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The Relationship Dilemma: Why Do Banks Differ in the Pace at Which They Adopt New Technology?

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ABSTRACT

India introduced credit scoring technology in 2007. We study adoption by the two main types of banks operating there, new private banks (NPBs) and state-owned public sector banks (PSBs). NPBs start checking the credit scores of most borrowers before lending, soon after the technology is introduced. PSBs do so equally quickly for new borrowers but very slowly for prior clients, although lending without checking scores is reliably associated with more delinquencies. We show that an important factor explaining the difference in adoption is the stickiness of past bank structures and associated managerial practices. Past practices hold back better practices today.

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Do all organizations in a sector adopt a new technology or business practice at a uniform rate? Or do we see different rates of adoption across organization types in a sector even if adoption seems generally worthwhile? What determines whether a certain organization adopts the new technology? Do legacy structures and practices matter? We examine these questions with microdata on lending, using as our setting the introduction of credit scoring technology in retail lending in Indian banking in the late 2000s.

In contrast to developed countries such as the United States, where credit bureaus and credit scoring have been around for several decades, credit bureaus obtained legal certitude in India only around 2007, after legislation requiring banks to submit data to bureaus was passed. The act of incorporating borrower credit information from the bureau into a loan decision is a clear marker of the adoption of the credit bureau technology in lending. This gives us a precise metric for the timing and extent of adoption of the technology. We examine the differences in the pace of adoption of this new technology between the two dominant types of banks in India: state-owned banks, also called public sector banks (PSBs), and "new" private banks (NPBs), relatively modern enterprises licensed after India's 1991 liberalization. Together, these banks account for approximately 90 percent of banking system assets over the period we examine.

For both types of banks, the usage of credit bureaus represents a new and unfamiliar practice. Moreover, the value of adopting this practice is unclear to both types of banks because Indian credit bureaus are subsidiaries of foreign entities, with short operating histories in India. If there are differences to be found in adoption practices between any two categories of banks, we expect to find them between these. And indeed, we do. Yet, as we will see, while ownership is a salient differentiator between these banks, the differences we uncover do not seem to result from differences in bank ownership alone. Let us explain in more detail.

We analyze adoption using a comprehensive dataset on credit inquiries and consumer loans that we obtained from a major credit bureau in India. The sample is drawn from the bureau database of loans, repayment histories, and credit scores for over 255 million individuals. The process for initiating credit inquiries is straightforward. Banks submit an electronic request with customer biographic and demographic data. The bureau returns a report containing the credit score or a null report if there is no match. Inquiries are a nearly free option for banks; banks pay a nominal fee of $0.15-0.30 per inquiry, which is less than 0.04% of the average loan amount. Since the cost of requesting a score is negligible, and at worst the score can simply be ignored, the scoring technology is worth adopting if at all useful.

In developed markets such as the United States, it is routine for banks to check credit scores before granting credit. However, in our sample, this is not the case. Several years after the

introduction of credit bureaus, we find that banks make a large number of loans without bureau credit checks, even for customers for whom the bureau holds score data. Interestingly, the lag in using credit bureaus is concentrated in the state-owned public sector banks (PSBs). At the end of the sample period in 2015, PSBs check credit scores for only 12% of all loans compared to 67% for NPBs.

An immediate explanation is that PSBs make a large number of loans to comply with government mandates requiring them to lend to economically weaker "priority" clients, where inquiries may not be relevant. We eliminate these loans, as also gold-backed loans, from the sample. Nevertheless, the inquiry gap is still significant. For instance, in 2015, 88% of all retail loans by NPBs are preceded by inquiries, double the rate of 44% for PSBs.

Perhaps more interestingly, we find that the gap in bureau usage depends on the type of the customer seeking a loan. For *new* applicants, PSBs are quick to use credit bureau technology. In every year in our sample, PSBs inquired about 95% or more of new customers before making them a loan, about the same as the ratio for NPBs. Thus, PSBs are not incapable of, or averse to, using new technology. Instead, PSBs seem to be less willing to use the new technology for loan applicants with whom they have a prior lending relationship. For these borrowers, we find a significant gap even in 2015, the last year of our sample, in which only 23.4% of the number of PSB loans to prior borrowers were made after inquiry compared to 71.9% of loans for NPBs. The reluctance to inquire for prior borrowers persists 8 years after credit bureaus open, though both PSBs and NPBs continue to increase their inquiry rates.

We consider the possibility that PSBs do not inquire because the bureau has no data on their clients. The evidence suggests otherwise. A large number of clients who are granted loans by PSBs without inquiry have valid credit scores at the time the loan was made. We also consider the possibility that credit scores are not useful. We obtain credit scores representing the real time information that PSBs would have seen had they inquired with the bureau for the loans they made without checking scores. Such "point-in-time" credit scores are reliably related to ex-post delinquencies. For a range of plausible counterfactual policy functions on how the score data would be used if it were obtained, we find that the greater use of credit scores by PSBs would reduce the portfolio delinquency of prior borrowers significantly from 1.29% to 0.57%, more than halving the baseline delinquency rate.

Interestingly, the delinquencies are related to prior relationships in an asymmetric way for NPBs and PSBs. For NPBs, conditioning on credit score, loans made to prior borrowers turn delinquent less frequently than loans made to new borrowers. This seems intuitive. Credit scores are based on hard information in the language of Stein (2002) – information that is

captured in objective data such as the borrower's debt and repayment record, for example. The bank should be able to supplement this with additional information on prior borrowers. Additional information could include hard information on cash flows, but also soft information that is hard to record in objective data but is possibly credit-related, ranging from their attitude in meetings to their punctuality and attire. This should help a bank's loan officer make better credit decisions for applicants who were prior borrowers than for new applicants, because the officer can augment the information embedded in credit scores with her own information.

