of these households in rural districts. Similarly, we find that bank borrowing and employment increases for urban and not rural firms. Second, we find that the bank expansion policy increases bank borrowing by organized (formal) firms but has no impact on unorganized (informal) firms. We also find that formal, manufacturing and service sector firms in urban districts benefit more from bank expansion, whereas there is no impact on informal, rural, agricultural firms. Our results suggest that while nationwide expansion in bank access may exacerbate regional inequalities, it also facilitates urbanization, reduces income inequality within urban areas, and improves efficiency in capital allocation by channeling loans to more productive firms.[4]

We investigate the validity of the regression discontinuity design in several ways. First, we show there is no difference in the number of bank branches or credit around the population-branch ratio cut-off prior to the policy change, but there is a discontinuous increase in these measures in

[4]Formal firms are more productive than informal firms in emerging markets (ILO, 2018); and, Fan, Peters, and Zilibotti (2023) show that productivity growth is disproportionately higher in urban, service sector firms in India.

treated districts after the policy change. Second, we show that there are no pre-policy differences in household or firm characteristics in treated versus control districts. Third, we find no evidence of household migration in anticipation of the policy. Fourth, we show that the estimates are robust to higher order polynomials, placebo discontinuity tests, bandwidth multipliers, and bandwidth selectors. Lastly, we argue that the population-to-branch ratio around the cut-off is unlikely to be manipulated since the population data are from the 2001 Census, and bank data are collected by the Indian central bank.

1.1 Related Literature

We contribute to the growing literature on financial inclusion and household well-being (Burgess and Pande, 2005; Fulford, 2013; Brown, Cookson, and Heimer, 2019; Célerier and Matray, 2019; Breza and Kinnan, 2021; Suri, Bharadwaj, and Jack, 2021; Barboni, Field, and Pande, 2022; Dubey and Purnanandam, 2023). For example, Burgess and Pande (2005) use an instrumental variable strategy to show that bank branch deregulation in India decreased state-level rural poverty and increased household borrowing, although their results are contested due to identification concerns (Panagariya, 2008; Kochar, 2011). Fulford (2013) finds that the policy used by Burgess and Pande (2005) *increases* rural poverty and decreases consumption in the long-run, when the loans have to be repaid. Studying the impact of randomized branch placement in an Indian state, Barboni, Field, and Pande (2022) show that targeting credit to rural women increases borrowing and improves rural household well-being. While these studies show that targeted credit programs can benefit rural populations, we find that nationwide bank expansion benefits urban households and firms.

Studying the impact of micro-lending to low income households in Mexico, Bruhn and Love (2014) show that it reduces financial constraints for informal businesses. While micro-lending can be targeted to specific populations such as low income households and informal firms, our results show that nationwide bank expansion channels credit to more productive formal firms. Célerier and Matray (2019) find that bank branch deregulation increases household consumption and borrowing in the United States. We find that expanding bank access increases household well-being through an increase in firm but not household borrowing in India. Together, our studies

show that the impact of expanding bank access is likely to vary across developed and developing economies.

We also contribute to the literature on the effect of financial access on firms and labor markets. For example, Dehejia and Gupta (2022) show that improved access to finance moves households from informal self-employment to formal wage employment in firms, and Fonseca and Matray (2022) show that bank deregulation in Brazilian cities increases investment, output, employment and wages. We contribute to this literature by disentangling the household demand and business finance channels by which bank branch expansion affects household well-being, and studying the heterogeneous impact of bank branch expansion across regions and sectors.

Finally, our paper is related to the large literature examining the effects of access to credit and bank deregulation, which finds that bank entry may affect firms' access to credit (Petersen and Rajan, 1995; Beck, Demirgüç-Kunt, and Maksimovic, 2004), economic growth (Jayaratne and Strahan, 1996; Cetorelli and Gambera, 2001), and, entrepreneurship (Black and Strahan, 2002). We contribute to this literature by disaggregating the financial and labor market effects of bank branch expansion on households and firms, and documenting its heterogeneous impact across regions and sectors.

2 Identification

2.1 Bank Expansion Policy

In 2005, India's central bank, the Reserve Bank of India (RBI), announced a nationwide bank expansion policy that stated that commercial banks would be more likely to get licenses from the RBI to open new branches in already banked locations, if they opened new consumer-facing bank branches in underbanked districts. The criteria for being an underbanked location was based on the condition that the district had a population-to-branch ratio higher than the national average (as per the 2001 census and district boundaries). Consequently in July 2006, the RBI announced a list of underbanked districts.[5] The list of underbanked districts has remained unchanged since 2006.

[5] See RBI Policy Document.

We exploit this bank expansion policy to study the causal impact of bank branch expansion on households and firms using a regression discontinuity design also used by Cramer (2020), and others. Since the district level ratios are not reported in the RBI policy document, following Cramer (2020), we construct the ratios using district level population from the 2001 Census and the number of scheduled commercial bank branches in a district in the first quarter of 2006 using RBI data.[6]

The 2005 policy stated that commercial banks were more likely to get licenses from the RBI to open new branches in already banked locations if they opened new branches in underbanked districts. Following Cramer (2020), we use the cross-sectional variation in the district level population-to-branch ratio in 2006 as the running variable, where the cut-off is the national average of the district population-to-branch ratio in the regression discontinuity design.

$$\frac{Population_{District(2001)}}{Number\ of\ Bank\ Branches_{District(2006Q1)}} > \frac{Population_{National(2001)}}{Number\ of\ Bank\ Branches_{National(2006Q1)}} \quad (1)$$

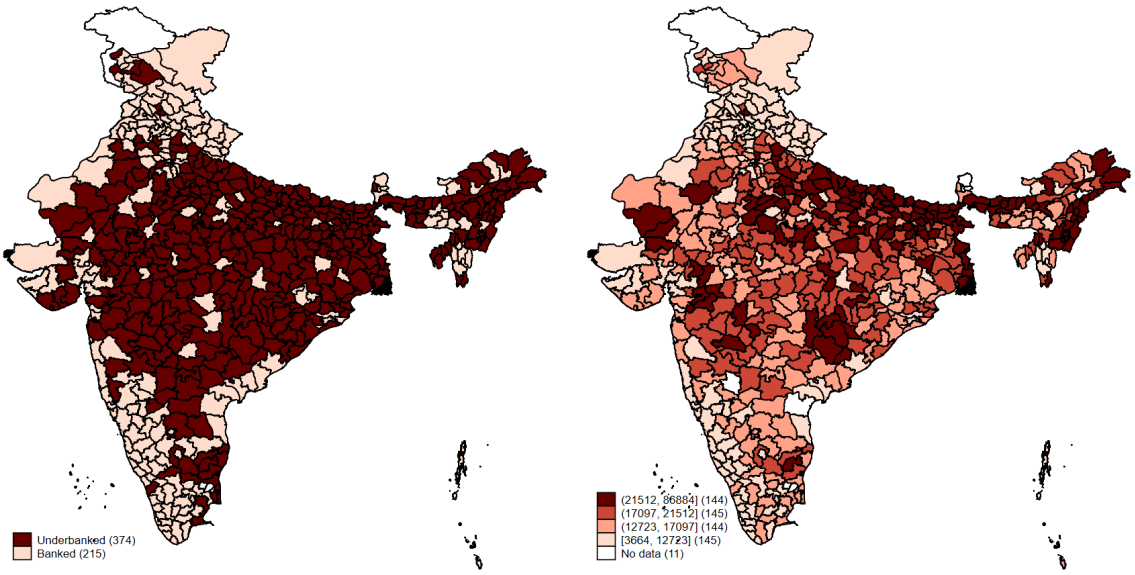
Equation (1) shows the condition used to identify underbanked areas. In districts where the inequality holds, commercial banks are incentivized by the 2005 Bank Expansion Policy to open up bank branches. Figure 1A shows the banked and underbanked districts, where the underbanked districts are indicated in darker shades, and Figure 1B shows the population to branch ratio at the district level, with darker shades indicating districts with higher levels of underbankedness. The maps show that underbanked districts cover a wide geographic area of the country.

2.2 Design of RDD

The bank to population ratio that influenced the bank expansion policy allows for a regression discontinuity design. We estimate that the national average population-to-branch ratio at the district level is equal to about 14,780 people per branch. Districts above this cut-off are defined as treated (underbanked) and districts below the cut-off are defined as control (banked) districts.

Figure 2A shows the histogram of the bank to district population ratio and denotes the cutoff equal to 14,780 people per branch. The RD design guides the size of the optimal bandwidth for

[6]The policy was introduced in September 2005 (Khanna and Mukherjee, 2023), but the RBI released the list of underbanked districts in 2006 (Cramer, 2020), therefore, we employ district level bank branches from 2006 to construct the running variable.

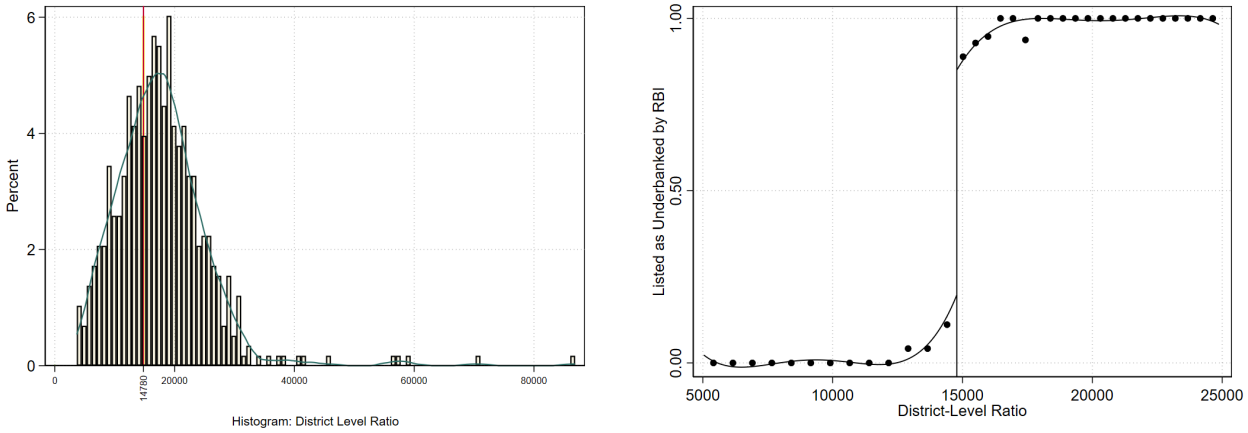


A: *Banked and Underbanked Districts* B: *Branch to Population Ratio*

Figure 1: District maps of banked and underbanked districts. Panel A shows 215 banked and 374 underbanked districts; and Panel B shows district level bank branch-to-population ratio.

each robust bias corrected inference of the outcome variables (Calonico, Cattaneo, and Farrell, 2020; Cattaneo and Vazquez-Bare, 2017; Imbens and Kalyanaraman, 2012). The majority of the optimal bandwidths fall in the range of ±4,000 relative to the cut-off. To check for manipulation around the cut-off, we conduct the McCrary (2008) density test. The test examines if the identification assumptions hold around the cut-off and if there are a similar number of districts to the right and left of the cut-off. Appendix Figure A3 for the McCrary density test shows that there are similar number of districts to the left and right of the cut-off indicating no manipulation around the cut-off. Figure 2B shows the large jump in the probability that a district is listed as underbanked when the district's population to bank branch ratio crosses the national average.

Out of the 593 districts in the data that are classified as either underbanked or banked by the RBI, the national average correctly predicts the status of underbankedness for 581 districts. We cannot perfectly predict the status of 12 districts. Since the RBI could have used their discretion for classifying the remaining 12 districts, we use a fuzzy RDD design (Lee and Lemieux, 2010) in our analysis. Similar to Cramer (2020), we estimate the following specification with household financial well-being measures as the dependent variable using non-parametric inference in a RDD



A: *Histogram* B: *First Stage*

Figure 2: Histogram of bank to district population ratio and first stage probability of being underbanked. Figure 2A shows the histogram of the bank to district population ratio and cutoff. Figure 2B shows the likelihood that a district is classified as underbanked if its population to branch ratio exceeds the national average.

framework.

$$\begin{aligned} Underbanked_d &= \gamma_0 + \gamma_1 Above_d + \gamma_2 PopRatio_d + \gamma_3 Above * PopRatio_d + \eta_d, \\ Y_{h,d} &= \beta_0 + \beta_1 Underbanked_d + \beta_2 PopRatio_d + \beta_3 Above * PopRatio_d + \epsilon_{h,d}, \end{aligned} \tag{2}$$

where h denotes the household and d denotes the district in a state. In the first stage, $Underbanked_d$ is an indicator that is equal to 1 if the district is listed as underbanked and 0 otherwise; $PopRatio_d$ is the district population to bank branch ratio; $Above_d$ is an indicator variable that is equal to 1 if the district population to branch ratio is higher than the national average, and zero otherwise. The survey sample used in our study is derived from a random stratified sampling approach, and the treated assignment is homogeneous at the district level, therefore, following Abadie et al. (2023), we cluster standard errors at the district level.

To estimate equation (2) with household well-being measures as the outcome variable $Y_{h,d}$, we do not use any covariates. Under standard continuity assumptions, the 'unadjusted' local linear estimator is consistent for the continuity-based RD treatment effect, and thus robust bias-corrected inferences can be used (Cattaneo, Keele, and Titiunik, 2021; Cattaneo and Titiunik, 2022). $X_d \geq c$ (district ratio above national average) is the excluded instrument, and the treated

$Underbanked_d$ is the endogenous regressor. The coefficient of interest is β_1, and the estimator shows the local average treatment effects (LATE) of being in an underbanked district. The results are robust to using additional bandwidths and higher order polynomials.[7]

We start by studying branch expansions and increase in licenses based on district population and the number of existing branches in the district, where we control for bank branches and licenses in 1996, which is the first year the data are available. We use the covariate-adjusted RD estimator, which remains consistent for the canonical fuzzy RD treatment effect, while offering a reduction in variance (Cattaneo, Keele, and Titiunik, 2021; Calonico et al., 2019).

To estimate heterogeneous treatment effects using a sub-sample of rural and urban areas, we conduct uniform tests and tests for conditional moment equality. In addition, we check if the proportion of compliers is large enough for each sub-sample, and if the sub-sample local average treatment effect estimator of the first stage is strong, before conducting the heterogeneity analysis in Section 7. In Section 4, we test the assumptions of the RD model.

3 Data

We use four sources of data in the analysis: (i) RBI's Master Office File (1997-2016) and Basic Statistical Returns (2005-2015) data, (ii) India Human Development Surveys 2005 and 2011-2012, (iii) National Family Health Survey (Demographic and Health Survey (DHS), 2015), and (iv) Economic Census, 2005 and 2013. In this section, we discuss the variables derived from each of the data sets.

3.1 RBI's Master Office File & Basic Statistical Returns

RBI's Master Office File (MOF) provide data on the number of commercial bank branches and licenses in a given district.[8] Descriptive statistics for the number of physical bank branches and the number of licenses issued in a district are reported in Appendix Table A1 for all districts in columns (1)-(4) and for districts in the optimal bandwidth in (columns (5)-(8)). Compared to the

[7] Variance estimator is equal to the robust variance for two stage least squares based on the sub-sample of observations within the bandwidth: $c - h \leq X_i \leq c + h$ (Imbens and Lemieux, 2008).

[8] The policy was targeted to commercial banks and excluded regional rural banks, which we use to conduct a placebo test.

pre-policy period (2004), the number of bank branches in the post-policy period (2016) is 3 times higher in treated districts (columns (5) and (8)). Summary statistics for annual district-level credit and deposits by year, and by rural and urban status in banked and underbanked districts are reported in Appendix Table A2. These data are from RBI's Basic Statistical Returns (BSR) database.

3.2 India Human Development Survey Panel

We obtain data on household financial well-being measures from the India Human Development Survey (IHDS), which is a nationally representative panel data survey of over 40,000 households in 1,420 villages and 1,042 urban neighborhoods across India.[9] In Appendix Table A3 we show that households in the IHDS are comparable to households in other commonly used household surveys.The two panels of the survey are IHDS-1 conducted in 2004-2005, and IHDS-2 conducted in 2011-2012. We obtain household financial well-being measures from these surveys. Since IHDS-1 was conducted a year before the branch expansion policy, we use it to measure pre-policy smoothness in the outcome variables. IHDS-2 was conducted six years after the policy and provides the estimates for post-policy discontinuity in the outcome variables. IHDS-2 successfully re-interviewed approximately 83% of the 41,554 households that were interviewed in 2005 with additional replacement households, and covered 64% of districts in 2005 and 65% of districts in 2012 (Desai and Vanneman, 2018). Attrition in the IHDS survey does not pose a threat to our identification as we only use IHDS-2 (comparing households in treated and control districts) for the RD analysis.

Figure A1 shows the treated districts in IHDS corresponding to underbankedness as described by the policy cut-off, with 220 underbanked districts and 151 banked districts.[10] We observe household location, consumption expenditures, food expenses, poverty, ownership of vehicles, wage earnings, loans, bank deposits (fixed and savings), insurance products, interest on loans,

[9]IHDS is a collaborative project by the University of Maryland, the National Council of Applied Economic Research (NCAER), Indiana University, and the University of Michigan. The survey covers all states and union territories of India except for the union territories of Lakshadweep and Andaman and Nicobar Islands. The IHDS sample is designed to be nationally representative along a number of dimensions including geographic, religious, ethnicity and language (Heyes and Saberian, 2022). See https://www.icpsr.umich.edu/icpsrweb/content/DSDR/idhs-II-data-guide.html for the data guide.

[10]When we merge IHDS with RBI data, we lose 8 districts because in the IHDS data Delhi is divided into 8 districts, but in the RBI data it is one district. However, as all districts in Delhi fall into the banked category, identification is not threatened. After the final merge, we observe 371 districts.

and household-owned small business revenues from this survey.

We use four measures of household well-being: *Consumption Expenditures*, defined as annual per capita real consumption expenditures,[11]; *Food Consumption*, which is the sum of real expenditures on food items; *Poverty*, which is an indicator variable that is equal to one if the household's consumption expenditures are above the state poverty line, and zero otherwise; [12] and, *Motor Vehicle Ownership*, which is an indicator variable equal to one if the household owns a motor vehicle, and zero otherwise. Both consumption and food expenditures are measured in Indian rupees, deflated using the panel survey estimator, and trimmed at the 10^{th} and 90^{th} percentiles.

We use three measures of household borrowing: *Monthly Interest Loan*, which is the average monthly interest rate paid on loans; *Number of Loans*, which is the total number of loans per household; *Consumption Loan*, which is an indicator variable that is equal to one if the household has taken out a consumption loan for wedding or medical expenses, and zero otherwise; and, *Outstanding HH Debt*, which is total outstanding household debts in rupees, deflated and trimmed at the 10^{th} and 90^{th} percentiles.

We use four measures of household savings and investments: *Bank Savings*, which is equal to one if the household has a savings or current account with a bank, and zero otherwise; *Insurance*, which is equal to one if the household head has a life insurance product from the government or private sources, and zero otherwise; *Securities*, which is equal to one if the household has bought any assets in Mutual Funds, Unit Trust, Share Market, Bonds, or Post Office Accounts, and zero otherwise; and *Long Term Deposits*, which is equal to one if the household has the a fixed deposit account with a bank, a pension fund, or other savings schemes, and zero otherwise.

Lastly, we observe *Household Earnings*, which is annual real household wage income from employment; and, *Business Revenues*, which are annual real revenues earned by household-owned small businesses. Both variables are measured in rupees, deflated, and winsorized at the 10^{th} and 90^{th} percentiles.

We report summary statistics for these variables in Appendix Tables A4-A8 for all districts, and for the sub-sample of districts in the range of the policy cut-off, ± 4,000 people per bank

[11] We divide real annual household consumption expenditures by the OECD per capita equivalent measure of household consumption (EM), where EM = 1 + 0.7*(Number of Adults - 1) + 0.5*(Number of Children).

[12] See https://ihds.umd.edu/poverty for a discussion of the poverty line and the treated of households as poor or non-poor.

branch. The within bandwidth summary statistics provide external validity to our design as they are similar to the full sample values.

3.3 Economic Census (2005 and 2013) and National Family Health Survey (2015-2016)

We use two additional national level surveys covering all districts: National Economic Census (EC, 2005 and 2013), which describes the population of enterprises, and National Family Health Survey (NFHS, 2015-2016), which provides household data on living standards. Both surveys cover all districts. The banked and underbanked districts covered in the NFHS are shown in Appendix Figure A2.

From the Economic Census we construct the following variables: *Enterprise Loan*, which is equal to one if the enterprise's loans from a financial institution (instead of money lenders, government, micro-finance, or family) are a major source of finance, and zero otherwise; *Enterprise Loan: EF*, which constructs the same variable for the sub-sample of firms seeking external finance;[13] *Total District Employment*, which is annual enterprise employment aggregated to the district-level, winsorized at the 10^{th} and 90^{th} percentiles; and, *Total Enterprise Employment: EF*, which is the annual total number of employees at the firm-level for the sub-sample of firms that seek external sources of finance. We report summary statistics for these variables in Appendix Table A8. To assess the influence of bank expansion on access to institutional finance for formal and informal businesses, we adopt the categorization from the Sixth Economic Census, distinguishing between organized/formal sector firms (with 10 employees or more) and unorganized/informal sector firms (with fewer than 10 employees). Additionally, we classify enterprises into primary, secondary, and service-based sectors to investigate how bank expansion affects access to capital across these sectors. Summary statistics for loans from financial institutions as a major source of borrowing by treated and sectors is shown in Table A9.[14]

[13] We analyze a sub-sample of firms actively seeking external finance to assess the effect of bank expansion on financially constrained firms. This sub-sample includes firms that have borrowed from financial institutions, moneylenders, micro-finance institutions, government, employers, family, and others. Limiting the sample to firms in need of external finance does not introduce bias to the district-level RD design because the number of districts remains constant within this sub-sample.

[14] The heterogeneous analysis of enterprises does not introduce bias to the regression discontinuity (RD) design, as it does not reduce the number of districts under examination.

NFHS (2015-2016) provides data on household assets, including automobiles and homes. Each household asset is assigned a weight generated through principal component analysis, and we use the resulting asset scores to define household wealth quintiles.

3.4 Mapping and Timeline

India's district borders changed between the decadal censuses of 2001 and 2011. Census 2001 had 593 districts while Census 2011 had 640 districts. We use district boundaries from Census 2001. Economic Census, 2003 and IHDS, 2005 serve as the baseline for the RD design, and IHDS, 2012, Economic Census, 2013 and NFHS, 2015 serve as the endline to examine the causal effects. Figure 3 shows the timeline of the bank expansion policy and the data sets.

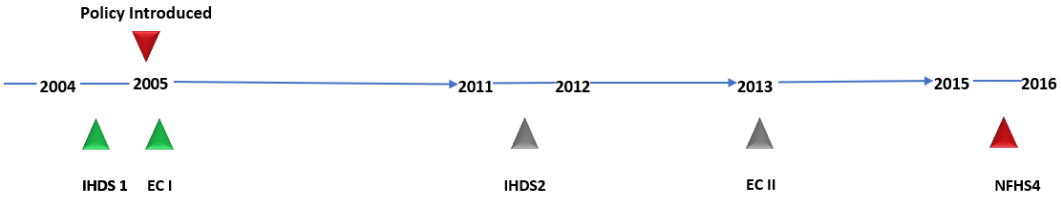


Figure 3: Timeline of data sets used in the study. The three main data sets used: IHDS (2005-2012), NFHS (2015) and EC (2005 and 2013).

4 Testing assumptions of the regression discontinuity model

We start by testing for pre-policy smoothness in bank branches and licenses, and household and firm-level outcomes. Table 1 describes the mean values of the outcome variables by treated and control groups in columns (1) and (2) respectively, and the mean values of the outcomes within the optimal bandwidth in columns (3) and (4). In column (5), we report the fuzzy RDD coefficients pre-policy to show pre-policy smoothness in outcomes across treated and control group districts. The reported results in Panel A show that prior to the policy, treated districts do not have significantly higher bank branches or licenses than control group districts. Similarly, household well-being measures, financial outcomes, and firm level outcomes do not vary significantly between treated and control districts in the pre-policy period. The differences in mean values between

treated and control districts decrease within the optimal bandwidth, providing empirical support for the choice of the bandwidth (Imbens and Lemieux, 2008).

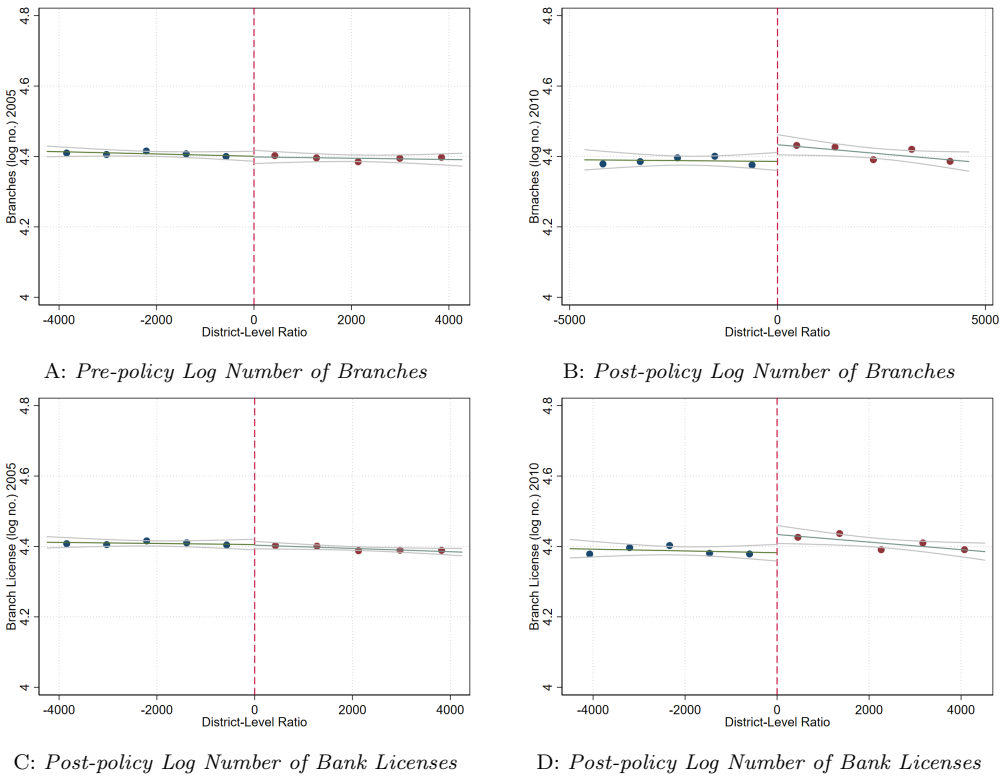
The assumption of continuity of all characteristics in the sample would be violated if agents manipulate the population to bank ratio in the district. However, such manipulation is unlikely since the district population is derived from the 2001 census, which was several years prior to the conception of the policy by the RBI in 2005. The number of branches a bank has in the district is recorded by the central bank, and unlikely to be manipulated.

Another potential threat to identification is potential household migration to underbanked districts. Table A10 shows that there is negligible and insignificant household migration into underbanked districts. We also test if the heterogeneity analysis of rural and urban areas satisfy the assumptions of the RD design (Feir, Lemieux, and Marmer, 2016; Hsu and Shen, 2019). To address this we test for non-random distribution of the rural-urban sample. In Appendix Table A11, we show that the treatment effect is not conditional on the rural or urban sub-samples and sub-sample analysis does not pose a threat to the identification. Lastly, Cramer (2020) shows that there is no correlation between the 2005 RBI policy and contemporaneous policies that may confound the effects of bank presence.

4.1 Impact of the bank expansion policy on bank branches

We examine if the bank expansion policy has a significant impact on the number of physical branches and the number of licenses issued to banks. The results from estimating specification (2) with branches and licenses as the outcome variables are reported in Table 2. Columns (1) and (2) report the pre-policy estimates and columns (3) and (4) report the post-policy estimates. The results show that pre-policy, there is no difference in the number of bank branches and licenses between treated and control districts (columns (1) and (2)). Post-policy, banks open more branches (column (3)) and are issued more licenses in treated districts (column (4)). For example, we observe an increase of 19% in bank branches and 21% in bank licenses five years after the policy.

Figure 4 shows the RD graph for branches and licenses within the optimal bandwidth for the pre-policy period (left) and the post-policy period (right). Figure 4A shows pre-policy smoothness



A: *Pre-policy Log Number of Branches*

B: *Post-policy Log Number of Branches*

C: *Post-policy Log Number of Bank Licenses*

D: *Post-policy Log Number of Bank Licenses*

Figure 4: Pre- and post-policy RD estimates of impact on bank branches and licenses. These graphs show binned means and local linear polynomials to the left and right of the cutoff within the optimal bandwidth, with 99% confidence intervals. The cutoff is normalized to zero. Panels A and C show pre-policy smoothness, and Panels B and D show post-policy discontinuity in bank branches and bank licenses, respectively.

in bank branches before 2005, and Figure 4B shows a discontinuous jump post-policy in 2010. Figures 4C and D show a similar pre- and post-policy pattern for branch licenses. The policy had an immediate effect on branch licenses once the list of underbanked districts was released in early 2006, and a lagged effect on the number of banks, occurring mainly after 2007. Bank branch openings and licenses decrease post 2010 at the district level because of the RBI's shift from promoting bank expansion at the district level to expansion at the village/town level (RBI, 2016). We show the dynamic trend in bank branches and licenses post-policy graphically in Appendix Figure A5.

The bank branch expansion policy also affected the credit supply and deposits of commercial banks in treated underbanked districts. In Appendix Figure A4A and A4B we show the RD esti-

mates of the percentage increase in credit and deposits, respectively, of all scheduled commercial banks in the pre- and post-treatment periods. The estimates are not statistically significant but the graphs show a post-policy upward trend in total bank credit and deposits in treated districts. In the heterogeneity analysis we show that credit and deposits increase in treated urban districts.

5 Impact of bank expansion on household well-being

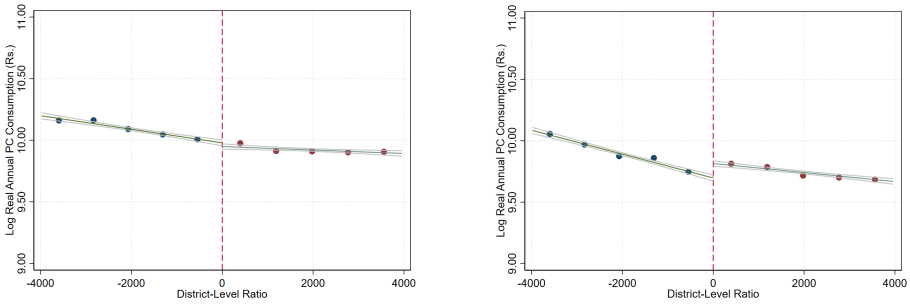
In this section we study the causal impact of the bank branch expansion policy on household well-being. We report the results from estimating the RD regression described in specification (2) in Table 3 using the following outcome variables: *Consumption Expenditures*, which are annual real household expenditures on consumption; *Food Consumption*, which are annual real household expenditures on food items; *Poverty (0/1)*, which is an indicator variable that is equal to 1 if the household is below the state-level poverty line, and zero otherwise; and, *Motor Vehicle Ownership*, which is an indicator variable that is equal to 1 if the household owns a motor vehicle, and 0 otherwise.

The estimates reported in column (1) of Table 3 show pre-policy smoothness between treated and control group households for all the well-being measures. From column (2) of Panels A and B, we observe that in the post-policy period, households in treated districts had 13% higher real consumption expenditures and 9% higher real food expenditures than the control group, relative to the sample mean. In column (2) of Panel C, we find a negative but insignificant effect on the likelihood of treated households being below the poverty line, compared to the control group.[15] Lastly, from the results reported in column (2) of Panel D we note that households in treated districts have a 9% higher likelihood of owning a motor vehicle than the control group, relative to the sample mean.

In Figure 5 we graphically show the pre-policy smoothness and post-policy discontinuities in the household well-being measures. The graphs indicate a discontinuity in unconditional measures of household well-being including *Consumption Expenditures* (Panel B), *Food Consumption* (Panel D), and *Motor Vehicle Ownership* (Panel H).

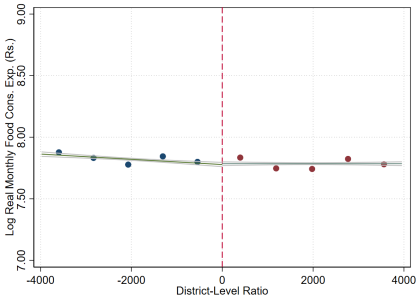
The panel household survey data also allows us to estimate pre- and post-policy differences

[15] Below, we show that bank expansion reduces poverty for urban households.

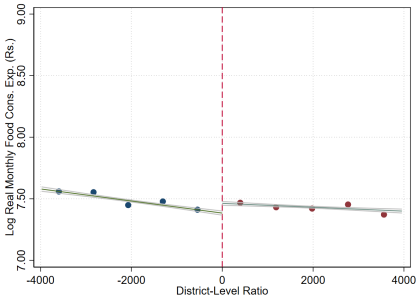


A: *Pre-policy Consumption Expenditures*

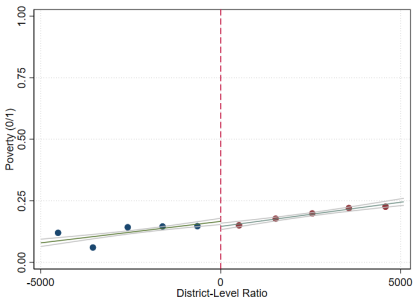
B: *Post-policy Consumption Expenditures*



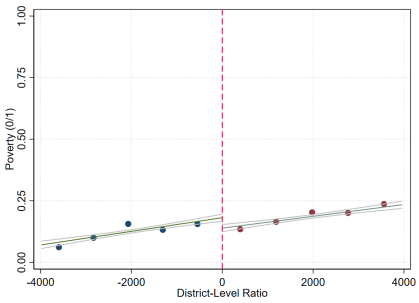
C: *Pre-policy Food Consumption*



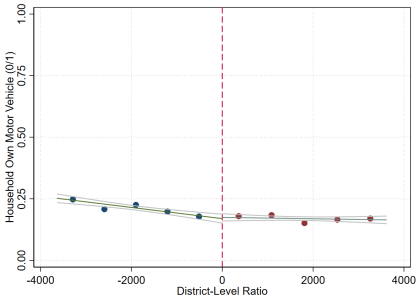
D: *Post-policy Food Consumption*



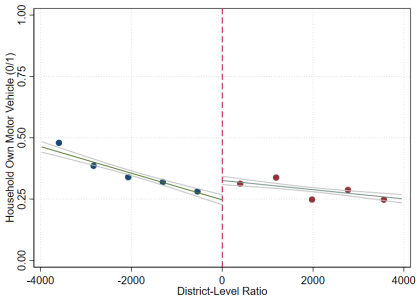
E: *Pre-policy Poverty (0/1)*



F: *Post-policy Poverty (0/1)*



G: *Pre-policy Motor Vehicle Ownership (0/1)*



H: *Post-policy Motor Vehicle Ownership (0/1)*

Figure 5: Pre-policy smoothness and post-policy discontinuity for household well-being outcomes. These graphs show binned means to the left and right of the cutoff, within the optimal bandwidth. Local linear polynomials to the left and right of the cutoff, with 95 percent confidence intervals. The cutoff is normalized to zero.

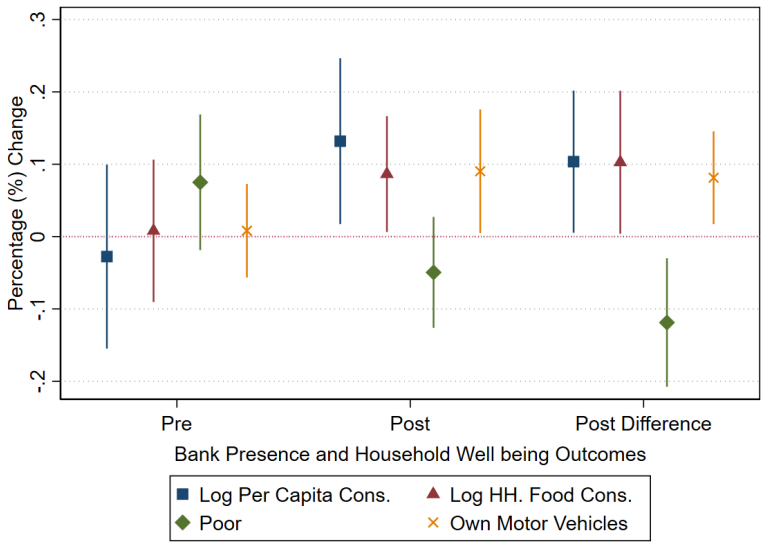


Figure 6: Pre-policy and post-policy differences in treatment on household well-being outcomes.

in household well-being outcomes. Unique to the empirical literature, we compare fixed effects estimates in a RD framework and graphically describe the results in Figure 6. We use the first difference of the outcome variable to measure the growth rates of *Consumption Expenditures*, *Food Consumption*, *Poverty*, and *Motor Vehicle Ownership* in the pre-treatment period. Figure 6 shows that the policy significantly increases the growth rates of consumption and food expenditures, reduces the likelihood of being poor, and increases the likelihood of owning a motor vehicle. These estimates provide additional support for the post-policy cross-sectional estimates reported in Table 3.

5.1 Does bank expansion increase household borrowing?

According to the "household demand" channel, financial inclusion increases household well-being by facilitating household borrowing. To study whether the bank branch expansion policy increases household borrowing, we estimate the RD regression described in specification (2) with the following household borrowing outcomes: *Monthly Interest Loan*, which is the interest paid monthly on outstanding loans by households in percentage; *Number of Loans*, which is the total

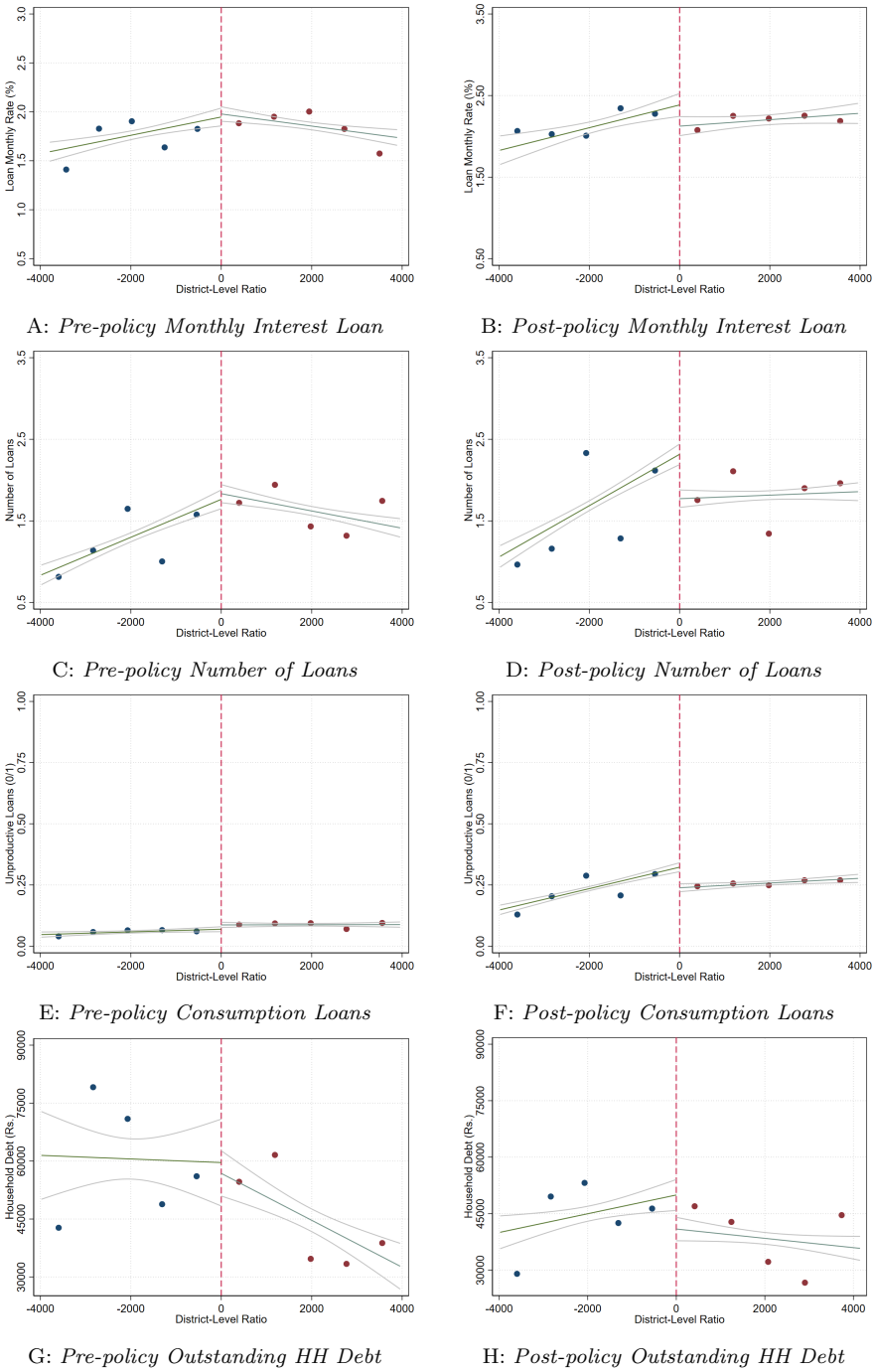
number of loans that households have taken over the previous five years; *Consumption Loans*, which is an indicator variable that is equal to one if the household has taken a loan for wedding or medical expenses, and zero otherwise; and, *Outstanding HH debt*, which is total real outstanding household debt in rupees. The results are reported in Table 4.