Surprisingly therefore, for PSBs delinquency rates for loans to prior borrowers are higher than that for NPBs in every credit score category, including applicants where the credit bureau does not have enough data to return a score (henceforth the "unscored"). Perhaps most extraordinarily, PSB delinquency rates for prior borrowers *exceed* delinquency rates for its new borrowers in every credit score category. PSBs make worse credit decisions if they know a borrower than if they don't! It seems quite clear that this pattern is related to their unwillingness to inquire about prior borrowers, which suggests more lax credit standards.

It is not that PSB loan officers are uniformly aggressive in lending. Conditioning on an applicant's credit score, PSBs are less likely to lend to new clients than NPBs. This conservatism is also reflected in lower delinquency rates for inquired loans to new applicants. The conservatism in lending carries over to inquired prior clients who have scores. However, compared to the NPBs, PSBs seem *more* willing to lend for prior clients who are inquired and don't have scores. In addition, PSBs make a relatively larger number of loans to prior clients without inquiry. Taken together then, the chances of a prior relationship applicant getting a loan from a PSB are much higher for every credit category than are the chances for an NPB's prior client. Not checking credit scores appears to grant more discretion to PSB loan officers; conversely, checking scores appears to be associated with lower PSB discretion. The unwillingness to adopt the new scoring technology is thus essentially the unwillingness of PSBs to shed this discretion given to loan officers, even at the expense of credit quality.

We explore explanations for these findings. Interestingly, the reason for PSB inquiry aversion does not seem to necessarily reflect their state ownership! There is a class of privately-owned institutions, old private banks (OPBs), which are of similar vintage and thus operated in similar economic environments as PSBs. However, unlike PSBs that were nationalized in two waves in 1969 and 1980, OPBs remained in private hands as they were deemed too small. We find that the pattern of technology adoption by OPBs is similar to that of PSBs. Old private banks adopt credit scoring quickly for new clients but are reluctant to inquire about existing clients. Whatever prompts this behavior, therefore, it is not just state ownership. Nor is it just

bank size – a possible indicator for bureaucracy and lack of agility -- as OPBs are an order of magnitude smaller than PSBs (and NPBs).

NPBs are younger, were typically started post-liberalization in the 1990s when information and communications technology (ICT) was in widespread use. Both PSBs and OPBs are both old organizations with their median age exceeding 80 years. Thus, NPBs could possibly create organizational practices that were more accommodative of data, information, and communications technologies needed to use credit bureaus. However, because PSB and OPBs are far from averse to inquiring from bureaus for new borrowers, an explanation relying purely on their aversion to technology use seems unlikely to be the whole story.

We conjecture that PSBs and OPBs may have traditionally given their loan officers more discretion because of the nature of their branching structure in the pre-1990s liberalization era. Post-bank-nationalization in the 1970s, India required all banks to focus on branching in underserved areas away from the bustling metros. Approvals for opening new branches in metros were difficult to obtain without a commitment to disproportionate increases in branches in rural areas (see Burgess and Pande (2005)). These then became the focus of bank growth. In this era, ICT was also underdeveloped.

Given the relative paucity of formal records and data, that is, "hard" information on potential borrowers in underserved rural areas (a lacuna which we show exists even today), banks may have optimally given more discretion to their loan officers in those areas. As Stein (2002) argues, this would incentivize loan officers to generate and use soft information, informal data, and subjective judgments about potential borrowers. If it is hard to fine tune policies on discretion to specific branches, a bank may have optimally adopted a bank-wide policy of allowing loan officers more discretion if the bank's business was more focused on semi-urban and rural branches.

With regulatory liberalization in the 1990s, including the licensing of new private banks, the branching requirements were steadily done away with. Newly licensed NPBs could focus on metros, which they did, and with advancements in ICT and data availability, NPBs had much less need to offer loan officers discretion. So the first leg of our explanation is that the older PSBs and OPBs had branch structures and policies on discretion that responded to historical regulations, which did not apply to NPBs.

The second leg of our argument is that legacy structures and practices acquired staying power. PSBs and OPBs have had to continue to maintain their legacy branch networks – even today, the Reserve Bank does not permit banks to close branches in underserved areas. So PSBs and OPBs, with more of rural network than NPBs, would have had more reason to maintain

their historical lending policies that relied on loan officer discretion. This would have been fortified, no doubt, by loan officer resistance in giving up discretion for new and unfamiliar credit scoring processes relying on hard information with unproven value. Loan officers would have more reason to use their discretion in the case of prior borrowers because they would have more soft information on them gleaned from the prior relationship. Moreover, they could use familiar processes for managing the bank-specific information flows. Finally, the social payoff would be greater to helping their old customers, shielding them from the possibly harsh pronouncements of a distant, albeit informed, credit bureau.

We take these conjectures to the data and report supporting evidence. Using a proxy for the rural-versus-urban focus of a bank prior to our analysis period, we find that banks with a more non-urban lending focus (we say "non-urban" rather than "rural" since even the most "rural" agglomeration in our data has villages of up to 5000 people) tend to inquire their prior relationship applicants disproportionately less even towards the end of our sample period. While the effect is also seen in NPBs, it is clearly stronger for PSBs and OPBs, suggesting that there might be hysteresis effects from allowing discretion in the past.

We also examine within-client variation in usage. Interestingly, banks with a greater non-urban focus inquire even their urban applicants relatively less, while banks with a greater urban focus inquire their non-urban applicants relatively more. This suggests that the policy most suited to the predominant source of the bank's business influences bank-wide policy.

In addition, we find that the inquiry aversion for PSBs and OPBs is more pronounced for clients with whom they have enjoyed an especially long prior relationship, suggesting discretion is exercised with clients about whom loan officers believe they have more information, and with whom they may have social ties. Finally, to the extent that the greater non-urban focus of a bank drives its policy of allowing its loan officers discretion, and thus lower inquiry, we find lower policy-driven inquiry is associated with higher delinquency rates. This suggests that a policy of continuing to allow discretion is costly. Indeed, this realization and the steady process of taking away discretion from empowered loan officers may explain why even PSBs and OPBs are moving to inquire more.