Column (1) of Table 4 shows that in the pre-policy period the outcome variables are not significantly different between treated and control group districts. Column (2) shows the post-policy estimates of the treatment effect for all outcome variables. We find that bank branch expansion does not increase borrowing by households. For example, in Panel A we find that in the post-policy period treated households pay 23% (0.5 percentage points) lower monthly interest than the control group, relative to the sample mean. In column (2), Panels B and C of Table 4 we show that treated households do not take out more loans than the control group, and are 8.2% significantly less likely to borrow money to finance consumption expenses like weddings and medical expenditures. We also find that household debt does not increase for treated households in Panel D, column (2). We graphically describe the pre-policy smoothness and post-policy discontinuity for the household borrowing measures in Figure 7. The graphs show clear post-policy discontinuities in *Monthly Interest Loan*, *Number of Loans*, *Consumption Loans*, and *Outstanding HH Debt*.

5.2 Impact of bank expansion on household savings and investments

In Table 5 we study the impact of the bank expansion policy on household savings and investment. We estimate specification (2) using the following outcome variables: *Bank Savings*, which is equal to one if the household has a savings or current account with a bank, and zero otherwise; *Insurance*, which is equal to one if the household head has a life insurance product from the government or private sources, and zero otherwise; *Securities*, which is equal to one if the household has bought any assets in Mutual Funds, Unit Trust, Share Market, Bonds, or Post Office Accounts, and zero otherwise; and *Long Term Deposits*, which is equal to one if the household has a fixed deposit (long-term interest bearing) account with a bank, a pension fund, or other savings schemes.

From columns (1) and (3) of Table 5, we observe that treated households have a 21.3 percentage points higher likelihood of having a savings account, and 9.8 percentage points higher likelihood



A: *Pre-policy Monthly Interest Loan*

B: *Post-policy Monthly Interest Loan*

C: *Pre-policy Number of Loans*

D: *Post-policy Number of Loans*

E: *Pre-policy Consumption Loans*

F: *Post-policy Consumption Loans*

G: *Pre-policy Outstanding HH Debt*

H: *Post-policy Outstanding HH Debt*

Figure 7: Pre-policy smoothness and post-policy discontinuity for household borrowing measures. These graphs show binned means to the left and right of the cutoff, within the optimal bandwidth, and local linear polynomials to the left and right of the cutoff, with 95% confidence intervals. The cutoff is normalized to zero.

of opening up a long-term interest bearing account, compared to control group households. In columns (2) and (4), we find that the likelihood of buying insurance and of investing in securities are higher for treated households but not significantly different at conventional levels from the control group.[16] Overall, our results show that bank expansion facilitates savings and investments by households, providing households with additional funds for consumption expenditures.

6 Labor Market Effects of the Bank Expansion Policy

In this section we investigate the "business finance" view that expanding bank access may benefit households through the labor market. We start by showing the impact of the bank expansion policy on household wage earnings and household-owned business earnings, and then study the impact on enterprise borrowing and employment using data on the universe of Indian firms.

6.1 Impact of bank expansion on household income

To study the impact of bank expansion on household income, we estimate specification (2) using the following outcome variables: *Household Earnings*, which is real annual household wage income from employment; and, *Business Revenues*, which are annual real revenues earned by household-owned small businesses. The results are reported in Table 6, Panels A and B. Column (1) of Table 6 reports pre-policy covariates, which show that there are no significant differences in wage income and business revenues between treated and control group households in the pre-policy period. Column (2) shows the estimated post-policy differences between treated and control groups.

The results reported in column (2) of Table 6, Panel A show that wage income from employment, *Household Earnings*, is 15% higher for treated households compared to the control group. The results reported in column (2) of Panel B show that post-policy, the revenues of household-owned small businesses are 60% higher for treated households compared to the control group. These results show that bank expansion increases household income, which can fund the increase in consumption expenditures.

[16] All investment measures are significantly higher for urban households as we show below.

6.2 Impact of bank expansion on enterprise borrowing and employment

To investigate the "business finance" mechanism, we use census data on the universe of Indian firms, and study the impact of the bank expansion policy on firm level borrowing and employment. The results from estimating specification 2 are reported in Table 7.

We measuring firm-level borrowing using *Enterprise Institutional Loan*, which is an indicator variable equal to one if loans from a financial institution (instead of money lenders, government sources, micro-finance, and family) are a major source of borrowing for the firm, and zero otherwise. Results for the full sample are reported in Panel A, and for a sub-sample of financially constrained firms in Panel B. The results reported in column (1), Panels A and B show that the likelihood of relying on a bank loan as the major source of borrowing does not differ significantly between treated and control group enterprises in the pre-policy period. From column (2) of Panel A, we observe that the likelihood of relying on financial institution loans as the main source of external funds is higher for treated firms, although the difference is not statistically significant.[17]

In Panel B, we focus on the sub-sample of financially constrained firms that seek external finance from any source.[18] The results show that post-policy, treated firms are 58% more likely than control group firms to rely on financial institution loans as a major source of external funds.

Lastly, in Panels C and D of Table 7 we investigate the impact of the bank expansion policy on total employment aggregated to the district level for the full sample of firms (*Total District Employment*, and total employment at the firm level (*Total Enterprise Employment:EF*) for the sub-sample of financially constrained firms, respectively. Column (1) shows pre-policy smoothness of the employment variables. Column (2) of Panel C shows a positive impact on aggregate employment in treated districts, although this is not significant at conventional levels. Focusing on financially constrained firms in Panel D, the results in column (2) show that treated firms that seek external funding employ 25% more workers compared to control group firms that seek external funding, relative to the sample mean.

Our results support the "business finance" mechanism that bank expansion increases firm-

[17] Table 11 we show that treated urban enterprises are significantly more likely to borrow from financial institutions in the post-policy period.

[18] The identification strategy is identical to that of the full sample since we compare the sub-sample of firms that borrow from any source (banks, government, money lenders, micro-finance, and family) in treated districts to the sub-sample in control group districts, within the optimal bandwidth.

level borrowing and employment, which benefits households via an increase in jobs and income. Instead of borrowing to finance consumption expenditures, the increase in income due to bank expansion reduces household reliance on debt.

7 Heterogeneity in impact of bank expansion

7.1 Urban and rural households

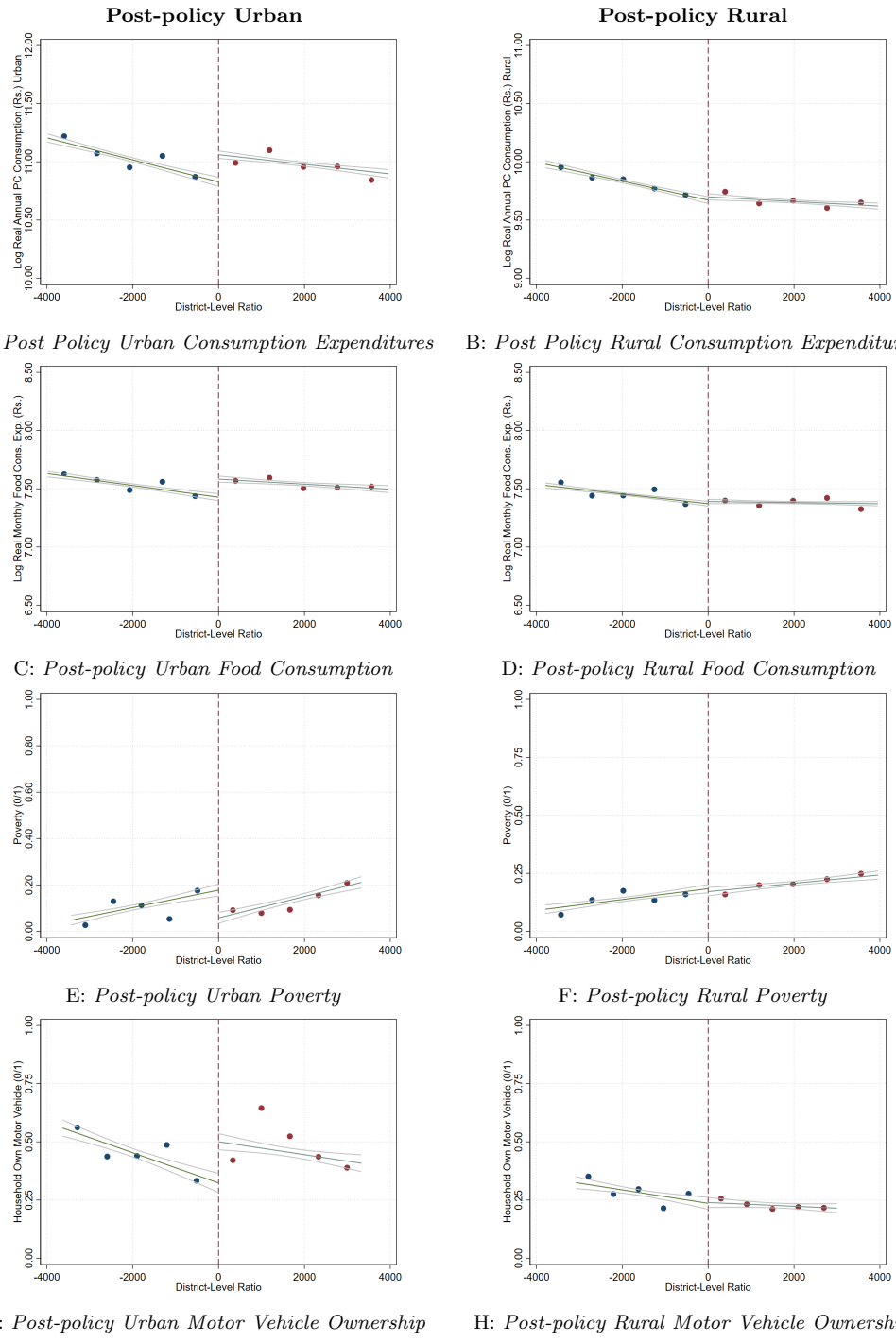
Does a nationwide expansion in bank branches have a similar impact on rural and urban households? We investigate the impact of the bank expansion policy on the financial well-being of rural and urban households and report the results in Table 8.

Column (1) of Table 8 shows pre-policy smoothness in the household well-being measures in the rural and urban sub-samples, and, column (2) reports the post-policy estimates. Our results show a stark difference in the impact of bank expansion on rural versus urban households. The results for the rural household sub-sample reported in column (3) show that bank expansion did not have a significant impact on the well-being of rural households.

In contrast, the results for the urban sub-sample reported in column (4) show that the bank expansion policy significantly increased real consumption expenditures (Panel A) and food consumption (Panel B), reduced the likelihood of being poor (Panel C), and increased the likelihood of owning a motor vehicle (Panel D) for treated urban households compared to urban households in the control group. The economic magnitude of these effects for urban households are also larger than those reported for the full sample in Table 3. For example, treated urban households are 10% less likely to be below the poverty line compared to urban households in the control group, whereas the impact on poverty was not significant in the full sample (Table 3).

In Figure 8 we graphically show the post-policy discontinuities in the household well-being measures in rural and urban areas. The figures show no clear discontinuities in outcomes in rural areas, but clear discontinuities in urban areas. Appendix Figure A7 shows the pre-policy smoothness in the outcome variables for the rural and urban sub-samples.

In contrast to existing studies, which find that targeted credit programs can benefit rural households (Breza and Kinnan, 2021; Barboni, Field, and Pande, 2022), we find that the benefits



A: *Post Policy Urban Consumption Expenditures*

B: *Post Policy Rural Consumption Expenditures*

C: *Post-policy Urban Food Consumption*

D: *Post-policy Rural Food Consumption*

E: *Post-policy Urban Poverty*

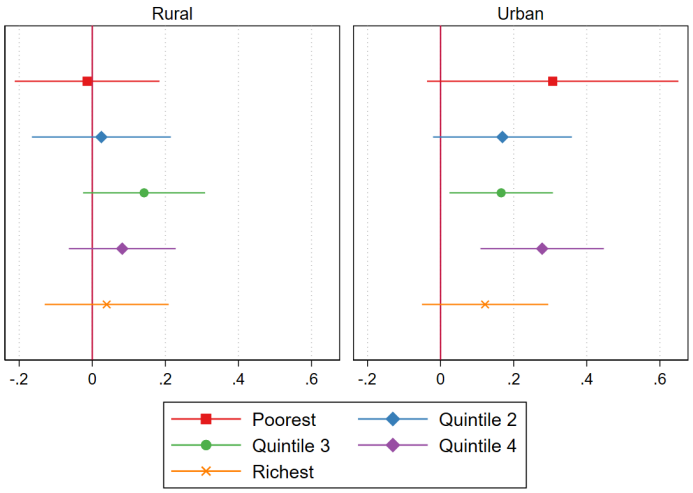
F: *Post-policy Rural Poverty*

G: *Post-policy Urban Motor Vehicle Ownership*

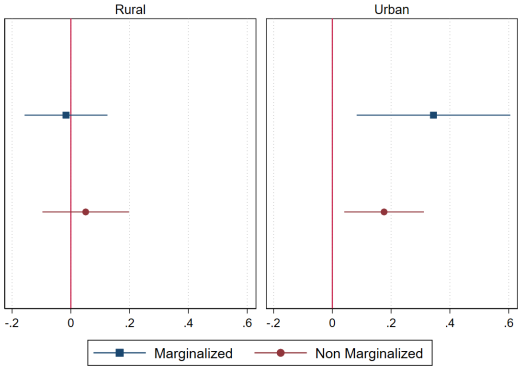
H: *Post-policy Rural Motor Vehicle Ownership*

Figure 8: Post-policy discontinuity in household well-being in urban and rural areas. These graphs show binned means to the left and right of the cutoff, within the optimal bandwidth, and local linear polynomials to the left and right of the cutoff, with 95% confidence intervals. The cutoff is normalized to zero.

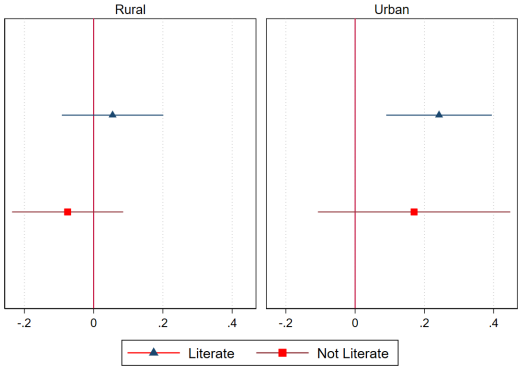
of expanding bank access at the national level are heavily skewed to urban households.



A: *Treatment Effect by Income Quintiles*



B: *Treatment Effect by Marginalization*



C: *Treatment Effects by Education*

Figure 9: Local average treatment effects on rural and urban households *Consumption Expenditures*. The figure shows the RD robust local average treatment effects of the bank expansion policy on (log) *Consumption Expenditures* of households in rural and urban areas by income quintile in Panel A, social group in Panel B, and literacy in Panel C. X-axis measures percentage (%) change.

Impact on households by income, social group, and education

We explore the heterogeneous impact of the branch expansion policy based on household income, marginalized social status, and education. Specifically we use income quintiles, where *Poorest* denotes households in the lowest income quintile; *Marginalization*, which categorizes marginalized households as those belonging to disadvantaged castes, aboriginal tribes, and mi-

nority religions; and *Literate*, which denotes whether the household has a literate adult.

In Figure 9 we graphically describe the local average treatment effect of the bank expansion policy on *Consumption Expenditures* in rural and urban areas, disaggregated by household income quintiles (Panel A), social group (Panel B), and education (Panel C). The percentage change in consumption expenditures is reported on the x-axis. Panel A shows that for all income quintiles, the impact of the policy is larger in urban areas than in rural areas. However, the poorest urban households have the greatest increase in consumption expenditures, whereas there is no effect on the poorest rural households (Panel A). Panel B shows that the policy increases the well-being of urban households belonging to marginalized groups, but has no impact on marginalized rural households. Lastly, Panel C shows that both literate and non-literate households increase consumption expenditures in the post-policy period, but the impact is larger for literate urban households in treated urban areas.

Impact on household borrowing in urban and rural areas

We also observe a heterogeneous impact of the bank expansion policy on borrowing by urban and rural households in Table 9. Columns (1) and (2) of Table 9 shows pre-policy smoothness in the outcome variables and columns (3) and (4) report the post-policy RD estimates for the rural and urban household sub-samples, respectively.

The results show that improvements in urban household well-being are not financed by an increase in borrowing and debt by urban households. The results reported in column (4) of Table 9 show that treated urban households pay lower interest (Panel A), have fewer loans (Panel B), take out fewer consumption loans (Panel C), and have lower outstanding aggregate debt (Panel D). Moreover, the economic magnitudes are higher for the urban sample than for the full sample reported in Table 4. In contrast, the results for the rural sub-sample reported in column (3) of Table 9 show no significant impact of bank expansion on the borrowing of treated rural households.

Lastly, we show similar effects on rural and urban savings and investments in Table 10. The results reported in Panel A show that following bank expansion, treated urban households are more likely to have a savings account, own insurance, have long term deposit accounts, and invest in securities, than urban households in the control group. In Panel B we note that treated rural households are more likely to have a savings account compared to the control group (column

(1)), but none of the other investment measures are significantly different. In Appendix Figure A6, we graphically show the post-policy discontinuity of the household investment measures in urban versus rural areas. We observe sharp post-policy discontinuities in the likelihood of having a savings account, insurance policies, long term deposit accounts, and securities for treated urban households compared to the control group.

7.2 Urban and Rural Firms

Is the differential impact on the well-being of rural versus urban households explained by differences in bank lending to rural versus urban firms? In Table 11, we study the likelihood that loans from a financial institution are the main source of borrowing for the firm. In Panel A we report results for the full sample of firms, and in Panel B we report results for the sub-sample of firms that seek external funds from all sources including banks, government, money lenders, etc. Column (1) reports the pre-policy coefficients and column (2) reports the post-policy coefficients from estimating specification (**??**).

The results reported in Table 11, Panel A show that post-policy, both treated rural and treated urban enterprises are significantly more likely to rely on institutional loans as a major source of finance, relative to the control group (columns (3) and (4)), although the change is considerably higher for urban firms. Comparing the results we note that while the magnitude of the coefficient is the same pre- and post-policy for rural firms, it is 14 times larger post-policy for urban firms. In Panel B of Table 11, we study the impact of the policy on borrowing for the sub-sample of financially constrained firms, and show that the likelihood that these firms rely on bank loans as a major source of external funds is higher for both rural and urban firms, but the estimate is considerably higher for urban firms.

Impact on urban and rural firm employment

We investigate if the heterogeneity in lending also generates differences in the employment of rural and urban firms. We describe the impact on aggregate employment at the district level in Panel A, and firm-level employment in financially constrained firms in Panel B of Table 12. Columns (1) and (2) show that there is no difference in the employment measures between treated and control groups in the pre-policy period. From Panel A column (4), we observe that aggregate

employment at the district-level is 88% higher in treated urban districts than in control group urban districts, relative to the mean. Total employment at the firm-level for external finance seeking urban firms is 30% higher for treated firms than the control group (Panel B, column (4)) The bank expansion policy does not have a significant impact on employment in rural firms (Panels A and B, column (3)).

In Panels C and D of Table 12, we study the impact of the policy on household employment earnings and the business revenues of household enterprises, respectively. Columns (1) and (2) show pre-policy smoothness in both variables. The results in column (4) of Panel C show that wage earnings are 22% higher for treated urban households than the control group in the post-policy period, but there is no impact on rural wage earnings (column (3)). The results in Panel D show that the policy led to significantly higher business revenues for treated household enterprises in both urban and rural districts (columns (3) and (4)), but the increase is larger for urban households. For example, for urban household-owned businesses, revenues are 9 times higher in the post-policy period (column (4)) compared to the pre-policy period (column (2)), whereas it is 1.5 times higher for rural household-owned businesses (columns (1) and (3)).

The results reported in Table 12 show that firms in treated urban areas earn higher revenues and employ significantly more workers, and urban households have higher employment earnings in the post-policy period. The policy has no impact on employment in treated rural areas. The heterogeneous labor market effects across rural and urban districts provides an explanation for why the bank expansion policy improves urban but not rural household well-being.

7.3 Sectoral impact of bank expansion

In India, over 80% of the workforce is employed in the unorganized sector, also known as the informal sector or the shadow economy, and most unorganized enterprises are in primary or agricultural sectors in rural areas. According to the International Labor Organization, the unorganized sector is less productive and pays lower wages than the organized sector in emerging markets (ILO, 2018). Additionally, Fan, Peters, and Zilibotti (2023) show that economic growth in India is driven by urbanization and growth in the service sector, which is more productive than the rural, agricultural sector. In this section we study whether bank expansion increases efficiency

in capital allocation by channeling capital to more productive firms.

We disaggregate the impact of the bank expansion policy on firm-level borrowing by the organized/unorganized status, location, and industry of firms and report the results in Table 13. The results reported in Panel A of Table 13 show that bank expansion increases the likelihood of relying on bank loans as the major source of funds by 4% for organized firms (column (1)), but has no impact on unorganized firms (column (4)).[19] Disaggregating by rural and urban location, we show that both organized and unorganized firms have a higher likelihood of relying on bank loans in urban districts (columns (3) and (6)), whereas only organized firms benefit in rural districts (column (2)).

In Panel B of Table 13, we study the impact of the bank expansion policy on the borrowing behavior of firms based on industry and rural-urban location. The results show that in rural districts, only service sector firms have a higher likelihood of relying on bank loans as the major source of external funds(column (3)), whereas urban firms across all sectors increase their reliance on bank loans (columns (4)-(6)).[20]

Studying the sectoral sources of economic growth in India, Fan, Peters, and Zilibotti (2023) show that higher productivity growth in the service sector drives improvements in living standards in India, and that the welfare gains are concentrated among urban households. Our results suggest a financial sector mechanism for urbanization and service sector growth. Specifically, we show that bank expansion channels credit to more productive urban firms in industrial and service sectors.

8 Robustness

8.1 Testing robustness of the regression discontinuity framework

We show that our results are robust to standard RD tests including quadratic estimations, placebo cut-off, bandwidth multiplier and bandwidth selector methods. First, in Appendix Tables A12–

[19] Identified in the Economic Census, *Unorganized Enterprise* is a dummy variable that is equal to 1 if the enterprise is not a registered enterprise, and zero otherwise. *Organized Enterprise* denotes enterprises that are registered with the government.

[20] Primary sectors include agriculture and mining; Secondary sectors include manufacturing, energy, construction, etc.; Services include trade, transportation, food services, information, finance, etc. These activities constituted 86% of national GDP in 2012.

A16, we report the results from estimating quadratic approximations of the RD coefficients (Gelman and Imbens, 2019). The results are similar to the linear estimates described in the main analysis. Second, we examine smoothness around placebo cut-offs by analyzing two placebo cut-offs on either side of the true cut-off (normalized to zero), i.e, -3000, -1000, 1000 and 3000 persons per branch. The results reported in the Appendix Tables A17 and A18 show that the RD estimates are not significant in any of the placebo cut-offs considered.

Third, we test the robustness of the estimates when using different bandwidths. We examine bandwidth multipliers in the range of 0.5 to 1.5. For instance, if the MSE-optimal bandwidth is 4,000 persons per branch, we examine bandwidths from 2,000 to 6,000 persons per branch. The results reported in Appendix Tables A19 and A20 show that the results are robust to using alternative bandwidths.

Fourth, we test the robustness of the bandwidth selectors and report the results in Appendix Tables A21 and A22. In the main results we use the default MSE-optimal bandwidth selector by Calonico et al. (2019); Calonico, Cattaneo, and Titiunik (2014) that chooses identical bandwidths to the left and right of the cut-off. In addition to the default bandwidth selector, we also use the two sided MSE-optimal selector which separately chooses optimal bandwidths to the left and right of the cut-off. Additionally, we use the selector suggested by Calonico, Cattaneo, and Farrell (2020) that optimizes the coverage error rate (CER), which measures the extent to which the bandwidths on both sides of the threshold point correctly cover observations that should be included in the analysis; and, the two-sided CER-optimal bandwidth selector, which seeks to minimize the coverage error rate on both sides of the threshold and takes into account the potential impact of confounding variables and covariates on treated assignment. This approach aims to strike a balance between minimizing bias and reducing variance in RD estimations. Table A21 and A22 show the results with different bandwidth selectors. The results are similar to the main analysis.

8.2 Regional Rural Banks and Living Standards Index

Since the 2005 bank expansion policy applied to scheduled commercial banks, not regional rural banks, we conduct a placebo test comparing the impact of the policy on regional rural banks in

treated and control group districts. The results reported in Appendix Table A23 show that the policy did not have a significant impact on the number of branches or the number of licenses issued to regional rural banks.

We also check the robustness of our results using an alternative measure of household well-being, the household living standard index from the National Family and Health Survey. The results from the linear estimates reported in Appendix Table A24 show that the bank expansion policy led to a significant increase in living standard for the full sample, and consistent with our main results, had a larger impact on urban households. Lastly, we aggregate the financial well-being outcomes at the community (village/primary sampling unit) and check for robustness in the policy impact. The results reported in Table A25 shows that bank presence has a significant positive impact on aggregate community well-being.

9 Conclusion

We use a nation-wide natural experiment to increase bank branches in underbanked areas in India to study the impact of financial inclusion on household financial well-being. Using a regression discontinuity design and rich panel data on a wide range of household financial well-being measures, we show that bank branch expansion has a significant positive impact on household consumption, savings, and investments, without increasing household borrowing or debt. Our findings shed light on the complex relationship between financial inclusion and household financial well-being. Studying the causal impact of bank expansion on households and firms, we show that financial inclusion has important spillover effects on the wider economy, which benefit households through increased employment and wages.

We also document heterogeneous impacts of bank expansion on households and firms. Our results show that the benefits of bank expansion are heavily skewed towards urban households, with no impact on rural households. We find that bank expansion channels capital to urban, organized firms in services and industrial sectors, and not to rural, unorganized firms in agriculture. Our results suggest a financial sector mechanism for urbanization and show that the bank expansion policy improved efficiency in capital allocation by channeling credit to more productive regions and firms.

References

Abadie, Alberto, Susan Athey, Guido W Imbens, and Jeffrey Wooldridge. 2023. "When should you adjust standard errors for clustering?" The Quarterly Journal of Economics 138 (1):1–35.

Anderson, Michael L. 2008. "Multiple inference and gender differences in the effects of early intervention: A reevaluation of the Abecedarian, Perry Preschool, and Early Training Projects." Journal of the American Statistical Association 103 (484):1481–1495.

Badarinza, Cristian, Vimal Balasubramaniam, and Tarun Ramadorai. 2019. "The household finance landscape in emerging economies." Annual Review of Financial Economics 11:109–129.

Bai, John, Daniel Carvalho, and Gordon M. Phillips. 2018. "The Impact of Bank Credit on Labor Reallocation and Aggregate Industry Productivity." The Journal of Finance 73 (6):2787–2836. URL https://onlinelibrary.wiley.com/doi/abs/10.1111/jofi.12726.

Barboni, Giorgia, Erica Field, and Rohini Pande. 2022. "Rural Banks Can Reduce Poverty: Experimental Evidence from 870 Indian Villages." Working Paper .

Beck, Thorsten, Asli Demirgüç-Kunt, and Ross Levine. 2007. "Finance, inequality and the poor." Journal of Economic Growth 12 (1):27–49.

Beck, Thorsten, Asli Demirgüç-Kunt, and Vojislav Maksimovic. 2004. "Bank competition and access to finance: International evidence." Journal of Money, Credit and Banking :627–648.

Black, Sandra E and Philip E Strahan. 2002. "Entrepreneurship and bank credit availability." The Journal of Finance 57 (6):2807–2833.

Breza, Emily and Cynthia Kinnan. 2021. "Measuring the equilibrium impacts of credit: Evidence from the Indian microfinance crisis." The Quarterly Journal of Economics 136 (3):1447–1497.

Brown, James R, J Anthony Cookson, and Rawley Z Heimer. 2019. "Growing up without finance." Journal of Financial Economics 134 (3):591–616.

Bruhn, Miriam and Inessa Love. 2014. "The real impact of improved access to finance: Evidence from Mexico." The Journal of Finance 69 (3):1347–1376.

Burgess, Robin and Rohini Pande. 2005. "Do rural banks matter? Evidence from the Indian social banking experiment." American Economic Review 95 (3):780–795.

Calonico, Sebastian, Matias D Cattaneo, and Max H Farrell. 2020. "Optimal bandwidth choice for robust bias-corrected inference in regression discontinuity designs." The Econometrics Journal 23 (2):192–210.

Calonico, Sebastian, Matias D Cattaneo, Max H Farrell, and Rocio Titiunik. 2019. "Regression discontinuity designs using covariates." Review of Economics and Statistics 101 (3):442–451.

Calonico, Sebastian, Matias D Cattaneo, and Rocio Titiunik. 2014. "Robust nonparametric confidence intervals for regression-discontinuity designs." Econometrica 82 (6):2295–2326.

Cattaneo, Matias D, Luke Keele, and Rocio Titiunik. 2021. "Covariate Adjustment in regression discontinuity designs." arXiv preprint arXiv:2110.08410 .

Cattaneo, Matias D and Rocio Titiunik. 2022. "Regression discontinuity designs." Annual Review of Economics 14:821–851.

Cattaneo, Matias D and Gonzalo Vazquez-Bare. 2017. "The choice of neighborhood in regression discontinuity designs." Observational Studies 3 (2):134–146.

Célerier, Claire and Adrien Matray. 2019. "Bank-branch supply, financial inclusion, and wealth accumulation." Review of Financial Studies 32 (12):4767–4809.

Cetorelli, Nicola and Michele Gambera. 2001. "Banking market structure, financial dependence and growth: International evidence from industry data." The Journal of Finance 56 (2):617–648.

Chodorow-Reich, Gabriel. 2014. "The employment effects of credit market disruptions: Firm-level evidence from the 2008–9 financial crisis." The Quarterly Journal of Economics 129 (1):1–59.

Cramer, Kim Fe. 2020. "Bank Presence and Health." Available at SSRN .

Dehejia, Rajeev and Nandini Gupta. 2022. "Financial Development and Micro-Entrepreneurship." Journal of Financial and Quantitative Analysis 57 (5):1834–1861.

Desai, Sonalde and Reeve Vanneman. 2018. "National Council of Applied Economic Research, New Delhi. India Human Development Survey (IHDS), 2012." Ann Arbor, MI: Inter-university Consortium for Political and Social Research, University of Michigan .

Dubey, Tamanna Singh and Amiyatosh Purnanandam. 2023. "Can Cashless Payments Spur Economic Growth?" Working Paper .

Fan, Tianyu, Michael Peters, and Fabrizio Zilibotti. 2023. "Growing Like India—the Unequal Effects of Service-Led Growth." Econometrica 91 (4):1457–1494.

Feir, Donna, Thomas Lemieux, and Vadim Marmer. 2016. "Weak identification in fuzzy regression discontinuity designs." Journal of Business & Economic Statistics 34 (2):185–196.

Fonseca, Julia and Adrien Matray. 2022. "The real effects of banking the poor: Evidence from brazil." National Bureau of Economic Research, Working Paper 30057 .

Fulford, Scott L. 2013. "The effects of financial development in the short and long run: Theory and evidence from India." Journal of Development Economics 104:56–72.

Gelman, Andrew and Guido Imbens. 2019. "Why high-order polynomials should not be used in regression discontinuity designs." Journal of Business & Economic Statistics 37 (3):447–456.

Heyes, Anthony and Soodeh Saberian. 2022. "Hot Days, the ability to Work and climate resilience: Evidence from a representative sample of 42,152 Indian households." Journal of Development Economics 155:102786.

Hsu, Yu-Chin and Shu Shen. 2019. "Testing treatment effect heterogeneity in regression discontinuity designs." Journal of Econometrics 208 (2):468–486.

ILO. 2018. "Women and Men in the Informal Economy: A Statistical Picture (Third Edition)." Tech. rep., International Labour Organization, Geneva.

Imbens, Guido and Karthik Kalyanaraman. 2012. "Optimal bandwidth choice for the regression discontinuity estimator." Review of Economic Studies 79 (3):933–959.

Imbens, Guido W and Thomas Lemieux. 2008. "Regression discontinuity designs: A guide to practice." Journal of Econometrics 142 (2):615–635.

Jayaratne, Jith and Philip E Strahan. 1996. "The finance-growth nexus: Evidence from bank branch deregulation." The Quarterly Journal of Economics 111 (3):639–670.

Khanna, Gaurav and Priya Mukherjee. 2023. "Political accountability for populist policies: Lessons from the world's largest democracy." Journal of Public Economics 219:104819.

Kochar, Anjini. 2011. "The distributive consequences of social banking: A microempirical analysis of the Indian experience." Economic Development and Cultural Change 59 (2):251–280.

Lee, David S and Thomas Lemieux. 2010. "Regression discontinuity designs in economics." Journal of Economic Literature 48 (2):281–355.

Levine, Ross and Sara Zervos. 1998. "Stock Markets, Banks, and Economic Growth." The American Economic Review 88 (3):537–558.

McCrary, Justin. 2008. "Manipulation of the running variable in the regression discontinuity design: A density test." Journal of Econometrics 142 (2):698–714.

Mian, Atif and Amir Sufi. 2018. "Finance and business cycles: The credit-driven household demand channel." Journal of Economic Perspectives 32 (3):31–58.

Mian, Atif, Amir Sufi, and Emil Verner. 2019. "How Do Credit Supply Shocks Affect the Real Economy? The Productive Capacity and Household Demand Channels." The Journal of Finance .

Panagariya, Arvind. 2008. India: The emerging giant. Oxford University Press.

Petersen, Mitchell A and Raghuram G Rajan. 1995. "The effect of credit market competition on lending relationships." The Quarterly Journal of Economics 110 (2):407–443.

RBI. 2016. "Report on Trend and Progress of Banking in India, 2015–16." .

Suri, Tavneet, Prashant Bharadwaj, and William Jack. 2021. "Fintech and household resilience to shocks: Evidence from digital loans in Kenya." Journal of Development Economics 153:102697.

World Bank. 2021. "Global Findex Database 2021." URL https://globalfindex.org/. Retrieved August 28, 2023.

Young, Nathaniel. 2017. "Banking and growth: Evidence from a regression discontinuity analysis." .

Table 1: Smooth Pre-policy Covariates

Table 1 shows descriptive statistics for the main outcome variables for treated and control groups in the pre-policy period for the full sample (columns (1) and (2), and the sub-sample within the RD robust optimal bandwidth (columns (3) and (4)). The estimated RDD coefficients for each outcome variable are reported in columns (5). *Bank Branches 2005* is the natural log of the number of commercial banks in treated and control districts in 2005. *Branch Licenses 2005* are the number of bank branch licenses issued by the RBI to commercial banks. *Consumption Expenditures* is real annual per capita household consumption expenditures in Rupees; *Food consumption* is real annual expenditures on food in Rupees; *Poverty* is an indicator variable equal to one if the household is below the state poverty line, and zero otherwise; *Motor Vehicle Ownership* is an indicator variable that is equal to one if the household owns a motor vehicle, and zero otherwise; *Monthly Interest Loan (%)* is the monthly interest paid by households on outstanding debt; *Number of Loans* is the total number of loans taken by the household; *Consumption Loans* is an indicator variable that is equal to one if the household has taken a loan for wedding or medical expenses, and zero otherwise; *Insurance* is an indicator variable that is equal to one if the household has a life insurance policy, and zero otherwise; *Outstanding HH Debt* is household debt in Rupees; *Enterprise Institutional Loans* is an indicator variable that is equal to one if an enterprise has an institutional loan, and zero otherwise; *Total District Employment* is enterprise employment aggregated to the district-level; *Household Earnings* is real annual earnings of households from wage or salary work in Rupees; *Business Revenues* is real annual business receipts of household-owned enterprises, in Rupees. Standard errors in parentheses are clustered at the district level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

	All observations		Within Bandwidth		RDD
	Treated	Control	Treated	Control	Coefficient
	(1)	(2)	(3)	(4)	(5)
Banks					
Bank Branches 2005 (log no.)	3.54	4.13	3.77	4.12	0.02
	(1.05)	(1.19)	(0.98)	(1.17)	(0.03)
Branch Licenses 2005 (log no.)	3.56	4.14	3.81	4.13	0.01
	(1.01)	(1.24)	(0.97)	(1.17)	(0.03)
Household Well-being					
Consumption Expenditures (Rs.)	22,426	28,615	23,385	27,307	-104
	(13,413)	(15,303)	(13,800)	(14,543)	(1759)
Food Consumption (Rs.)	2,555	2,721	2,551	2,655	11
	(874)	(862)	(875)	(874)	(142)
Poverty (0/1)	0.29	0.13	0.28	0.16	0.07
	(0.45)	(0.34)	(0.45)	(0.36)	(0.05)
Motor Vehicle Ownership (0/1)	0.13	0.23	0.17	0.21	0.00
	(0.34)	(0.42)	(0.38)	(0.40)	(0.04)
Household Savings and Investment					
Monthly Interest Loan (%)	2.21	1.76	2.01	1.76	-0.31
	(2.10)	(1.67)	(1.71)	(1.70)	(0.35)
Number of Loans	1.65	0.93	1.73	1.18	0.183
	(2.96)	(2.03)	(2.47)	(3.14)	(0.823)
Consumption Loans (0/1)	0.09	0.06	0.09	0.06	0.028
	(0.28)	(0.23)	(0.28)	(0.23)	(0.029)
Insurance (0/1)	0.18	0.24	0.19	0.21	-0.00
	(0.38)	(0.43)	(0.39)	(0.40)	(0.03)
Outstanding HH Debt (Rs.)	30,810	39,904	35,368	42,232	12,076
	(67,050)	(86,116)	(75,008)	(88,442)	(10,187)
Enterprise Employment and Borrowing					
Enterprise Institutional Loans	0.03	0.04	0.03	0.03	0.00
	(0.16)	(0.19)	(0.18)	(0.18)	(0.01)
Total Employment Enterprises (District)	74,953	110,013	94,617	122,288	-3,348
	(97,003)	(72,015)	(83,140)	(94,115)	(29,801)
Employment Earnings (Rs.)	23,211	28,225	24,407	26,831	3,485
	(21,259)	(25,342)	(22,413)	(23,759)	(2,823)
Business Revenues (Rs.)	109,934	139,083	117,314	127,758	38,098
	(105,728)	(112792)	(107,391)	(110,699)	(36,053)

Table 2: Impact of Bank Branch Expansion on Branch Openings and Bank Licenses

Table 2 reports results from the RD robust regression of the impact of the bank expansion policy on *Bank Branches* and *Bank Licenses* in the pre-policy period (columns (1) and (2)) and post-policy period (columns (3) and (4). Below and in subsequent tables, 'Treated' reports the main coefficient of interest, β_1 from equation 2, for treated districts. 'Control mean' indicates the average value of the outcome variable in control districts; 'Two-stage q-values' are used to reduce the likelihood of false rejections Anderson (2008); 'First stage coefficient,' denoted as γ_1 in equation 2, measures the likelihood of being treated; 'Bandwidth' reports the number of efficient observations within the RD robust optimal bandwidth;'Efficient obs' reports the total sample size after conditioning on the optimal bandwidth; Baseline control variables include the number of bank branches and licenses in a district in 1997. Standard errors, shown in parentheses, are clustered at the district level. Significance levels are indicated by $*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