In sum, much as Mundlak (1961) found that there were persistent firm-specific variations of productivity within an industry, and Bloom and Van Reenen (2007) suggest this is explained by differences in management quality, we have shown there are bank-specific differences in technology adoption. Interestingly, we also find within-organization differences in adoption across customers (and geographies), which suggests that slow adoption is not because of unfamiliarity with technology use. We show that the variation in adoption likely stems from

differences in legacy management practices set in earlier years that change relatively slowly even when technological possibilities change. From a normative and developmental perspective, the obvious question is whether management practice can be altered more rapidly. Put differently, should legacy management practices be seen as part of the bank's "technology," which will differ across banks (and even *within* them) in the industry? That is a question for future work.

The rest of the paper is organized as follows. Section I presents some institutional background regarding the banking system and credit bureaus in India. Section II describes the credit bureau dataset and gives baseline descriptive statistics on the consumer credit market in India. Section III establishes the basic empirical facts regarding credit bureau adoption such as the surprisingly common practice of not using credit bureaus for all loans and the reluctance of PSBs to inquire before making loans to prior borrowers. In Section IV, we construct counterfactuals that give an estimate of money left on the table by PSB behavior. In Section V, we list possible explanations and test them, and in Section VI, we ask why discretion is specific to prior relationships. In Section VII, we discuss the implications of our results for research on the adoption of new management practices and also the related literature. We conclude in Section VIII.

I. Institutional Background

A. Indian Banking Sector

Before moving to the credit bureau data, we briefly discuss the two major types of banks in our sample. India's central bank, the Reserve Bank of India (RBI), regulates the Indian banking industry. Entry requires a license, which is granted infrequently, so most bank growth has been through expansion of the branch networks of incumbent banks. As of March 2015 (end of fiscal year 2015), the end of our sample period, India had 96 major banks. These banks had 125,672 branch offices, INR 89 trillion (US$1.4 trillion) of deposits, and INR 65 trillion (US$1 trillion) in credit outstanding.[2]

State-owned banks, called "public sector banks" (PSBs) in India, account for about 71% of credit outstanding. All but one of them were privately owned prior to 1969. They became state-owned in two waves of nationalization in 1969 and 1980. Following an economic crisis

[2] See https://rbidocs.rbi.org.in/rdocs/Publications/PDFs/T_1010006F0329D7546D4986D609257186816.PDF. The banks collectively employ over a million individuals of which about 830,000 are in the PSBs. INR 65=$1 around the end of our sample.

in 1991, India liberalized its economy and granted new bank licenses, whence new private sector banks (NPBs) were formed and licensed to operate. NPBs have market shares in deposits and credit of about 21%. India also has old private sector banks (henceforth OPBs), which were entities deemed too small to be nationalized in 1969 and 1980. While we will examine OPBs later, the other categories of banks apart from the two dominant ones are not part of our study.[3]

Figure 1 displays key characteristics of NPBs and PSBs. The average size of the PSBs is not significantly different from that of NPBs. For instance, in 2019, the average of the gross advances per PSB is INR 167 billion compared to INR 227 billion for NPBs and the difference is not significant with a t-test *p*-value of 0.57. However, there is significant dispersion in the size (see Figure 1, Panel A). Panels B and C give a time-series plot of the capital adequacy ratio and the return on assets (a profitability measure) for NPBs and PSBs over a decade after the 2008 financial crisis. PSBs consistently operate at lower capital ratios, are consistently less profitable, and have had significant asset quality problems, as illustrated in Panel D of Figure 1, which plots the ratio of the net non-performing assets to total assets.[4] PSBs are older. The average PSB is 81 years old while the typical NPBs is 22 years old in our sample.

PSBs were relatively slow to adopt information and communications technology due to union fears of job losses (Rishi and Saxena, 2004) but started computerizing their branches in the late 1980s. NPBs, born in a liberalizing banking environment that allowed them to operate without the burdens of legacy regulatory, institutional, and human constraints, were more technology intensive even at early stages in their existence.[5] For instance, in 2001, the average revenue per employee for NPBs was INR 75 million, about 5 times the INR 13-16 million for PSBs. NPBs entered in an era when the emphasis on opening rural branches (Burgess and Pande, 2005) was relaxed. Given these organizational differences, it seems appropriate to examine NPBs and PSBs for differences in the pace of adoption of the credit scoring technology when it emerged later.

B. Establishment of Credit Bureaus in India

Credit bureaus in India have a more limited operating history than those in the United States (see Avery, Calem, and Canner, 2003). The oldest bureau in India, Transunion CIBIL, was established in 2000 and began as a fledgling consumer bureau service with 4 million records

[3] Our sample excludes 56 small Regional Rural Banks and Local Area Banks serving small town and rural markets, and many small co-operative banks. Over 100 foreign banks are licensed to operate in India but they have small market shares with limited geographical footprints restricted to very large urban areas.
[4] For a more detailed discussion of these issues, see Chapter 7 of India's 2020 Economic Survey available at, https://www.indiabudget.gov.in/economicsurvey/doc/vol1chapter/echap07_vol1.pdf
[5] See Bandopadhyay, T., 2012, "A Bank For the Buck." Jaico Publishing for an account of HDFC, one such bank.

in 2004. Enabling legislation was finally passed as the 2005 Credit Information Companies (Regulation) Act or CICRA and went into effect on December 14, 2007. The Act requires financial institutions to submit lending and repayment data to bureaus. However, banks are not required to use bureau data prior to lending.[6] Indeed, bank managers may have legitimate skepticism about the benefits of bureau data. One reason is that large segments of India's population simply do not access the formal financial system and thus do not have ways to build credit histories. Even establishing a person's identity has not been easy. Rules permit multiple identity documents, many are paper-based or hand-written with no standardization of the fields in the document. Given these operational challenges, the value of bureau data in its early days may have been unclear, but symmetrically so for both PSBs and NPBs.