	Pre-Policy (2004)		Post-Policy (2010)	
	Bank Branches (Log no.)	Bank Licenses (Log no.)	Bank Branches (Log no.)	Bank Licenses (Log no.)
	(1)	(2)	(3)	(4)
Treated	0.013	0.015	0.192**	0.219***
	(0.029)	(0.031)	(0.087)	(0.079)
Control mean	4.13	4.05	4.39	4.38
Two stage q values	0.387	0.551	0.019	0.003
First Stage	0.77	0.78	0.78	0.78
Bandwidth	4,664	4,420	4,586	4,369
Efficient obs.	270	269	289	285
Baseline Control	Y	Y	Y	Y
Observations	576	576	571	576

Table 3: Impact of Bank Branch Expansion on Household Well-being

Table 3 reports results from the RD robust regression of the impact of the bank expansion policy on household well-being in the pre-policy period in column (1) and the post-policy period in column (2). *Consumption Expenditures* is real annual per capita household consumption expenditures in Rupees; *Food consumption* is real annual expenditures on food in Rupees; *Poverty* is an indicator variable equal to one if the household is below the state poverty line, and zero otherwise; and, *Motor Vehicle Ownership* is an indicator variable that is equal to one if the household owns a motor vehicle, and zero otherwise. Standard errors, indicated in parentheses, are clustered at the district level. Significance levels are $*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

	(1)	(2)
	Pre Policy	Post Policy
A: *Consumption Expenditures (Rs.)*		
Treated	-104.6	3,095**
	(1,759)	(1,468)
Control Mean	28615	23,858
Two Stage q values	0.788	0.044
First Stage	0.80	0.79
Bandwidth	4,691	4,299
Efficient Obs.	18,163	19,030
Observations	32,187	31,789
B: *Food Consumption (Rs.)*		
Treated	11.14	169.23*
	(142.6)	(98)
Control Mean	2721	1,947
Two Stage q values	0.822	0.043
First Stage	0.79	0.81
Bandwidth	4,585	4,725
Efficient Obs.	17,993	17,113
Observations	31,891	28,628
C: *Poverty (0/1)*		
Treated	0.0758	-0.040
	(0.0534)	(0.040)
Control Mean	0.133	0.122
Two Stage q values	0.341	0.187
First Stage	0.79	0.77
Bandwidth	5,131	4,150
Efficient Obs.	23,766	20,099
Observations	39,973	39,994
D: *Motor Vehicle Ownership*		
Treated	0.00809	0.090*
	(0.0393)	(0.052)
Control Mean	0.238	0.36
Two Stage q values	0.826	0.063
First Stage	0.79	0.75
Bandwidth	4,719	3,557
Efficient Obs.	22,764	18,463
Observations	39,933	39,998

Table 4: Impact of Bank Branch Expansion on Household Borrowing

Table 4 reports results from the RD robust regression of the impact of the bank expansion policy on household borrowing and debt. *Monthly Interest on Loan* measures percentage of interest on loan paid monthly on an outstanding loan by households; *Number of Loans* measures the total number of loans that households have taken in the past five years; *Consumption Loans* is a binary variable with value one if household is has taken a loan for wedding or medical reasons, and zero otherwise; and, *Outstanding HH debt* in Rupees is the total amount of debt that a household owes to others. Standard errors in parentheses clustered at the district level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

	(1)	(2)
Variables	Pre-Policy	Post-Policy
A: *Monthly Interest Loan (%)*		
Treated	-0.312	-0.503*
	(0.350)	(0.287)
Control Mean	1.761	2.183
Two Stage q values	0.726	0.061
First Stage	0.67	0.74
Bandwidth	3,927	4,000
Efficient Obs.	8,812	6,756
Observations	17,367	12,881
B: *Number of Loans*		
Treated	0.183	-0.488
	(0.823)	(0.632)
Control Mean	0.931	1.424
Two Stage q values	0.932	0.418
First Stage	0.78	0.80
Bandwidth	4,462	5,447
Efficient Obs.	21,945	24,566
Observations	40,017	39,942
C: *Consumption Loans (0/1)*		
Treated	0.0281	-0.082*
	(0.0192)	(0.0493)
Control Mean	0.061	0.216
Two Stage q values	0.420	0.077
First Stage	0.79	0.80
Bandwidth	4,995	5,494
Efficient Obs.	23,304	24,606
Observations	40,018	40,018
D: *Outstanding HH Debt (Rs.)*		
Treated	12,076	-2,393
	(10,187)	(12,989)
Control Mean	39,904	63,888
Two Stage q values	0.432	0.938
First Stage	0.74	0.77
Bandwidth	4,250	4,517
Efficient Obs.	16,895	20,151
Observations	31,941	36,678

Table 5: Impact of Bank Branch Expansion on Household Savings and Investments

Table 5 reports results from the RD robust regression of the impact of the bank expansion policy on household savings and investments. *Bank Savings* is a binary variable that is equal to one if the household has a bank savings account, and zero otherwise; *Insurance* is an indicator variable that is equal to one if the household has a life insurance policy, and zero otherwise; *Long-Term Deposits* is an indicator variable that is equal to one if the household owns fixed deposit accounts, pension funds, or participates in other saving schemes, and zero otherwise; and, *Securities* is an indicator variable that is equal to one if the household has invested in financial instruments like Mutual Funds, Unit Trusts, Share Markets, Bonds, or Post Office Accounts, and zero otherwise. Due to data unavailability, we do not observe pre-policy estimates for savings and investment variables. Standard errors in parentheses are clustered at the district level. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$.

	(1)	(2)	(3)	(4)
	Bank Savings (0/1)	Insurance (0/1)	Long-Term Deposits (0/1)	Securities (0/1)
Treated	0.213**	0.044	0.098*	0.044
	(0.085)	(0.041)	(0.053)	(0.044)
Control Mean	0.59	0.35	0.27	0.14
Two stage q value	0.011	0.348	0.054	0.511
Bandwidth	4,796	4,801	3,293	4,727
Efficient observations	22,724	22,723	17,473	22,803
Observations	39,871	39,903	40,018	40,018

Table 6: Impact of Bank Branch Expansion on Household Wage Income and Business Revenues

Table 6 reports results from the RD robust regression of the impact of the bank expansion policy on household wage earnings and household-owned small business revenues. *Household Earnings* is real annual earnings in Rupees of households from wage or salary work; and, *Business Revenues* is real annual business receipts in Rupees of household-owned small businesses. In Panel (A) the baseline control variable is days worked in a year. Standard errors in parentheses are clustered at the district level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

	(1)	(2)
	Pre Policy	Post Policy
A: *Household Earnings*		
Treated	3,485	4,093*
	(2,823)	(3,016)
Control Mean	35,151	28,134
Two stage q values	0.311	0.076
First stage	0.78	0.75
Bandwidth	5,297	3,817
Efficient observations	13,144	13,484
Observations	21,219	28,147
B: *Total Revenue Business (Rs.)*		
Treated	38,098	65,932***
	(36,053)	(22,059)
Control mean	139,086	106,822
Two stage q value	0.316	0.001
First stage	0.70	0.70
Bandwidth	3,865	3,046
Efficient observations	3,738	3,066
Observations	7,913	7,687

Table 7: Impact of Bank Branch Expansion on Enterprise Borrowing and Employment

Table 7 reports results from the RD robust regression of the impact of the bank expansion policy on firm-level borrowing and employment for the full sample of enterprises (Panels A and C), and for the sub-sample of enterprises that borrow from external finance sources including banks, government, and money lenders (Panels B and D). Pre-policy estimates are reported in column (1) and post-policy estimates in column (2). *Enterprise Institutional Loans* is a binary variable that is equal to one if the enterprise relies on loans from financial institutions as their major source of borrowing, and zero otherwise; *Enterprise Institutional Loans: EF* is the same variable for the sub-sample of firms that seek external sources of finance; *Total District Employment* is annual enterprise employment aggregated to the district-level; and, *Total Enterprise Employment: EF* is the total number of employees at the firm-level for the sub-sample of firms that seek external sources of finance. Standard errors in parentheses are clustered at the district level. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$.

	(1)	(2)
	Pre Policy	Post Policy
A: *Enterprise Institutional Loans*		
Treated	0.007	0.009
	(0.015)	(0.007)
Control Mean	0.040	0.025
Two stage q values	0.711	0.165
First stage	0.85	0.84
Bandwidth	5,081	3,306
Efficient observations	25,373,915	24,588,905
Observations	40,025,273	55,004,630
B: *Enterprise Institutional Loans: EF*		
Treated	0.024	0.068**
	(0.081)	(0.034)
Control Mean	0.374	0.116
Two stage q values	0.545	0.045
First stage	0.89	0.86
Bandwidth	6,522	4,931
Efficient observations	3,087,573	6,748,097
Observations	4,047,799	11,065,880
C: *Total District Employment*		
Treated	-3,348	21,448
	(29,861)	(16,782)
Control Mean	110,013	87,321
Two stage q values	0.919	0.158
First stage	0.77	0.76
Bandwidth	4,335	3,770
Efficient observations	276	238
Observations	581	581
D: *Total Enterprise Employment: EF*		
Treated	-0.387	0.631*
	(0.559)	(0.377)
Control Mean	5.04	2.54
Two stage q values	0.712	0.04
First stage	0.89	0.86
Bandwidth	5,084	4,385
Effective Obs.	2,690,261	6,165,857
Observations	4,047,799	11,065,880

Table 8: Impact of Bank Expansion on Rural and Urban Household Well-Being

Table 8 reports results from the RD robust regression of the impact of the bank expansion policy on household well-being for rural and urban sub-samples in the pre-policy period (columns (1) and (2)) and the post-policy period (columns (3) and (4)). *Consumption Expenditures* is real annual per capita household consumption expenditures in Rupees; *Food consumption* is real annual expenditures on food in Rupees; *Poverty* is an indicator variable equal to one if the household is below the state poverty line, and zero otherwise; and, *Motor Vehicle Ownership* is an indicator variable that is equal to one if the household owns a motor vehicle, and zero otherwise. Standard errors in parentheses are clustered at the district level. Significance levels are $*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

	(1)	(2)	(3)	(4)
	Pre Policy		Post Policy	
	Rural	Urban	Rural	Urban
A: *Consumption Expenditure (Rs.)*				
Treated	-2,282	2,920	1,347	4,755**
	(2,112)	(2,495)	(2,058)	(123)
Control mean	26,627	87,033	26,741	2,086
Two stage q value	0.501	0.270	0.004	0.008
First stage	0.79	0.81	0.76	0.76
Bandwidth	4,370	4,658	4,748	3,358
Efficient Observations	10,643	4,542	5,965	4,675
Observations	22,980	9,207	10,060	9,237
B: *Food Consumption (Rs.)*				
Treated	-61	37	9.40	360***
	(200)	(201)	(1,714)	(108)
Control mean	2,678	2,796	22,126	1,860
Two stage q value	0.643	0.581	0.477	0.008
First stage	0.75	0.78	0.76	0.76
Bandwidth	3,941	3,358	4,111	5,077
Efficient Observations	11,932	4,675	11,441	5,571
Observations	22,654	9,237	19,351	9,277
C: *Poverty (0/1)*				
Treated	0.064	-0.016	-0.011	-0.099**
	(0.076)	(0.064)	(0.054)	(0.080)
Control mean	0.11	0.16	0.14	0.38
Two stage q value	0.311	0.715	0.020	0.041
First stage	0.76	0.76	0.75	0.76
Bandwidth	4,007	4,042	4,748	3,854
Efficient Observations	12,682	6,216	5,965	5,906
Observations	28,145	11,780	10,060	11,767
D: *Motor Vehicle Ownership (0/1)*				
Treated	-0.048	-0.034	0.007	0.188**
	(0.0432)	(0.071)	(0.054)	(0.080)
Control mean	0.17	0.34	0.30	0.38
Two stage q value	0.290	0.683	0.041	0.041
First stage	0.74	0.76	0.76	0.76
Bandwidth	3,610	3,854	4,748	3,628
Efficient Observations	11,755	5,906	5,965	5,768
Observations	28,157	11,767	10,060	11,807

Table 9: Impact of Bank Branch Expansion on Rural and Urban Household Borrowing

Table 9 reports results from the RD robust regression of the impact of the bank expansion policy on household borrowing and debt for rural and urban sub-samples in the pre-policy period (columns (1) and (2)) and the post-policy period (columns (3) and (4)). *Monthly Interest on Loan* measures percentage of interest on loan paid monthly on an outstanding loan by households; *Number of Loans* measures the total number of loans that households have taken in the past five years; *Consumption Loans* is a binary variable with value one if household is has taken a loan for wedding or medical reasons, and zero otherwise; and, *Outstanding HH debt* in Rupees is the total amount of debt that a household owes to others. Standard errors in parentheses clustered at the district level. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

	(1)	(2)	(3)	(4)
	Pre Policy		Post Policy	
	Rural	Urban	Rural	Urban
A: *Monthly Interest Loan (%)*				
Treated	-0.210	-0.613	-0.342	-0.0975**
	(0.460)	(0.418)	(0.323)	(0.426)
Control Mean	1.66	1.94	2.12	2.30
Two stage q values	0.783	0.370	0.187	0.021
First stage	0.61	0.79	0.70	0.84
Bandwidth	3,903	4,415	3,890	3,743
Efficient obs.	6,346	2,609	4,949	1,587
Observations	13,217	4,150	9,782	3,099
B: *Number of Loans*				
Treated	0.526	-0.665	-0.115	-1.039**
	(1.208)	(0.671)	0.834	(0.528)
Control Mean	0.967	0.871	1.61	1.351
Two stage q values	0.663	0.558	0.911	0.048
First stage	0.74	0.80	0.79	0.79
Bandwidth	3,684	5,719	4,984	4,866
Efficient Observations	13,010	7,737	16,008	6,932
Observations	28,205	11,812	28,151	11,791
C: *Consumption Loans (0/1)*				
Treated	0.037	0.004	-0.047	-0.149**
	(0.024)	(0.031)	(0.059)	(0.063)
Control Mean	0.062	0.059	0.225	0.192
Two stage q values	0.212	0.911	0.337	0.026
First stage	0.78	0.79	0.78	0.80
Bandwidth	4,562	4,666	4,753	5,647
Efficient Obs.	15,486	6,867	15,907	7,686
Observations	28,205	11,813	28,205	11,813
D: *Outstanding HH Debt (Rs.)*				
Treated	16,806	4,017	13,221	-29,563**
	(12,692)	(13,378)	(15,241)	(16,002)
Control Mean	39,920	39,876	44,500	44,768
Two stage q values	0.287	0.893	0.301	0.092
First stage	0.73	0.78	0.75	0.76
Bandwidth	4,483	3,597	4,143	4,178
Efficient Obs.	12,572	4,375	13,013	5,792
Observations	22,981	8,960	25,986	10,692

Table 10: Impact of Bank Branch Expansion on Rural and Urban Household Savings and Investments

Table 10 reports results from the RD robust regression of the impact of the bank expansion policy on household savings and investments for the urban and rural sub-samples in Panels A and B, respectively. *Bank Savings* is a binary variable that is equal to one if the household has a bank savings account, and zero otherwise; *Insurance* is an indicator variable that is equal to one if the household has a life insurance policy, and zero otherwise; *Long-Term Deposits* is an indicator variable that is equal to one if the household owns fixed deposit accounts, pension funds, or participates in other saving schemes, and zero otherwise; and, *Securities* is an indicator variable that is equal to one if the household has invested in financial instruments like Mutual Funds, Unit Trusts, Share Markets, Bonds, or Post Office Accounts, and zero otherwise. Due to data unavailability, we do not observe pre-policy estimates for savings and investment variables. Standard errors in parentheses are clustered at the district level. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$.

	(1)	(2)	(3)	(4)
	Bank Savings (0/1)	Insurance (0/1)	Long Term Deposits (0/1)	Securities (0/1)
A: *Urban*				
Treated	0.294**	0.134*	0.169*	0.138***
	(0.125)	(0.070)	(0.088)	(0.052)
Control mean	0.63	0.44	0.34	0.13
Two stage q value	0.019	0.081	0.058	0.006
Bandwidth	4,439	4,234	3,499	3,498
Efficient observations	6,615	6,441	5,680	5,680
Observations	11,770	11,782	11,813	11,813
B: *Rural*				
Treated	0.204**	-0.026	0.057	0.011
	(0.096)	(0.033)	(0.047)	(0.060)
Control Mean	0.56	0.30	0.24	0.14
Two stage q value	0.021	0.248	0.233	0.978
Bandwidth	4,451	4,922	3,605	4,386
Efficient observations	15,011	16,094	12,751	14,968
Observations	28,101	28,121	28,205	28,205

Table 11: Impact of Bank Branch Access on Rural and Urban Enterprise Borrowing

Table 11 reports results from the RD robust regression of the impact of the bank expansion policy on firm-level borrowing for rural and urban enterprises (Panel A), and for sub-samples of rural and urban enterprises that borrow from external sources including banks, government, money lenders, or family (Panel B). Pre-policy estimates are reported in columns (1) and 92) and post-policy estimates in columns (3) and (4). *Enterprise Institutional Loans* is a binary variable that is equal to one if the enterprise relies on loans from financial institutions as their major source of borrowing, and zero otherwise; *Enterprise Institutional Loans: EF* is the same variable for the sub-sample of firms that seek external sources of finance; *Total District Employment* is annual enterprise employment aggregated to the district-level; and, *Total Enterprise Employment: EF* is the total number of employees at the firm-level for the sub-sample of firms that seek external sources of finance. Standard errors in parentheses are clustered at the district level. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$.

	(1)	(2)	(3)	(4)
	Pre Policy		Post Policy	
	Rural	Urban	Rural	Urban
A: *Enterprise Institutional Loans*				
Treated	0.010	0.001	0.010*	0.014**
	(0.017)	(0.011)	(0.006)	(0.006)
Control Mean	0.041	0.039	0.025	0.025
First stage	0.85	0.87	0.85	0.83
Two stage q values	0.587	0.922	0.114	0.029
Bandwidth	4,705	8,413	4,870	4,938
Efficient obs.	15,325,078	12,490,413	20,660,499	12,626,203
Observations	25,143,369	14,881,904	33,461,924	21,542,706
B: *Enterprise Institutional Loans Condtional on Seeking External Finance*				
Treated	0.046	-0.018	0.057*	0.086*
	(0.092)	(0.086)	(0.032)	(0.046)
Control Mean	0.352	0.440	0.121	0.159
First Stage	0.89	0.89	0.83	0.83
Two stage q values	0.688	0.812	0.076	0.061
Bandwidth	5,956	5,263	5,429	4,372
Efficient Observations	2,036,150	779,444	4,943,455	1,938,643
Observations	2,844,933	1,202,866	7,527,433	3,538,447

Table 12: Impact of Bank Branch Access on Rural and Urban Labor Markets

Table 12 reports results from the RD robust regression of the impact of the bank expansion policy on firm employment, household wage income, and household business revenues for rural and urban subsamples. Columns (1) and (2) report the pre-policy coefficients and columns (3) and (4) report the post-policy coefficients for the rural and urban subsamples, respectively. *Total District Employment* is annual enterprise employment aggregated to the district-level; *Total Enterprise Employment: EF* is the total number of employees at the firm-level for the sub-sample of firms that seek external sources of finance; *Household Earnings* is real annual earnings in Rupees of households from wage or salary work; and *Business Revenues* is real annual business receipts in Rupees of household-owned small businesses. Panel A baseline control variable is days worked in a year. Standard errors in parentheses are clustered at the district level. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$.

	(1)	(2)	(3)	(4)
	Pre Policy		Post Policy	
	Rural	Urban	Rural	Urban
A: *Total District Employment*				
Treated	-10,151	50.91	9,537	33,682**
	(37,384)	(31,263)	(22,528)	(15,835)
Control Mean	117,640	102,374	84,577	88,877
Two stage q values	0.677	0.862	0.931	0.018
First stage	0.76	0.76	0.76	0.78
Bandwidth	4,259	4,393	4,548	3,829
Efficient observations	279	273	286	243
Observations	575	566	576	578
B: *Total Enterprise Employment:EF*				
Treated	-0.357	-0.293	0.278	0.927*
	(0.405)	(1.227)	(0.276)	(0.557)
Control Mean	3.80	7.23	1.94	3.40
Two stage q values	0.683	0.822	0.578	0.077
First stage	0.89	0.89	0.87	0.83
Bandwidth	5,330	3,878	5,112	4,517
Efficient observations	1,945,599	633,855	4,801,910	1,957,911
Observations	2,844,933	1,202,866	7,527,433	3,538,447
C: *Household Earnings (Rs.)*				
Treated	3,314	2,650	2,813	8,135**
	(3,358)	(2,517)	(3,444)	(3,931)
Control Mean	29,995	46,905	23,941	37,510
Two stage q values	0.406	0.363	0.488	0.023
First stage	0.72	0.80	0.70	0.80
Bandwidth	3,893	5,148	3,390	4,267
Efficient observations	7,844	3,298	9,181	3,868
Observations	16,191	5,010	21,295	6,852
D: *Business Revenue (Rs.)*				
Treated	28,978	6,702	44,004**	52,802**
	(32,082)	(31,409)	(21,700)	(20,609)
Control mean	107,075	166,950	80,188	133,050
Two stage q value	0.427	0.878	0.041	0.003
Bandwidth	4,831	4,702	3,542	3,649
Efficient observations	2,440	1,967	1,903	1,571
Observations	4,466	3,447	4,191	3,496

Table 13: Impact of Bank Expansion on Enterprise Borrowing by Sector

Table 13 reports results from the RD robust regression of the impact of bank expansion on enterprise borrowing measured using *Enterprise Institutional Loan*, which is an indicator variable equal to one if loans from a financial institution (instead of money lenders, government sources, micro-finance, and family) are a major source of borrowing for the firm, and zero otherwise. Results for the sub-sample of all *Organized* firms are reported in Panel A column (1), rural organized firms in column (2), and urban organized enterprises in column (3), where *Organized* firms are classified by the Economic Census as those with 10 or more workers. Results for the sub-sample of all *Unorganized* enterprises are reported in Panel A column (4), rural unorganized firms in column (5), and urban unorganized firms in column (6), where *Unorganized* firms are classified by the Economic Census as those with fewer than 10 workers. In Panel B, we report results for the rural firms sub-sample by sector in columns (1)-(3), and urban firms sub-sample by sector in columns (4)-(5), where *Primary* denotes firms in agriculture and mining; *Secondary* indicates firms in manufacturing, energy, water supply, construction, etc., and *Services* indicate firms in trade, transportation, food services, information, finance and insurance, real estate, power and water supply, etc. Standard errors in parentheses clustered at the district level. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$.

	(1)	(2)	(3)	(4)	(5)	(6)
	Organized			Unorganized		
	All	Rural	Urban	All	Rural	Urban
A: Enterprise Institutional Loans						
Treated	0.0414**	0.0540**	0.0400**	0.00878	0.010	0.014**
	(0.018)	(0.025)	(0.019)	(0.007)	(0.006)	(0.006)
Control Mean	0.08	0.09	0.09	0.024	0.024	0.024
First Stage	0.88	0.89	0.87	0.84	0.85	0.83
Bandwidth	4,839	4,401	4,156	3,382	4,906	5,004
Observations	722,363	329,975	392,388	54,282,267	33,131,949	21,150,318
	Rural			Urban		
	Primary	Secondary	Services	Primary	Secondary	Services
B: Enterprise Institutional Loans						
Treated	0.0133	0.006	0.015*	0.008*	0.019**	0.013*
	(0.008)	(0.010)	(0.008)	(0.004)	(0.007)	(0.007)
First Stage	0.85	0.65	0.86	0.89	0.79	0.84
Control Mean	0.012	0.027	0.037	0.010	0.022	0.027
Bandwidth	3,059	1,700	5,130	5,121	4,536	5,264
Efficient Obs.	3,058,026	1,190,442	9,434,932	661,780	2,852,271	9,549,695
Observations	11,623,782	5,821,063	16,017,079	1,022,318	4,998,381	15,522,007

Appendix

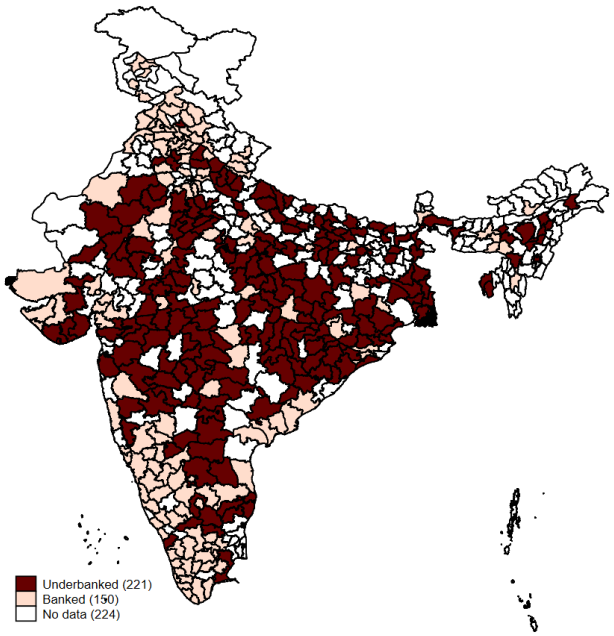


Figure A1: Map of banked and Underbanked districts covered in the IHDS. Sixty five percent of all districts were covered in IHDS 2012. Districts not covered in the survey are denoted in white.

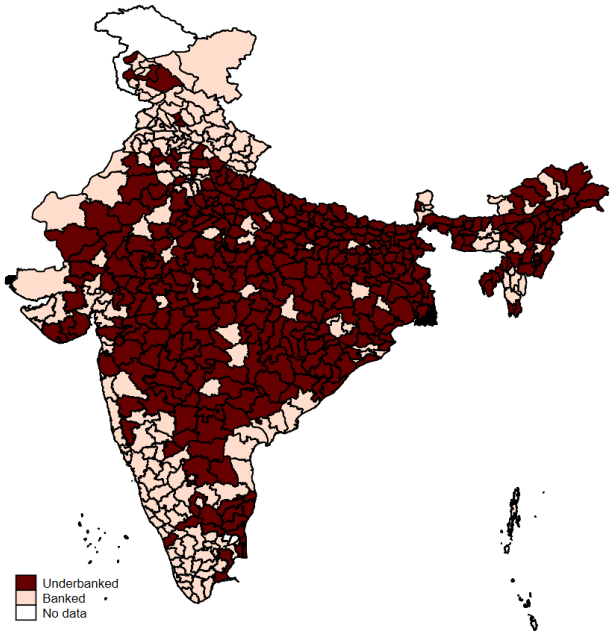
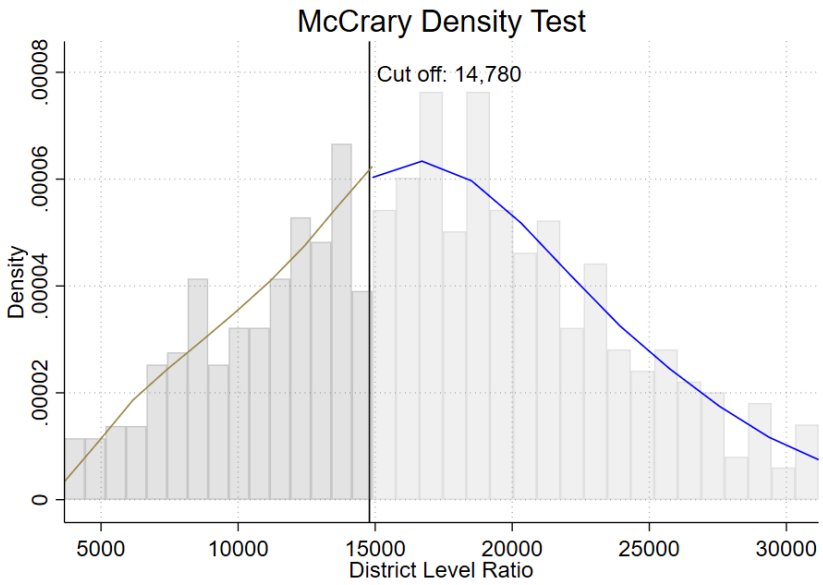


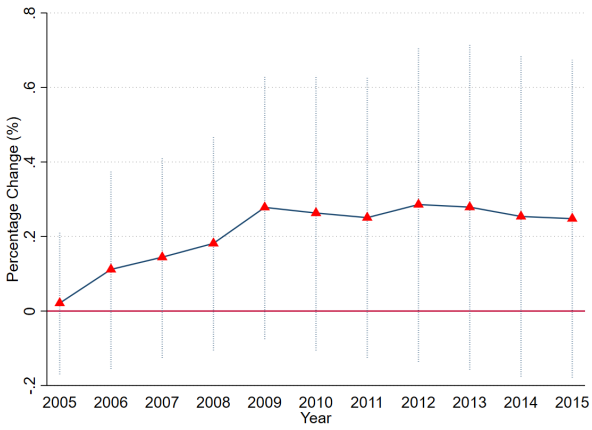
Figure A2: Map of banked and underbanked districts covered in the NFHS 2015. All districts were covered in the National Family Health Survey (NFHS) coverage.



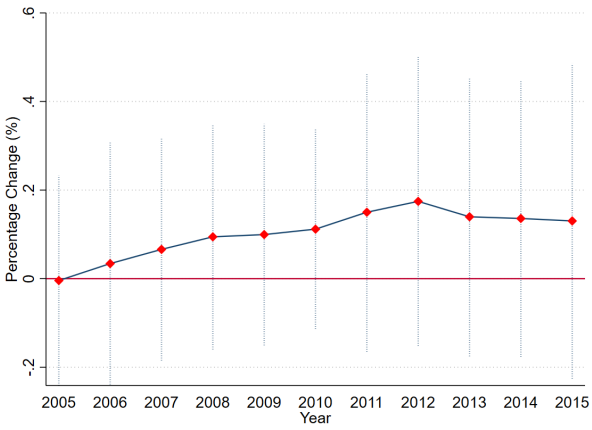
McCrary RD density test

Figure A3: McCrary Regression Discontinuity Density Test

Notes: The McCrary discontinuity estimate is -0.1996 with a p-value of 0.8418 (McCrary, 2008).

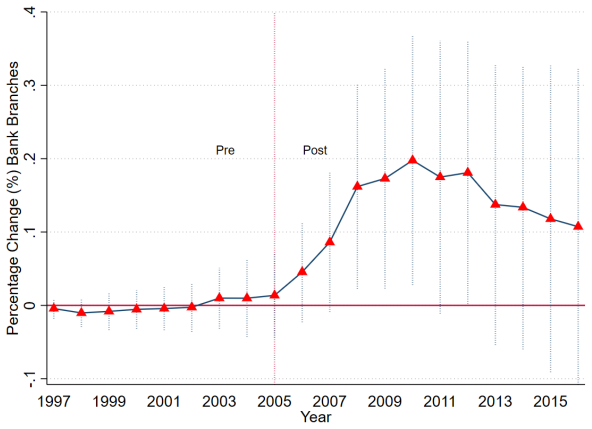


A: Total Credit

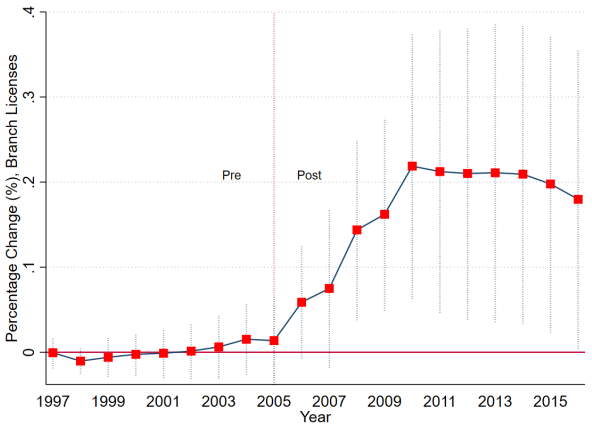


B: Total Deposit

Figure A4: Dynamic effects of credit and deposit expansion. The outcome variables are (log) total annual credit (Panel A) and deposits (Panel B) at the district level for all scheduled commercial banks. Confidence intervals are at 95% level of significance.

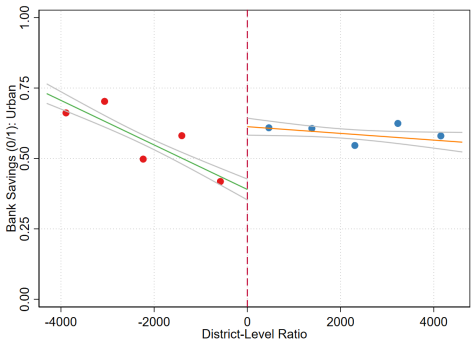


A: Branch Licenses

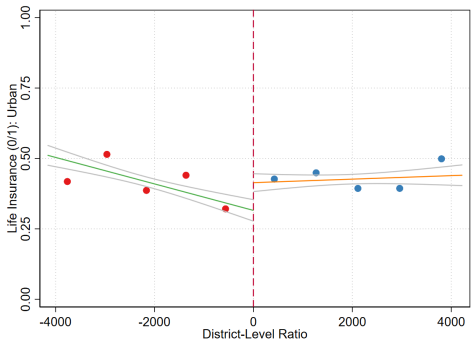


B: Bank Branches

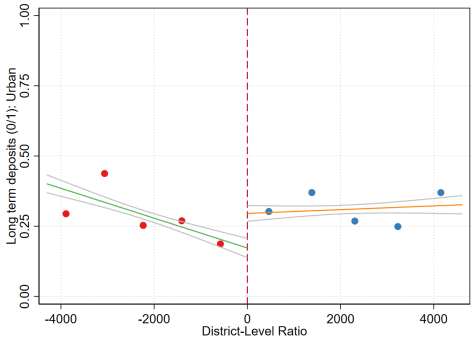
Figure A5: Dynamic effects from the results reported in Table 2 of bank branch and license expansion. The outcome variables are (log) number of bank licenses (Panel A) and (log) number of bank branches (Panel B) at the district level for all scheduled commercial banks. Confidence intervals are at 95% level of significance.



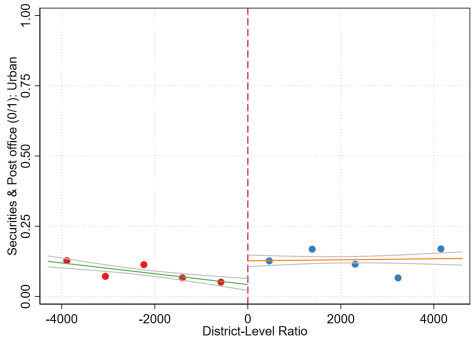
A: *Post-Policy Urban Households Bank Savings*



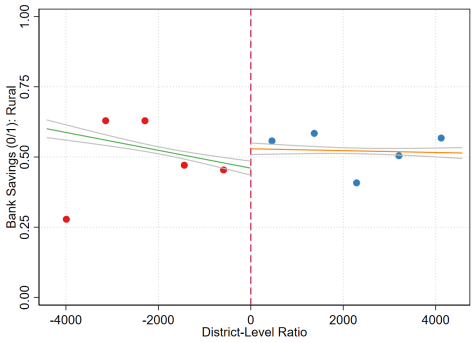
B: *Post-Policy Urban Households Insurance*



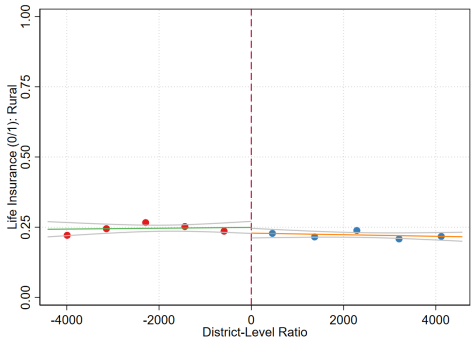
C: *Post-Policy Urban Households Long-Term Deposits*



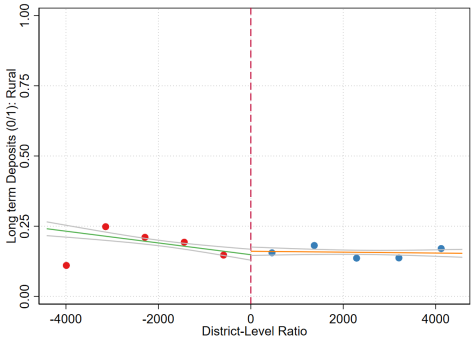
D: *Post-Policy Urban Households Securities*



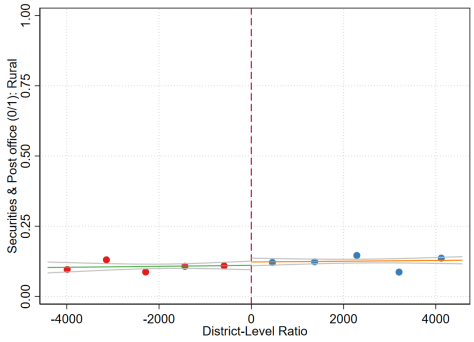
E: *Post-Policy Rural Households Bank Savings*



F: *Post-Policy Rural Households Insurance*

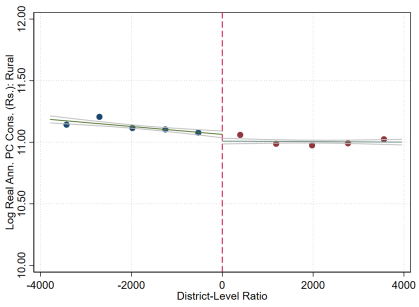


G: *Post-Policy Rural Households Long Term Deposits*

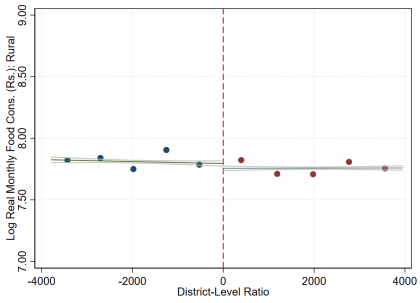


H: *Post-Policy Rural Households Securities*

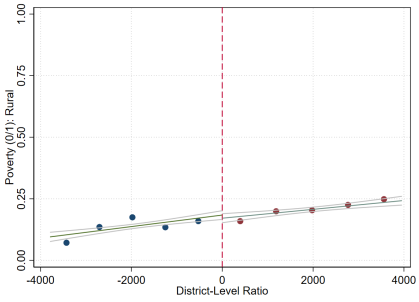
Figure A6: Post-policy discontinuity in household savings and investments in rural and urban areas. The figure describes the results reported in Table 10.



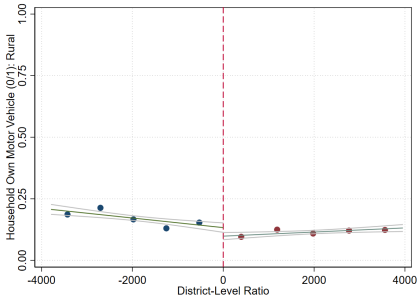
A: *Pre-policy Rural Consumption Expenditures*



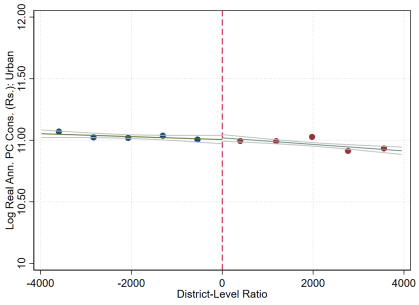
B: *Pre-policy Rural Food Consumption*



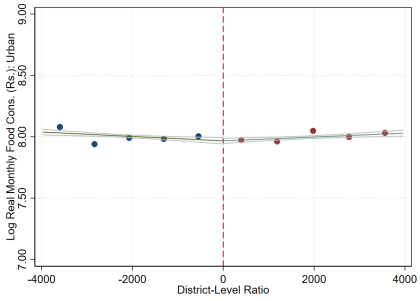
C: *Pre-policy Rural Poverty (0/1)*



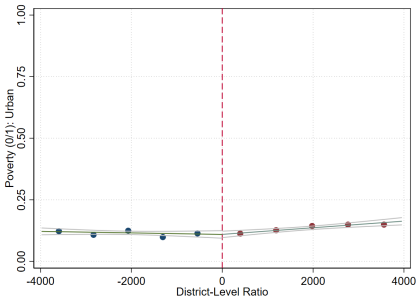
D: *Pre-policy Rural Motor Vehicle Ownership (0/1)*



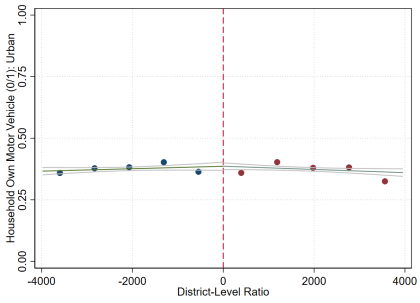
E: *Pre-policy Urban Consumption Expenditures*



F: *Pre- policy Urban Food Consumption*



G: *Pre-policy Urban Poverty (0/1)*



H: *Pre-policy Urban Motor Vehicle Ownership (0/1)*

Figure A7: Pre policy smoothness in household well-being measures in rural and urban areas. Figures A-D correspond to rural districts, and Figures E-H correspond to urban districts.