C. Checking Credit Scores

Financial institutions submit monthly data on all new loans granted, as well as repayments, to credit bureaus. The bureaus record these submissions and extensively cross-check submissions for integrity. For a nominal fee, currently $0.15-0.30, financial institutions can inquire with the bureau about new applicants for credit. Once a bank makes an inquiry, the bureau cross-checks member identities through de-duplication algorithms. A match is returned only when the degree of agreement based on 10 fields such as name, age, address, zip codes, phone numbers, and family members staying in the same dwelling exceeds a threshold. If individuals cannot be matched reliably, the bureau returns a null credit report. If a match is found, the bureau returns a point-in-time credit score and a brief report.

II. Data and Baseline Descriptive Statistics

A. Our Random Sample

Our data come from Transunion CIBIL, which is India's oldest bureau. Our sample period ends in March 2015 (the end of the 2015 fiscal year). As of this date, Transunion CIBIL covers 1,840 member financial institutions and 255 million individuals who have 472 million loan records.[7] The bureau started with the universe of all individuals covered and extracted a 1% sample at random, which was anonymized and provided to us for analysis on site. Any

[6] For example, a committee formed in 2014 by India's central bank, the Aditya Puri committee, recommended further study on this issue. See https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/APR220314FS.pdf, March 22, 2014. The circulars pertaining to credit bureau usage include DBOD.No.BC.DL.(W)12/20.16.002(1) 98-99; DBOD No. DL. BC. 111/20.16.001/2001-02, Submission of credit information to CIB. June 4, 2002; RPCD.CO RRB.No. 32/03.05.33/2009-10, CIC (Removal of Difficulties) Order, 2008, October 20, 2009;

[7] The credit registry dataset is proprietary and not publicly available. We have no access to fields such as the names of the individuals or their exact addresses in these files. The bureau requires all analysis to be performed locally on their computers and do not permit remote access.

individual in the random sample is retained for all the analysis regardless of whether the individual had only inquiries, loans without inquiries, or loan granted after inquiries. We adopt the bureau terminology of labeling each individual as a unique "FID."

B. Inquiry and Trade Files

The credit bureau data are organized into 3 files. The *address* file contains demographic data from which we obtain the age and gender of the applicant. The *inquiry* file records all inquiries made by member financial institutions with the bureau. We do not know the type of loan for which there is an inquiry since banks do not report this while inquiring. The third data file is the *trade* file, which includes records of all new credit granted. This dataset includes an indicator for the type of loan made such as agricultural or automobile loans.[8] For each credit facility, the trade file includes the loan amount granted and an indicator for whether the repayment is delayed. The older bureau data, especially in the years immediately after the passage of the CICRA in 2007, are less complete but the more recent data are fully populated. The data issues are not relevant for our regression sample, which focuses on data after March 2012.

C. Descriptive Statistics on Inquiries and Loans

Consider an applicant who walks into a bank seeking a loan. The loan could be rejected summarily without further processing. Interviews with loan officers suggest this happens only if a loan is clearly impossible – because the borrower is from outside the region covered by the branch or because the borrower does not have anywhere near the income for the loan amount sought.

If the bank decides to move forward, it could inquire from the credit bureau, or it could make a loan without an inquiry. We define an inquired loan, that is, a loan preceded by inquiry, as a loan made by a bank to an individual for which the bank made an inquiry at the credit bureau within a 180-day window prior to the loan. A loan without inquiry is one where there was no such inquiry. While we do not have data on applications that are summarily rejected, we do know the total number of inquiries made by a bank and the loans made without inquiry. We call the sum of the number of inquiries and loans without inquiry "*filtered applications"*. It is our proxy for applications, but after filtering out any applications summarily rejected by banks on which the Bureau does not collect any information.

[8] Credit cards are not a significant source of credit in India and most activity in this area in our sample period is due to foreign banks in metropolitan areas. For instance, as of September 2016, consumer lending accounts for 19.34% of total bank credit while cards comprise 0.70%. As of December 2017, there are 36 million credit cards outstanding in India compared to 847 million debit cards (htpps://dbie.rbi.org.in)

In Table 1, we report annual aggregates on filtered applications, inquiries, and loans for our 1% subsample. "Year" denotes the fiscal year ending on March 31, which is the financial year end for all banks in our sample and for almost all Indian corporations. The total amount of new loans in the 1% sample is INR 895.97 billion (US$13.78 billion at $1 = INR 65) so the aggregate volume of new loans in the bureau data is about INR 89 trillion (US$1.4 trillion). The data show that India's consumer lending market is booming. In 2006, the 1% sample contains 178,032 loans for an aggregate amount of INR 38.87 billion. In 2015, there are 579,015 loans for an aggregate amount of INR 177.73 billion. The annual growth in the number of loans is 15.2%. The growth in the amount disbursed is even more impressive, close to 20% per year, exceeding the nominal GDP growth of 14.6% per year during this period. The credit growth reflects both a consumer credit boom in India and also the better coverage of credit by bureaus as reporting technologies become better integrated into the banking system.[9]

The starting point for our analysis in Table 1 is the usage of credit bureaus by banks. Between 2006 and 2015, the 1% sample contains 4.33 million filtered applications and 2.97 million loans, of which 2.29 million loans (77%) are made without inquiry. Bureau utilization increases over time. The number of inquired loans in the 1% sample (column 7) goes up 30-fold from 5,150 in 2006 to 177,439, and inquired loan amounts (column 11) increase by about 40 times from INR 2.95 billion to INR 114.64 billion. The share of the overall loan amount inquired, reported in column 12, increases from 7.60% in 2006 to 64.51% in 2015. However, over one-third of the amount and close to 71% of the number of loans are made without a credit bureau inquiry, 8 years after bureaus were legally enabled in India.