Table A1: Branch Summary Statistics

This table describes the average number of bank branches and bank licenses in Indian districts for the full sample in columns (1)-(4), and for the sub-sample of districts in the optimal bandwidth in columns (5)-(8). Standard deviations are reported in parentheses.

	All districts				[-4000,+4000]			
	1996	2004	2010	2016	1997	2004	2010	2016
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Bank Branches	67	74	107	177	72	79	117	199
	(82)	(98)	(151)	(231)	(64)	(72)	(110)	(184)
Bank Licenses	67	75	107	120	72	80	117	133
	(82)	(100)	(156)	(184)	(63)	73)	(113)	(133)
Observations	581	581	581	581	223	223	223	223

Table A2: District level credit and deposit of scheduled commercial banks (2005-2015)

Data from the annual balance sheet report of the Reserve Bank of India for all scheduled commercial banks. Log credit and deposit variables are derived by winsorizing and trimming the respective level variables at 10th and 90th percentiles and then taking natural log of the level variables.

	Log annual total credit (Rs.)						**Log annual total deposit (Rs.)**					
	Banked			**Underbanked**			**Banked**			**Underbanked**		
	Obs.	**Mean**	**SD**	**Obs.**	**Mean**	**SD**	**Obs.**	**Mean**	**SD**	**Obs.**	**Mean**	**SD**
Urban												
2005	62	10.78	0.60	120	9.95	1.05	62	11.43	0.61	120	10.89	0.89
2006	76	10.96	0.74	165	10.12	0.82	76	11.52	0.66	165	10.95	0.73
2007	77	11.22	0.71	166	10.31	0.83	76	11.73	0.64	167	11.11	0.72
2008	77	11.31	0.97	165	10.45	0.85	78	11.80	0.94	165	11.31	0.72
2009	77	11.39	1.22	165	10.61	0.87	77	12.06	0.88	165	11.55	0.69
2010	77	11.67	0.90	165	10.79	0.87	77	12.27	0.76	165	11.71	0.68
2011	75	11.85	0.89	165	10.95	0.88	76	12.43	0.75	164	11.86	0.67
2012	76	11.79	1.10	164	11.12	0.84	79	12.50	0.88	162	12.02	0.64
2013	75	12.06	1.05	162	11.27	0.84	76	12.69	0.81	160	12.16	0.63
2014	72	12.26	0.87	163	11.46	0.82	74	12.87	0.79	161	12.31	0.64
2015	73	12.28	1.24	163	11.60	0.81	76	12.93	1.17	160	12.44	0.63
Semi-urban												
2005	136	9.41	1.00	336	9.24	0.90	193	10.51	1.42	360	10.00	1.06
2006	138	9.64	0.92	333	9.40	0.84	195	10.68	1.28	368	10.16	1.02
2007	138	9.84	0.89	333	9.65	0.81	198	10.81	1.26	369	10.34	1.00
2008	139	10.06	0.89	332	9.81	0.82	198	10.99	1.28	369	10.52	1.01
2009	138	10.20	0.86	333	9.94	0.82	198	11.20	1.27	368	10.76	0.97
2010	138	10.38	0.88	333	10.13	0.82	198	11.33	1.24	368	10.93	0.95
2011	140	10.52	0.92	330	10.24	0.83	196	11.48	1.24	367	11.10	0.96
2012	142	10.68	0.96	329	10.43	0.83	197	11.67	1.23	369	11.24	0.98
2013	140	10.81	0.99	331	10.58	0.87	196	11.82	1.23	368	11.37	1.04
2014	141	11.01	1.00	330	10.77	0.88	196	11.99	1.24	367	11.52	1.00
2015	142	11.17	0.99	329	10.93	0.87	197	12.11	1.25	369	11.65	1.02
Rural												
2005	210	9.48	0.99	377	9.28	0.87	159	10.25	0.64	312	10.03	0.64
2006	210	9.66	0.93	377	9.43	0.83	153	10.29	0.65	318	10.09	0.64
2007	210	9.87	0.93	377	9.62	0.84	154	10.40	0.66	317	10.20	0.65
2008	210	10.04	0.93	377	9.79	0.85	155	10.59	0.65	316	10.36	0.63
2009	210	10.13	0.96	377	9.89	0.87	154	10.78	0.62	317	10.54	0.64
2010	210	10.31	0.96	377	10.08	0.88	160	10.90	0.64	311	10.70	0.62
2011	209	10.46	0.98	377	10.21	0.90	158	11.06	0.64	312	10.86	0.63
2012	210	10.64	1.00	377	10.39	0.90	158	11.21	0.63	313	10.99	0.62
2013	210	10.83	1.01	377	10.54	0.92	160	11.35	0.64	310	11.14	0.62
2014	210	10.99	1.01	377	10.71	0.90	158	11.48	0.65	311	11.29	0.63
2015	210	11.11	1.04	377	10.84	0.92	156	11.64	0.64	314	11.42	0.64

Table A3: Comparing IHDS to other national surveys

From Table 2 of the India Human Development Survey: Design and Data Quality.

	India Human Development Survey	National Family Health Survey	National Sample Survey	Indian Census
	IHDS, 2004-5	NFHS 3, 2005-2006	NSS, 2004-2005	Census, 2001
Urban	26	31	25.32	27.78
% literate				
Age 5+	66.62	67.35	66.28	NA
Age 7+	68.08	68.62	67.33	64.8
Caste				
Other backward classes	41.79	39.6	40.96	NA
Scheduled Caste	21.1	19.2	19.5	16.2
Scheduled Tribe	7.06	8.4	8.64	8.2
Other	30.01	31.9	30.81	NA
Religion				
Hindu	80.29	81.6	82.16	80.5
Muslim	14.01	12.5	12.66	13.4
Christian	2.16	2.7	2.09	2.3
Sikh	1.53	1.6	1.88	1.9
Others	1.11	0.4	0.3	0.7
% currently in school (age 5-14)	80.37	NA	82.58	NA
Knowledge of AIDS (women)	53.64	61	NA	NA
Work participation rate for males	52.7	NA	54.7	51.7
Work participation rate for females	31.9	NA	28.7	25.6
Average family size	5.2	4.8	4.7	5.3
% of women maaried	73.17	75.23	75.78	76.61
% of households with electricity	71.85	67.9	65.2	55.8
% household use LPG	33.3	24.7	21.9	17.5
% flush toilets	22.7	NA	19.2	18
% poor	25:73	NA	27.47	NA

Table A4: Descriptive Statistics of Household Well-Being

This table provides summary statistics of household well-being measures from the two rounds of the IHDS survey (2004/2005 and 2011/2012). Columns (1) and (3) describe the data for the full sample and columns (2) and (4) for the sub-sample of districts in the optimal bandwidth. Standard deviations are reported in parentheses.

	IHDS 1 (2004/2005)		IHDS 2 (2011/2012)	
	All districts	[-4000, +4000]	All districts	[-4000, +4000]
	(1)	(2)	(3)	(4)
Consumption Expenditures	25,059	25,080	21.130	21,143
	(14,572)	(14,259)	(13,108)	(13,024)
Observations	32,187	16,204	31,789	16,113
Food Consumption	2,625	2,596	1,862	1,873
	(873)	(876)	(692))	(685)
Observations	31,891	16,061	28,628	14,234
Poverty (0/1)	0.22	0.22	0.16	0.15
	(0.41)	(0.40)	(0.37)	(0.36)
Observations	39,973	20,093	39,994	20,098
Motor Vehicle Ownership (0/1)	0.18	0.18	0.29	0.29
	(0.38)	(0.37)	(0.45)	(0.45)
Observations	39,993	20,075	39,998	20,105

Table A5: Descriptive Statistics of Household Borrowing

This table provides summary statistics of household borrowing measures from the two rounds of the IHDS survey (2004/2005 and 2011/2012). Columns (1) and (3) describe the data for the full sample and columns (2) and (4) for the sub-sample of districts in the optimal bandwidth. Standard deviations are reported in parentheses.

	IHDS 1 (2004/2005)		IHDS 2 (2011/2012)	
	All districts	[-4000, +4000]	All districts	[-4000, +4000]
	(1)	(2)	(3)	(4)
Monthly Interest Loan (%)	2.05	1.97	2.32	2.17
	(1.97)	(1.70)	(2.27)	(1.87)
Observations	17,367	8,966	12,881	6,756
Number of Loans	1.34	1.55	1.64	1.77
	(2.62)	(2.95)	(2.75)	(2.91)
Observations	40,017	20,113	39,942	20,113
Consumption Loans (0/1)	0.07	0.07	0.25	0.25
	(0.26)	(0.26)	(0.43)	(0.43)
Observations	40,018	20,113	40,018	20,113
Outstanding HH Debt	34,645	38,910	37,361	40,715
	(75,810	(81,197)	(83,657)	(86,059)
Observations	31,941	16,038	36,678	18,448
Household Earnings	25,332	25,456	18,911	19,379
	(23,207)	(23,035)	(20,144)	(20,142)
Observations	25,420	12,909	35,169	17,730
Business Revenues	121,422	121,677	94,650	87,627
	(109,496)	(108,898)	(98,311)	(92,647)
Observations	7,913	3,878	7,687	3,813
Bank Savings (0/1)	-	-	0.57	0.54
	(-)	(-)	(0.49)	(0.49)
Observations	-	-	39,871	20,040
Insurance (0/1)	0.21	0.20	0.30	0.29
	(0.40)	(0.40)	(0.45)	(0.45)
Observations	39,943	20,080	39,903	20,033
Long-Term Deposits (0/1)	-	-	0.22	0.21
	(-)	(-)	(0.41)	(0.40)
Observations	-	-	40,018	20,113
Securities (0/1)	-	-	0.12	0.11
	(-)	(-)	(0.33)	(0.31)
Observations	-	-	40,018	20,113

Table A6: Descriptive Statistics of Rural and Urban Household Well-Being

This table provides summary statistics of household well-being measures for rural (columns (1), (2), (5), (6)) and urban (columns (3), (4), (7), (8)) sub-samples from the two rounds of the IHDS survey (2004/2005 and 2011/2012). Standard deviations are reported in parentheses. Real values are winsorized and trimmed at 10^{th} and 90^{th} percentile.

	IHDS 1 (2004-2005)				IHDS 2 (2011-2012)			
	Rural		Urban		Rural		Urban	
	All Districts	[-4000,+4000]	All Districts	[-4000, +4000]	All Districts	[-4000, +4000]	All Districts	[-4000, +4000]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Consumption Expenditures	23,009	23,257	30,175	29,236	19,393	19,511	24,882	24,415
	(13,463)	(13,383)	(15,915)	(15,286)	(12,189)	(12,254)	(14,195)	(13,879)
Observations	22,980	11,262	9,207	4,942	21,005	10,454	10,784	5,005
Food Consumption	2,563	2,546	2,778	2,703	1,764	1,750	2,044	1,996
	(874)	(883)	(852)	(852)	(648)	646)	(734)	(725)
Observations	22,654	10,986	9,237	5,075	18,635	9,229	9,993	5,005
Poverty (0/1)	0.23	0.21	0.21	0.21	0.19	0.17	0.10	0.10
	(0.42)	(0.41)	(0.41)	(0.40)	(0.39)	(0.38)	(0.31)	(0.31)
Observations	28,184	13,875	11,789	6,218	27,293	13,515	12,701	6,583
Motor Vehicle Ownership (0/1)	0.12	0.13	0.30	0.29	0.22	0.25	0.42	0.41
	(0.33)	(0.34)	(0.46)	(0.45)	(0.41)	(0.43)	(0.49)	(0.49)
Observations	28,157	13,855	11,776	6,220	27,294	13,517	12,704	6,588

Table A7: Descriptive Statistics of Rural and Urban Household Borrowing

This table provides summary statistics of household borrowing measures for rural (columns (1), (2), (5), (6)) and urban (columns (3), (4), (7), (8)) sub-samples from the two rounds of the IHDS survey (2004/2005 and 2011/2012). Standard deviations are reported in parentheses. Real values are winsorized and trimmed at 10^{th} and 90^{th} percentile.

	IHDS 1 (2004-2005)				IHDS 2 (2011-2012)			
	Rural		Urban		Rural		Urban	
	All Districts	[-4000,+4000]	All Districts	[-4000, +4000]	All Districts	[-4000, +4000]	All Districts	[-4000, +4000]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Monthly Interest Loan (%)	2.10	1.97	1.88	1.90	2.38	2.18	2.14	2.13
	(1.98)	(1.62)	(1.93)	(1.88)	(2.26)	(1.78)	(2.29)	(2.11)
Observations	13,217	6,530	4,150	2,436	9,618	5,000	3,263	1,756
Number of Loans	1.49	1.60	0.98	1.21	1.82	2.01	1.21	1.21
	(2.74)	(2.93)	(2.27)	(2.64)	(2.01)	(2.21)	(2.29)	(2.31)
Observations	28,205	13,886	11,812	6,227	28,151	13,862	11,791	6,220
Consumption Loans (0/1)	0.08	0.07	0.06	0.07	0.27	0.26	0.20	0.21
	(0.27)	(0.26)	(0.25)	(0.26)	(0.44)	(0.44)	(0.40)	(0.40)
Observations	28,205	13,886	11,813	6,227	28,205	13,886	11,813	6,227
Outstanding HH Debt	34,481	38,777	35,066	39,232	37,443	42,719	37,161	36,147
	(73,572)	(78,865)	(81,272)	(86,553)	(81,204)	(86,091)	(89,343)	(85,819)
Observations	22,981	11,325	8,960	4,713	25,986	12,823	10,692	5,625
Household Earnings	22,238	22,430	34,032	33,289	16,743	17,097	24,455	24,847
	(20,406)	(20,549)	(27,919)	(26,951)	(17,616)	(17,496)	(24,639)	(24,537)
Observations	18,751	9,312	6,669	3,597	25,281	12,509	9,888	5,221
Business Revenues	92,665	93,641	158,681	155,381	71,807	67,827	122,035	114,418
	(95,013)	(93,772)	(115,629)	(116,056)	(84,430)	(81,011)	(106,457)	(99,894)
Observations	4,466	2,117	3,447	1,761	4,191	2,081	3,496	1,732
Bank Savings (0/1)	-	-	-	-	0.54	0.52	0.62	0.57
	(-)	(-)	(-)	(-)	(0.49)	(0.49)	(0.48)	(0.49)
Observations	-	-	-	-	28,101	13,836	11,770	6,204
Insurance (0/1)	0.15	0.14	0.34	0.32	0.24	0.23	0.43	0.42
	(0.36)	(0.35)	(0.47)	(0.46)	(0.43)	(0.42)	(0.48)	(0.49)
Observations	28,172	13,866	11,771	6,214	28,121	13,827	11,782	6,206
Long-Term Deposits (0/1)	-	-	-	-	0.18	0.33	0.17	0.29
	(-)	(-)	(-)	(-)	(0.38)	(0.37)	(0.47)	(0.45)
Observations	-	-	-	-	28,205	13,886	11,813	6,227
Securities (0/1)	-	-	-	-	0.12	0.11	0.13	0.10
	(-)	(-)	(-)	(-)	(0.33)	(0.32)	(0.32)	(0.30)
Observations	-	-	-	-	28,205	13,886	11,813	6,227

Table A8: Descriptive Statistics of Living Standard Index, Enterprise Borrowing, and Enterprise Employment

This table provides descriptive statistics on the household *Living Standards Index* from the NFHS (2015-2016), and enterprise borrowing from the Economic Census.

Variable	Obs.	Mean	Std. dev.
NFHS, 2015-2016			
Banked			
Living Standard Index	206	1.283	0.169
Living Standard Index Urban	203	1.131	0.221
Living Standard Index Rural	201	1.354	0.171
Underbanked			
Living Standard Index	374	0.933	0.239
Living Standard Index Urban	374	0.918	0.225
Living Standard Index Rural	373	1.021	0.237
Economic Census, 2005			
Banked			
Enterprise Institutional Loans	17,650,614	0.040	0.196
Enterprise Institutional Loans (Rural)	9,992,916	0.041	0.199
Enterprise Institutional Loans (Urban)	7,657,698	0.038	0.192
Total Employment Enterprises (District)	207	110,013	97,003
Total Employment Enterprises (District, Rural)	202	117,640	114,970
Total Employment Enterprises (District, Urban)	201	102,374	100,804
Underbanked			
Enterprise Institutional Loans	22,374,659	0.028	0.167
Enterprise Institutional Loans (Rural)	15,150,453	0.027	0.162
Enterprise Institutional Loans (Urban)	7,224,206	0.032	0.178
Total Employment Enterprises (District)	374	74,953	72,015
Total Employment Enterprises (District, Rural)	373	95,057	90,722
Total Employment Enterprises (District, Urban)	365	56,277	66,497
Economic Census, 2013			
Banked			
Enterprise Institutional Loans	22,665,299	0.025	0.157
Enterprise Institutional Loans (Rural)	11,810,794	0.025	0.157
Enterprise Institutional Loans (Urban)	10,854,505	0.025	0.157
Total Employment Enterprises (District)	207	87,321	76,740
Total Employment Enterprises (District, Rural)	203	84,577	81,283
Total Employment Enterprises (District, Urban)	204	88,877	87,240
Underbanked			
Enterprise Institutional Loans	32,339,331	0.016	0.128
Enterprise Institutional Loans (Rural)	21,651,130	0.016	0.162
Enterprise Institutional Loans (Urban)	10,688,201	0.018	0.134
Total Employment Enterprises (District)	374	63,669	61,469
Total Employment Enterprises (District, Rural)	373	79,160	74,411
Total Employment Enterprises (District, Urban)	374	48,372	59,672

Table A9: Descriptive Statistics of Banked and Underbanked Samples by Sector

Table A9 shows the number of primary, sector and service sector enterprises in banked and underbanked districts. The table also shows the total number of organized and unorganized enterprises for banked and underbanked districts.

	Banked			**Underbanked**		
Variable	Obs	Mean	Std. dev.	Obs	Mean	Std. dev.
Primary Sector						
All	5,514,930	0.012	0.109	7,131,170	0.011	0.102
Rural	4,894,364	0.012	0.110	6,729,418	0.011	0.102
Urban	620,566	0.011	0.103	401,752	0.011	0.105
Secondary Sector						
All	4,344,677	0.025	0.156	6,474,767	0.015	0.122
Rural	1,911,853	0.027	0.163	3,909,210	0.014	0.119
Urban	2,432,824	0.023	0.150	2,565,557	0.017	0.128
Service Sector						
All	12,805,692	0.031	0.174	18,733,394	0.020	0.140
Rural	5,004,577	0.037	0.190	11,012,502	0.020	0.141
Urban	7,801,115	0.028	0.164	7,720,892	0.019	0.138
Organized Sector						
All	363,630	0.088	0.284	358,733	0.073	0.261
Rural	133,168	0.092	0.289	196,807	0.079	0.270
Urban	230,462	0.086	0.280	161,926	0.067	0.249
Unorganized Sector						
All	22,301,669	0.024	0.154	31,980,598	0.016	0.126
Rural	11,677,626	0.025	0.155	21,454,323	0.016	0.124
Urban	10,624,043	0.024	0.154	10,526,275	0.018	0.132

Table A10: Migration into underbanked districts

Table A10 shows the treatment effect on the likelihood of household migration into a district from another district in the five years preceding the IHDS 2 (2011/2012). Standard errors in parentheses are clustered at the district level. Baseline control variables are district population and the number of non-regional rural bank branches in the district in 1996. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$.

	Migration 5 Years (Yes/No)	
	(1)	(2)
Treated	0.003	0.003
	(0.011)	(0.010)
Control Mean	0.014	0.014
First Stage	0.82	0.82
Bandwidth	6,122	6,376
Efficient Observations	26,819	27,359
Observations	39,119	39,119
Baseline Controls	Yes	No

Table A11: Bank expansion validity with survey sub-samples

Notes: This table checks if the aggregate, rural or urban sub-samples when analyzed separately satisfy the randomization required to estimate the causal effects. Since the β_1 coefficient from equation 2 in Table A11 is not significant for the aggregate, rural and urban sub-samples, we can say that the full sample and the sub-sample analysis for rural and urban households does not bias the RD design. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$. Standard errors in parentheses clustered at the district level.

	(1)	(2)	(3)
	Full Sample	Rural Sample	Urban Sample
Treated	-0.005	-0.002	0.003
	(0.150)	(0.183)	(0.165)
Two stage q values	0.991	0.994	0.892
First Stage	0.77	0.76	0.78
Bandwidth	4,339	4,126	4,798
Efficient Obs.	276	257	296
Baseline Controls	No	No	No
Observations	581	581	581

Table A12: Impact of Bank Expansion on Bank Branches and Licenses: Polynomial 2 Regressions

This table reports "Polynomial 2 Regressions" with bank branches and bank licenses as the outcome variables, using a second-degree polynomial to estimate treatment effects near the cutoff (Imbens and Lemieux, 2008). It captures potential nonlinear relationships between the running variable and the outcome. The model takes the form: $Y_i = \alpha + \beta \cdot (X_i - c) + \gamma \cdot (X_i - c)^2 + \epsilon_i$. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$. Standard errors in parentheses clustered at the district level.

	Pre-Policy (2005)		Post-Policy (2010)	
	Bank Branches	*Bank Licenses*	*Bank Branches*	*Bank Licenses*
	(1)	(2)	(3)	(4)
Treated	0.03	0.02	0.22**	0.24***
	(0.03)	(0.02)	(0.09)	(0.08)
Baseline Control	Yes	Yes	Yes	Yes
Observations	576	576	571	576

Table A13: Impact of Bank Expansion on Rural and Urban Household Well-Being: Polynomial 2 Regressions

This table reports "Polynomial 2 Regressions" with household well-being in rural and urban areas as the outcome variables, using a second-degree polynomial to estimate treatment effects near the cutoff (Imbens and Lemieux, 2008). It captures potential nonlinear relationships between the running variable and the outcome. The model takes the form: $Y_i = \alpha + \beta \cdot (X_i - c) + \gamma \cdot (X_i - c)^2 + \epsilon_i$. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$. Standard errors in parentheses clustered at the district level.

	(1)	(2)	(4)	(6)
	Consumption Expenditures	*Food Consumption*	Poverty (0/1)	*Motor Vehicle Ownership (0/1)*
(a): Full Sample IHDS				
Treated	3,383**	188.5*	-0.0469	0.119*
	(1,697)	(112.5)	(0.0475)	(0.0651)
Observations	31,789	28,628	39,994	39,998
(b): Rural				
Treated	924	31.67	-0.012	0.018
	(1,855)	(120)	(0.061)	(0.064)
Observations	21,729	19,351	28,190	28,191
(c): Urban				
Treated	5,009**	369.2***	-0.105**	0.193**
	(2,422)	(139)	(0.047)	(0.093)
Observations	10,060	9,277	11,804	11,807

Table A14: Impact of Bank Expansion on Labor Market Outcomes: Polynomial 2 Regressions

This table reports "Polynomial 2 Regressions" with enterprise borrowing, enterprise employment, household wage earnings, and household business revenues as the outcome variables, using a second-degree polynomial to estimate treatment effects near the cutoff (Imbens and Lemieux, 2008). It captures potential nonlinear relationships between the running variable and the outcome. The model takes the form: $Y_i = \alpha + \beta \cdot (X_i - c) + \gamma \cdot (X_i - c)^2 + \epsilon_i$. The β coefficient measures the treatment effect at the cutoff, while γ captures curvature. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$. Standard errors in parentheses clustered at the district level.

	(1)	(2)	(3)	(4)	(5)	(6)
	Pre Policy			Post Policy		
	All	Rural	Urban	All	Rural	Urban
(a): *Enterprise Institutional Loans*						
Treated	0.005	0.014	-0.011	0.012*	0.011*	0.013**
	(0.019)	(0.0205)	(0.0218)	(0.008)	(0.007)	(0.007)
Baseline Controls	N	N	N	N	N	N
Observations	40,025,273	25,143,369	14,881,904	55,004,630	33,461,924	21,542,706
(b): *Enterprise Total Employment (District)*						
Treated	3,324	-4,666	11,510	25,802	13,281	39,267**
	(34,144)	(41,833)	(37,656)	(18,680)	(25,389)	(17,888)
Baseline Controls	N	N	N	N	N	N
Observations	581	575	566	581	576	578
(c): *Household Earnings*						
Treated	3,763	3,599	2,099	3,267	327	9,660**
	(3,393)	(4,019)	(2,999)	(3,206)	(3,606)	(4,458)
Baseline controls	N	N	N	N	N	N
Observations	21,219	16,191	5,010	28,147	21,295	6,852
(d): *Business Revenue*						
Treated	42,369	32,210	7,552	71,307***	38,812*	60,354**
	(35,776)	(41,113)	(36,564)	(23,008)	(21,814)	(24,266)
Baseline controls	N	N	N	N	N	N
Observations	7,913	4,466	3,447	7,687	4,191	3,496

Table A15: Impact of Bank Expansion on Household Credit: Polynomial 2 Regressions

This table reports "Polynomial 2 Regressions" with household borrowing measures as the outcome variables, using a second-degree polynomial to estimate treatment effects near the cutoff (Imbens and Lemieux, 2008). It captures potential nonlinear relationships between the running variable and the outcome. The model takes the form: $Y_i = \alpha + \beta \cdot (X_i - c) + \gamma \cdot (X_i - c)^2 + \epsilon_i$. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$. Standard errors in parentheses clustered at the district level.

	(1)	(2)	(3)	(4)
	Monthly Interest Loan (%)	*Number of Loans*	*Consumption Loans (0/1)*	*Outstanding HH Debt*
(a) *Full Sample IHDS*				
Treated	-0.396	-0.625	-0.0949*	-2,415
	(0.307)	(0.734)	(0.0571)	(14,729)
Baseline controls	N	N	N	N
Observations	12,881	39,942	40,018	36,678
(b): *Rural*				
Treated	-0.191	-0.118	-0.0499	12,457
	(0.355)	(0.941)	(0.0660)	(16,830)
Baseline controls	N	N	N	N
Observations	9,782	28,151	28,205	25,986
(c): *Urban*				
Treated	-1.093**	-1.196*	-0.175**	-30,348*
	(0.490)	(0.624)	(0.0731)	(17,723)
Baseline controls	N	N	N	N
Observations	3,099	11,791	11,813	10,692

Table A16: Impact of Bank Expansion on Household Savings and Investments: Polynomial 2 Regressions

This table reports "Polynomial 2 Regressions" with household savings and investment measures as the outcome variables, using a second-degree polynomial to estimate treatment effects near the cutoff (Imbens and Lemieux, 2008). It captures potential nonlinear relationships between the running variable and the outcome. The model takes the form: $Y_i = \alpha + \beta \cdot (X_i - c) + \gamma \cdot (X_i - c)^2 + \epsilon_i$. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$. Standard errors in parentheses clustered at the district level. All variables are described in Table 10.

	(1)	(2)	(3)	(4)
	Bank Savings (0/1)	*Insurance (0/1)*	*Long Term-Deposits (0/1)*	*Securities (0/1)*
(a): *Full Sample IHDS*				
Treated	0.236**	0.0450	0.134*	0.0437
	(0.101)	(0.0511)	(0.0687)	(0.0550)
Baseline control	N	N	N	N
Observations	39,871	39,903	40,018	40,018
(b): *Rural*				
Treated	0.196*	-0.0486	0.0634	0.00150
	(0.109)	(0.0414)	(0.0580)	(0.0705)
Baseline control	N	N	N	N
Observations	28,101	28,121	28,205	28,205
(c): *Urban*				
Treated	0.322**	0.147*	0.208*	0.138**
	(0.141)	(0.081)	(0.113)	(0.061)
Baseline control	N	N	N	N
Observations	11,770	11,782	11,813	11,813

Table A17: Impact of Bank Expansion on Bank Branches and Household Well-Being using Alternative Placebo Cutoffs:

This table reports p-values of the RD regressions with different (placebo) cutoffs.

	Placebo Cut-off Main Results				
	-3000	-1000	0	1000	3000
	(1)	(2)	(3)	(4)	(5)
Bank Expansion					
Bank Branches	0.823	0.429	0.036	0.983	1.00
Bank Licenses	0.888	0.825	0.000	0.559	0.999
Household Well-being					
Consumption Expenditures	0.722	0.922	0.035	0.989	0.606
Food Consumption	0.601	0.418	0.085	0.766	0.890
Poverty (0/1)	0.512	0.584	0.188	0.725	0.940
Motor Vehicle Ownership (0/1)	0.677	0.838	0.082	0.615	0.989

Table A18: Impact of Bank Expansion on Enterprise Borrowing, Household Borrowing, Savings and Investment using Alternative Placebo Cutoffs

This table reports p-values of the RD regressions with different (placebo) cutoffs.

	Placebo Cut-off Mechanism Results				
	-3000	-1000	0	1000	3000
	(1)	(2)	(3)	(4)	(5)
Institutional Loan	0.626	0.661	0.229	0.615	0.713
Labor Market					
Enterprise Total Employment (District)	0.697	0.845	0.170	0.869	0.977
Household Earnings	0.897	0.870	0.085	0.638	0.320
Business Revenues	0.583	0.738	0.002	0.373	0.277
Credit Market					
Monthly Interest Loans (%)	0.732	0.968	0.080	0.796	0.132
Number of Loans	0.332	0.924	0.441	0.621	0.723
Consumption Loans (0/1)	0.437	0.858	0.093	0.714	0.490
Outstanding HH Debt	0.460	0.953	0.854	0.663	0.163
Household Investment					
Bank Savings (0/1)	0.506	0.836	0.012	0.865	0.288
Insurance (0/1)	0.401	0.694	0.280	0.935	0.378
Long-Term Deposits (0/1)	0.355	0.363	0.065	0.921	0.653
Securities (0/1)	0.537	0.818	0.322	0.990	0.957

Table A19: Different Bandwidth Multipliers: Bank Branches and Household Well-Being

This table reports the RD regression results with bank branches, bank licenses, and household well-being measures using alternative bandwidth multiplers. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$. Standard errors in parentheses.

	Bandwidth Multiplier				
	0.50x	**0.75x**	**1.00x**	**1.25x**	**1.50x**
	(1)	(2)	(3)	(4)	(5)
Bank Expansion					
Bank Branches	0.27*	0.26***	0.17**	0.15**	0.14**
	(0.14)	(0.09)	(0.07)	(0.07)	(0.023)
Bank Licences	0.22*	0.20**	0.19***	0.20***	0.17***
	(0.14)	(010)	(0.06)	(0.06)	(0.06)
Household Well-being					
Consumption Expenditures	3,206*	2,928*	3,095**	2,234*	1,203
	(2,170)	(1,660)	(1,468)	(1,349)	(1,220)
Food Consumption	224*	174*	169*	133*	96*
	(125)	(101)	(98)	(78)	(55)
Poverty (0/1)	-0.09	-0.04	-0.04	-0.05	-0.04
	(0.08)	(0.05)	(0.04)	(0.03)	(0.03)
Motor Vehicle Ownership (0/1)	0.00	0.05*	0.08*	0.08**	0.08*
	(0.06)	(0.03)	(0.03)	(0.03)	(0.03)

Table A20: Different Bandwidth Multipliers: Enterprise Borrowing and Employment, Household Income, Borrowing, Savings and Investment

This table reports the RD regression results with labor market and credit market outcomes using alternative bandwidth multiplers. $*p < 0.1$, $**p < 0.05$, $***p < 0.01$. Standard errors in parentheses.

	Bandwidth Multiplier				
	0.50x	**0.75x**	**1.00x**	**1.25x**	**1.50x**
	(1)	(2)	(3)	(4)	(5)
Enterprise Institutional Loans	-0.000	0.008	0.009	0.010	0.011*
	(0.012)	(0.008)	(0.007)	(0.006)	(0.006)
Labor Market Outcomes					
Enterprise Total Employment (District)	19,465	24,081	21,451	19674	17,313
	(28194)	(20,319)	(16,842)	(14,467)	(12,783)
Household Earnings	5582	4,624*	4,093*	3,924*	3,773
	(4,412)	(2,894)	(3,021)	(2,723)	(2,509)
Business Revenues	86,659*	79,192***	65,937***	62,868***	55,799***
	(52,243)	(28,351)	(22,137)	(19,361)	(17,626)
Credit Market Outcomes					
Monthly Interest Loan (%)	-0.76*	-0.61*	-0.50*	-0.38*	-0.25
	(0.40)	(0.31)	(0.28)	(0.26)	(0.24)
Number of Loans	-0.33	-0.45	-0.48	-0.41	-0.35
	(0.90)	(0.73)	(0.63)	(0.53)	(0.46)
Consumption Loans (0/1)	-0.06	-0.07	-0.08*	-0.07*	-0.05*
	(0.07)	(0.05)	(0.04)	(0.04)	(0.03)
Outstanding HH Debt	-3,684	-4,007	-2,391	-3,021	-5,191
	(19,713)	(15,065)	(13,013)	(11,503)	(9,794)
Household Investments					
Bank Savings (0/1)	0.27*	0.27**	0.21**	0.16**	0.12**
	(0.15)	(0.10)	(0.08)	(0.07)	(0.06)
Insurance (0/1)	0.05	0.04	0.044	0.040	0.032
	(0.05)	(0.045)	(0.041)	(0.036)	(0.032)
Long-Term Deposits (0/1)	0.06	0.11*	0.09*	0.11*	0.09
	(0.12)	(0.06)	(0.05)	(0.05)	(0.04)
Securities (0/1)	0.03	0.04	0.04	0.05	0.05*
	(0.06)	(0.05)	(0.04)	(0.03)	(0.03)

Table A21: Robustness to Different Bandwidth Selectors: Bank Branches and Household Well-Being

This table reports the RD regression results with labor market and household credit measures using different bandwidth selectors. The first and second columns are MSE-optimal bandwidths, initially identical and then different to the left and right of the cutoff. The third and fourth columns indicates CER (Coverage Error Rate)-optimal bandwidths, first identical and then different to the left and right of the cutoff (Calonico et al., 2019; Calonico, Cattaneo, and Titiunik, 2014). $*p < 0.1$, $**p < 0.05$, $***p < 0.01$. Standard errors in parentheses.

Variables	MSE Optimal		CER Optimal	
	Common	Two-sided	Common	Two-sided
	(1)	(2)	(3)	(4)
Bank Expansion				
Bank Branches	0.17**	0.21***	0.23**	0.23**
	(0.06)	(0.07)	(0.09)	(0.09)
Branch Licenses	0.19***	0.26***	0.31***	0.30***
	(0.06)	(0.07)	(0.02)	(0.02)
Household Well-being				
Consumption Loans	3,095**	3,163**	2,924*	3,994**
	(1,468)	(1,531)	(1,661)	(2,016)
Food Consumption	168*	138*	175*	159*
	(98)	(79)	(108)	(98)
Poverty (0/1)	-0.04	-0.05	-0.04	-0.12*
	(0.04)	(0.04)	(0.05)	(0.07)
Motor Vehicle Ownership (0/1)	0.08**	0.08**	0.05	0.09*
	(0.03)	(0.04)	(0.04)	(0.05)

Table A22: Robustness to Different Bandwidth Selectors: Enterprise Borrowing, Employment, Household Income, Borrowing, Savings and Investment

This table reports the RD regression results with labor market and household credit measures using different bandwidth selectors. The first and second columns are MSE-optimal bandwidths, initially identical and then different to the left and right of the cutoff. The third and fourth columns indicates CER (Coverage Error Rate)-optimal bandwidths, first identical and then different to the left and right of the cutoff (Calonico et al., 2019; Calonico, Cattaneo, and Titiunik, 2014). $*p < 0.1$, $**p < 0.05$, $***p < 0.01$. Standard errors in parentheses.

Variables	MSE Optimal		CER Optimal	
	Common	Two-sided	Common	Two-sided
	(1)	(2)	(3)	(4)
Enterprise Institutional Loans	0.009	0.009	0.008	0.008
	(0.007)	(0.007)	(0.008)	(0.008)
Labor Market				
Enterprise Total Employment (District)	21,448	22,233*	24,671	24,640
	(16,782)	(14,905)	(20,675)	(18,605)
Household Earnings	4,093*	3,251	3,626	4,192*
	(3,015)	(2,821)	(3,397)	(2,723)
Business Revenues	65,932***	69,814***	79,674***	83,969***
	(22,059)	(24,145)	(28,454)	(38,874)
Credit Market				
Monthly Interest Loans (%)	-0.50*	-0.52**	-0.61*	-0.46
	(0.28)	(0.26)	(0.31)	(0.30)
Number of Loans	-0.48	-0.33	-0.44	-0.85
	(0.63)	(0.79)	(0.73)	(1.06)
Consumption Loans (0/1)	-0.08*	-0.06	-0.07	-0.11*
	(0.04)	(0.05)	(0.05)	(0.07)
Outstanding HH Debt	-2,391	-1,764	-4,169	-8,109
	(12,989)	(15,804)	(15,078)	(20,907)
Household Investments				
Bank Savings (0/1)	0.21**	0.19**	0.27***	0.18
	(0.08)	(0.10)	(0.10)	(0.14)
Insurance (0/1)	0.04	0.05	0.04	0.03
	(0.04)	(0.05)	(0.04)	(0.08)
Long-Term Deposits (0/1)	0.09*	0.08	0.11*	0.06
	(0.05)	(0.05)	(0.06)	(0.12)
Securities (0/1)	0.04	0.04	0.04	0.03
	(0.04)	(0.04)	(0.05)	(0.06)

Table A23: Placebo test using Regional Rural Banks

Sample includes only regional rural banks, which were not included in the 2005 Bank Expansion Policy. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$. Standard errors in parentheses clustered at the district level.

	(1)	(2)
	Regional Rural Bank Branches 2010	Regional Rural Bank Licenses 2010
Treated	-0.054	-0.091
	(0.056)	(0.073)
Control Mean	1.03	1.03
First Stage	0.78	0.79
Bandwidth	4,853	5,181
Efficient Observations	291	311
Baseline Control	No	No
Observations	567	565

Table A24: Bank Presence and Living Standard Index

	(1)	(2)	(3)
	Living Standard Index		
	All	Rural	Urban
Treated	0.094*	0.081	0.127**
	(0.055)	(0.071)	(0.072)
Control Mean	1.282	1.353	1.131
Two stage q value	0.079	0.200	0.043
First Stage	0.77	0.77	0.75
Bandwidth	5,016	5,030	4,113
Efficient Obs.	311	311	254
Observations	580	574	577

Table A25: Bank Presence and Local Economic Development

Table A25 shows the impact of treatment on household well-being outcomes averaged at the village/primary sampling unit level. Column (1) and (2) shows the natural log of *Consumption Expenditures* and *Food Consumption*. Column (3) and (4) show household likelihood of being poor and motor vehicle ownership averaged at the village/primary sampling unit. $*p < 0.1$, $**p < 0.05$,$***p < 0.01$. Standard errors in parentheses clustered at the district level.

	(1)	(2)	(4)	(6)
	Log Consumption Expenditures	*Log Food Consumption*	Poverty (0/1)	*Motor Vehicle Ownership (0/1)*
(a): *Full Sample IHDS*				
Treated	0.259***	0.175***	-0.0568**	0.104***
	(0.0688)	(0.0509)	(0.0235)	(0.0274)
Observations	2,435	2,420	2,435	2,435
(b): *Rural*				
Treated	0.0544	0.0915**	-0.0320	0.0689**
	(0.0521)	(0.0422)	(0.0272)	(0.0314)
Observations	1,465	1,455	1,465	1,465
(c): *Urban*				
Treated	0.231***	0.235***	-0.0818***	0.125**
	(0.0634)	(0.0505)	(0.0292)	(0.0584)
Observations	970	965	970	970