III. Bureau Usage by PSBs and NPBs

A. The PSB - NPB Differential

In Table 2, we partition the credit bureau dataset by bank type. Inquiries are systematically lower for PSBs compared to NPBs in every year of the sample. For instance, in 2015, the final year of our sample, PSBs inquire only 11.67% of the number and 41.38% of the amount versus 67.31% and 85.19%, respectively, for NPBs. As an alternative metric, we define the variable "bureau usage" as the number of inquiries divided by the number of filtered applications. Usage is thus the proportion of the filtered applicant pool that is inquired. Column 4 of Table 2

[9] It is not possible to get a precise decomposition of the two components. The bureau data reflect the flow of new loans granted while the official RBI statistics are based on the stock of loans outstanding. That a good portion of the bureau statistics reflects real lending growth is clear from the RBI Basic Statistical Returns, in which the number of consumer and agriculture loan accounts increase by 63% from 65.29 million to 106.29 million over the same period while the corresponding loan amount more than doubles from INR 5.27 trillion to INR 11.4 trillion.

indicates that bureau usage is 27.12% for PSBs versus 85.43% for NPBs. This is more than a 50-percentage point gap in bureau usage between the two types of banks.

There could be a variety of natural explanations for why PSBs use bureaus less that have nothing to do with organizational characteristics. Three come immediately to mind: a) PSBs make different kinds of loans. For instance, they may have greater numbers of government-mandated "priority sector" loans for which they have less ability to use credit scores to inform lending; b) PSB clientele are unlikely to be tracked by the credit bureaus; c) Bureau information may not be incrementally informative to the internal information held by PSBs.

B. Excluding Priority Sector and Gold Loans

Government mandates require Indian banks to lend a certain fraction of their portfolio to entities such as farmers and the poor who are traditionally cut off from the formal credit market (Banerjee, Cole, and Duflo, 2005; Burgess, Pande, and Wong, 2005). Such loans are called priority sector loans. PSBs may be more likely than NPBs to meet these statutory obligations with small ticket loans to farmers and financially excluded individuals. These individuals are less likely to have credit data and even if they do, banks may not have much ability to alter credit decisions based on scores, which may be one reason why PSBs have low inquiry rates.

A second source of variation in inquiries is lending against gold collateral, or gold loans. PSBs may make more gold loans than NPBs, in part because they treat some gold loans as priority sector loans. Moreover, gold loans are safer because regulations stipulate significant haircuts on gold collateral and because gold has a special place in Indian culture as a means of saving and making intergenerational wealth transfers, so defaults on pledged gold are rare.

Both gold loans and priority sector loans are indeed more common for PSBs. Over our sample period, 84.5% of the gold loans and 98.6% of the priority sector consumer loan originations are by PSBs.[10] Both categories of loans also have low inquiry rates. For instance, only 1.80% of the sample of priority sector loans and 2.88% of gold loans were preceded by a bureau inquiry. We exclude both priority sector and gold loans from further analysis.[11]

C. Final Sample After Excluding Gold and Priority Sector Loans

.We report data on our final 1% sample in Table 3A and 3B, which represent loans made to new applicants and existing borrowers, respectively. The total amount lent to all borrowers across the two tables is INR 306.12 billion and the total number of loans equals 744,868 loans,

[10] Discussions with the credit bureau indicate that priority sector loans include agricultural loans and loans to micro enterprises.

[11] We note a small bias here as some inquiries remaining in our sample may pertain to these types of loans. Given that less than 2% of agricultural loans are inquired and less than 3% of gold loans are inquired, the bias will be small. The adjustment of the base bureau usage rates for these differences is minor.

split roughly equally between PSBs and NPBs. The average loan amount is INR 521,000, the average customer age is 42.73 years, and 84.61% of customers are male for PSBs versus INR 544,000, 37.26 years, and 76.91% for NPBs, respectively. Our final 1% sample includes three consumer loan products: housing loans, automobile loans and other consumer loans. Housing loans account for 50% of the total lending amount while the others account for 25% each.

It is reasonable to expect credit bureaus to be helpful for all three loan products. Retail consumer loans without collateral require diligence in assessing borrower repayment capacity. However, in India, even collateralized loans are dependent on the borrower's repayment capacity because of difficulties in collateral enforcement (Visaria, 2009; Vig, 2013). Banks can begin procedures only after 90 days of non-payment, after which they must serve a notice period of 60 days, and another notice period of 30 days before repossession is initiated. Actions can be appealed and courts are so clogged that even fast track courts with mandates to clear cases in 90 days can take years to arrive at decisions.

D. Inquiries for New and Prior Relationships

We classify a loan or inquiry for a customer as being a "prior relationship" if the customer has a prior borrowing from the inquiring bank since the start of our sample. Other customers are new borrowers. The duration of the prior relationships is similar for PSB and NPB borrowers at 2.99 and 2.95 years, respectively.[12]

Table 3A shows that for customers with no prior relationship with the inquiring bank, there is a relatively minor difference in bureau usage rates between PSBs (98.6%) and NPBs (99.6%). The time series evidence is informative. Table 3A shows that PSB usage of bureaus for new customers is above 98% starting in 2006. Thus, right from its introduction, PSBs adopt the credit bureau technology almost fully for new borrowers. Thus, the low overall bureau usage by PSBs does not reflect their generalized technology aversion or ignorance of the technology, which may be typical of large bureaucratic organizations.

In sharp contrast to the evidence for new borrowers, Table 3B shows that inquiry rates are far lower for PSBs when it comes to prior relationship borrowers. Even in 2015, the end of our sample period, Table 3B shows that the bureau usage rate is only 48.29% for PSBs (Panel A), compared to 90.31% for NPBs (Panel B), representing a 42.02% gap.[13] Thus, PSBs embrace

[12] In unreported robustness tests, we define a prior relationship as a relationship that is at least one year old. We also consider the duration (in years) of the prior relationship. The main findings remain robust to these alternatives.

[13] In the Online Appendix Table A2, we show that PSBs inquire all types of loans less than comparable loans made by NPBs and especially loans to prior relationships. Among loan types, PSBs seem to inquire smaller-size consumer loans the least.

the new technology fully for new borrowers from the onset but seem unwilling to do so for customers with prior relationships.

E. Credit Score Availability and Bureau Usage

One explanation for low bureau usage by PSBs is that fewer of their customers have bureau records or scores. If loan officers believe the client is likely to have a sparse credit record and no credit score, they may be less inclined to check scores before lending.[14] We test this point directly by examining score data, which the bureau provides us for fiscal years 2013 and 2014. The credit scores are historical "point in time" numbers that were available to banks in real time when inquiries or loans were made. In Table 4, we classify filtered applications for both PSBs and NPBs by whether credit scores are available. When scores are available, we also report data by credit score buckets, which we will turn to shortly. For inquired loans, the credit scores are what the banks who inquire see. For un-inquired loans, the scores are what the banks would have seen had they inquired.

Between PSBs and NPBs, there is a relatively small difference in the fraction of the new borrower applicant pool that is scored. For example, Table 4 Panel A indicates that 60,909 of the 94,730 filtered applicants, or 64%, of PSB applicants have no credit scores compared to 95,249 out of 136,550, or 69%, for NPBs. However, for clients with prior loan relationships, Panel B indicates 57% of PSB applicants have no scores versus 41% for NPBs. Nevertheless, these figures still do not explain the difference in bureau usage rates between PSBs and NPBs. For example, within the pool of prior relationship applicants, the bureau usage rates (the percentage of filtered applications subject to inquiry) is lower for PSBs compared to NPBs both for scored applications (58.20% versus 96.88%) and for unscored applicants (14.39% versus 64.35%). Interestingly, these figures suggest that bureau usage decreases both for NPBs and PSBs for unscored customers compared to scored customers, so all banks have a sense of which customers are likely to have bureau scores (or where they predominate).

For completeness, Table 4 also reports inquiries by credit score bucket. In India, scores of 750 or above are considered excellent, those between 650 and 750 are good, and scores below 650 are fair to poor.[15] We divide the score data for loans and inquiries in Table 4 into these three buckets. For new borrowers, Panel A in Table 4 shows that bureau usage is almost

[14] Why might a borrower have a prior relationship recorded by the credit bureau and yet no score? The bureau score takes in multiple inputs besides the loan transaction histories. Some of these inputs may be missing or not deemed reliable enough to create a score. In such a case, for instance the inability to verify the borrower's address, the bureau will not return a score. So we can have a prior relationship and no score if the data on the borrower is sparse.

[15] See, e.g., https://www.bankbazaar.com/cibil/cibil-credit-score.html.

complete across credit score buckets for both PSBs and NPBs. For both bank types, usage rates exceed 98%. For prior relationship borrowers, Panel B in Table 4 shows that there is substantial variation between PSBs and NPBs, and across credit score buckets. For PSBs, we see a mild "U" shape in inquiry patterns for PSBs with 65.41% and 62.75% inquiry rates for high and low credits and a lower 54.54% usage for medium quality credits. The usage levels for NPBs are greater at about 97% and flatter across credit score buckets.

F. Chances of Getting a Loan

What are the portfolio quality consequences of the inquiry habits of PSBs? As a first step, we examine the chances of getting a loan from a PSB. The last but one column in Table 4 reports the loan granting rates conditional on inquiry, or P (L|I). For customers with no prior relationship, PSBs grant *fewer* loans following inquiry than NPBs. The loan grant probabilities for PSBs (NPBs) are 7.42% (9.69%), 15.61% (28.43%), and 16.67% (28.04%), and 27.54% (38.23%) for those with low, medium, high, and no scores, respectively. That is, conditional on inquiry, *the decisions of PSBs are notably more stringent than for NPBs for new borrowers*. As we will see, the stringent lending practices conditional on inquiry are also reflected in low ex-post delinquency for PSBs on loans to new customers.

We turn next to customers with prior relationships. The results in Table 4 show that both PSBs and NPBs seem to be (naturally) more willing to grant credit conditional on inquiry to prior relationship clients. As before, Table 4 Panel B shows that PSBs are again less likely to grant loans conditional on inquiry than NPBs for anyone who is scored. The chance of lending given inquiry for PSBs (NPBs) are 15.40% (17.80%), 23.54% (37.01%), and 23.49% (36.81%) for borrowers with low, medium, and high credit scores, respectively.

The relative stringency of PSBs reverses quite sharply for unscored clients. Here, PSBs are relatively more inclined to grant loans conditional on inquiry compared to NPBs (58.67% versus 21.91%). Not having a credit score on record appears to free PSBs to lend more to a prior borrower; conversely, the existence of a score is associated with tighter lending. In sum, conditional on inquiry, PSBs seem to be less willing to grant credit than NPBs, except when they have a prior relationship with the client and the inquiry returns no score, when they seem much more willing to grant credit.

How about the total probability of getting a loan for anyone submitting a filtered application for a loan? This is computed in the last column in Table 4 as the ratio of the loans with inquiry plus loans without inquiry divided by the number of filtered applications. Panel A shows that for new borrowers, the percentage of filtered applications that culminate in a loan is close to the fraction of inquiries that culminate in a loan. This reflects the near-universal inquiry policies

for new borrowers. More interesting are the figures for loans granted to customers with prior relationships. For low score prior relationships, PSBs grant loans to 44.67% of applications compared to 19.76% for NPBs, nearly a 25-percentage point gap. For the higher quality medium and high score clients, the numbers are 58.30% vs 39.21% and 51.99% vs 38.67%, respectively, reflecting a smaller percentage point gap. For unscored clients, it is an astounding 94.05% vs 49.74% or double the fraction for PSBs compared to NPBs!

In sum, the bureau usage practices of PSBs relative to NPBs tilt their credit portfolios towards un-inquired loans, unscored loans, and those with lower credit scores, but primarily for those with prior relationships. A question of empirical interest is whether these inquiry practices result in portfolios with greater delinquency rates. We turn to this question next.

G. Delinquency Rates

Credit scores are useful in markets such as the United States for predicting delinquency (e.g., Gross and Souleles, 2002; Agarwal and Hauswald, 2010). Whether they are useful in India is less clear because the credit bureaus have limited histories of operation in India. We begin by presenting some empirical evidence on the predictive value of credit scores.

G1. Delinquency Rates and Credit Scores: Data and Definitions

The credit bureau provides us loan repayment histories and credit scores for a limited period of 36 months going back from September 2015. Repayment histories for loans made prior to September 2012 are incompletely populated, so we restrict our analysis on delinquencies to accounts opened in or after September 2012. We identify delinquent accounts using a field called "days past due" (DPD), which is the number of days a borrower is late on payments. This field is reported monthly because consumer loans in India are repaid through equated monthly installments. A practical issue in India is that a positive but small DPD may reflect transactional glitches such as delays in processing or bank errors rather than credit deficiencies. To rule out such cases, we define a loan as being delinquent if the days past due is at least 90 days, which corresponds to the definition of non-performing asset used by India's banking system.[16] The variable LQ360 equals 1 if at least one of the available DPDs during the 360 days from opening the account exceeds 90 days. By focusing on delinquencies within short horizons after the loan is given, we minimize the extent to which exogenous unanticipated economic events subsequent to the granting of the loan affect delinquency rates.

A loan is made after a financial institution uses both the information it has, and the information available with the credit bureau (if the loan is inquired). If lenders use additional

[16] See https://rbi.org.in/scripts/BS_ViewMasCirculardetails.aspx?id=7357#21

private information for screening out applicants with higher true delinquency risk for a given bureau score, the measured rate of delinquency associated with any credit score should be lower than if loans were randomly drawn from the population. The difference between the two will be small when the amount of bank private information is lower.

G2. Delinquency Rates and Credit Scores: Empirical Results

Figure 2 depicts the relationship between credit scores and delinquencies. Panel A suggests that delinquency rates across all bank loans is greater when scores are lower. In Panel B, we find that PSBs seem to have somewhat higher delinquency rates conditional on credit scores compared to NPBs. This also what we see in Table 5 Panel A. The delinquency rate for PSBs in the low score bucket is 4.15%, and 0.78% and 0.34% for the medium and high score buckets, respectively.[17] In comparison, it is 2.14%, 0.76%, and 0.25% for the corresponding buckets for NPBs. It is useful to see how precisely this difference comes about.

First, the act of inquiring is associated with lower delinquency rates, regardless of whether loans are scored or not, regardless of bank type or the existence of prior relationship. For example, in Panel A, scored loans by PSBs have delinquency rates of 1.29% when loans are made without inquiry compared to 0.51% when loans are made after inquiry. For NPBs, the corresponding numbers are 2.90% and 0.64%. Interestingly, this is true also for unscored loans. Unscored loans by PSBs have delinquency rates of 1.95% when loans are made without inquiry compared to 0.78% when loans are made after inquiry. For NPBs, the corresponding numbers are 2.89% and 1.43%.

Second, PSB loan officers are not universally more lax than NPB loan officers for some management, regulatory, or technological reason. For new borrowers, as Table 5 Panel C suggests, PSBs have lower delinquency rates than NPBs across all categories for inquired loans. The bottom line is that the PSB's relative conservatism in lending to new borrowers, which we noted from Table 4, is verified by lower default rates.

Third, PSB conservatism does not carry over to prior relationships. Even after inquiry, PSBs experience higher delinquencies for every prior relationship loan category (except for those with the highest score, where they are about equal) than for new borrowers. For NPBs, it is the opposite. For instance, for prior relationship scored loans that are inquired (Panel B), the PSB delinquency rate is 0.58% compared to 0.44% for inquired new borrowers (Panel C). For NPBs, the relationship reverses, with delinquency rates for inquired scored prior relationships

[17] The difference between the delinquency rates in different score buckets is significant. The t-statistic for tests of the difference in delinquency rates between low and medium (medium and high) score buckets is 9.8 (7.3).

of 0.45% and 0.93% for scored new borrowers. Turning to unscored loans, inquired loans have delinquency rates of 1.03% and 0.71% respectively for prior relationships and new borrowers in the case of PSBs compared to 0.64% and 1.52%, respectively for NPBs. Put differently, prior relationships tend to lower the quality of PSB loan decisions even after inquiry, while it enhances the quality of NPB decisions -- NPBs do seem to acquire some information from prior relationships that helps them discriminate better (as evidenced by the lower default rate even for the unscored).

H. Conjectures about Inquiry Behavior

It certainly does not seem that PSBs are less capable of handling new technology – for new applicants, they seem to inquire with the credit bureau approximately as often as do NPBs. Furthermore, it does not seem that the PSBs are more risk tolerant: for new applicants they do inquire, PSBs seem to make stricter decisions on whether to offer credit and have commensurately lower delinquency rates, even correcting for credit score.

Could the loan officers be making riskier loans in return for higher spreads? Discussions with practitioners indicate that bank loan officers have limited discretion on allowing the pricing of retail loans to deviate from metrics based on observable characteristics such as loan size. Essentially, banks advertise a rate sheet for consumer loans, and loan officers can decide whether to make the loan or not, but not what to price it at. More generally, PSB loan officers do not seem to use higher interest rates to compensate for risk.[18]

Importantly, this still cannot really explain why the officers do not inquire. The information acquired through the small and relatively cheap additional step of inquiring (and interviews suggest loan officers do consider the cost of inquiry as negligible) would be subject to free disposal. It is hard to think that if PSB loan officers were maximizing value by lending to riskier credits, they would not acquire that additional information. Value maximization through non-inquiry is also inconsistent with the increase in inquiries over time. Moreover, bureau usage rates for new applicants are high from the outset – why wouldn't a similar strategy of value maximization through non-inquiry work for them? Avoiding inquiry does not seem an essential element of a profit-maximizing strategy. We now provide additional insight on this point using data on scores for un-inquired loans that PSBs would have seen had they inquired.

IV. Counterfactuals

[18] See, for example, RBI Report of the Working Group on the Pricing of Credit, 2014. Banks are not required to submit interest rate data to the bureaus; few do so.

The data show that PSBs frequently lend without checking credit scores. What would the PSB credit outcomes be if they instead made use of the data for the un-inquired loans? We shed light on this question through counterfactual inferencing based on credit scores on loans made by PSBs without inquiries. The bureau supplied us point-in-time credit scores on these loans. Under reasonable assumptions about how the score data would have been used by PSBs had they inquired, we can estimate their counterfactual lending decisions and their outcomes. The differences between the counterfactual outcomes and actual realizations of un-inquired loans give us an estimate of the information left on the table by not inquiring.

To describe the methods more precisely, we introduce some notation. Let *c* identify a borrower, B bank type $\in$ {PSB, NPB}, X_c denote borrower characteristics, and S_C the borrower'' credit score. Let I_C be the event of inquiry and NI_C the event of non-inquiry for a loan, L_C be the amount of the loan to customer *C*. We let $p_c\ (B, X_c, S_c)$ denote the composite NPB loan decision associated with bureau usage and lending conditional on us–e -- the composite total probability that a filtered inquired application turns into a loan. Let $LQ_C(B)$ be the ex-post delinquency rate for the loan made by bank type B.

The last ingredient for the counterfactual analysis is how PSBs would have used the bureau information for un-inquired loans had they instead inquired. Possible policy functions include an aggressive full inquiry policy in which PSBs inquire for all loans. More plausible is the view that PSBs follow the policies of NPBs in using bureaus. Therefore, we model PSBs as using both the inquiry practices (given filtered applicant characteristics) and the lending conditional on inquiry used by NPBs in granting credit. We assume that changing the policy does not change the nature or quality of filtered loan applications. A related question concerns the delinquency rates realized in the counterfactual world. We explore two possibilities. In one approach, we keep delinquency rates at their actual realizations. A second candidate for counterfactual delinquency rates is the *NPB* rate for similar loans. This approach takes into account any special delinquency management technology that NPBs have and that is put in place by PSBs when they expand bureau usage.

One output of the counterfactual estimation exercise is the loan supply function Q(.),

$$Q_{NI\rightarrow I}(PSB) = \sum p_c(NPB, X_c, S_c) \times L_C \times \delta_{c,NI}, \quad (1)$$

where the data comprise loans made by PSBs, $\delta_{C,NI}$ denotes a dummy variable that equals 1 if loan *C* is not inquired, and L_C is the amount of loan *C*. In essence, for each non-inquired loan that was made, we model the probability that the loan would be made using NPB decision functions. Because $0 \leq p_c(.) \leq 1$, loan volumes in the counterfactual $Q_{NI\rightarrow I}(PSB) \leq Q_{NI}(PSB)$.

A second output of the counterfactual exercise is loan quality. If the delinquency rate is unaltered, it is simply the current realization $LQ360_C$

$$LQ360_{NI \to I}\,(PSB) = \sum p_c(NPB, X_c, S_c) \times L_C \times \delta_{c,NI} \times LQ360_C, \qquad (2)$$

If the loan management practices change, delinquencies migrate to the NPB rates, so

$$LQ360_{NI \to I}\,(PSB) = \sum p_c(NPB, X_c, S_c) \times L_C \times \delta_{c,NI} \times LQ360_C\,(NPB), \qquad (3)$$

In Table 6, we report the counterfactual estimates for both the delinquency models discussed above. We report two sets of estimates, one for prior relationship borrowers and another for borrowers without a prior relationship. In both cases, we estimate the loan supply if PSBs follow NPB decision-making rules in granting credit and two delinquency rates, one of which is the current delinquency rate and another is the estimated delinquency rate based on NPB lending data for similar borrowers. There are thus three delinquency rates in Table 6. One is the actual delinquency rate for the portfolio of PSB loans made without inquiry. Counterfactual 1 is delinquency rate if the PSBs follow the NPB screening practices but the delinquency rates remain as currently realized. Counterfactual 2 in Table 6 is the delinquency rate if the PSB follows the NPB screening practices and the delinquency rates are the predicted realizations based on NPB experiences for similar loans. The supporting regressions for the counterfactual analysis are not reported here but are available upon request.

We find that both the counterfactual delinquency rates decrease below the levels experienced currently by PSBs for their un-inquired lending portfolio. The baseline delinquency rate in Table 6 is ~1.30%. Counterfactual 1 shows that if PSBs simply followed NPB bureau usage practices, the delinquency rates decrease to 0.70% and 0.97% for new relationships and for prior relationships, respectively. These estimates reflect the effects of better *ex-ante* screening from switching to the more intensive credit bureau checks as conducted by NPBs. Counterfactual 2 in Table 6 shows that PSBs would experience a further reduction of delinquency rates to 0.57% if the greater adoption of bureau usage is accompanied by complementary shifts in lending and loan management protocols. These estimates reflect the effect of both better *ex-ante* screening achieved through higher inquiry rates as well as potentially better *ex-post* loan monitoring resulting in the NPB delinquency rates rather than the current realizations. In difference terms, the greater adoption of credit bureau inquiries produces improvements for both prior relationship borrowers and new borrowers by 31 and 63 percentage points, respectively. The shift to NPB delinquency rates reduces delinquency rates by a further 40 and 13 basis points for the two types of borrowers.

V. Possible Explanations

The data indicate quite clearly that not inquiring leads to worse loan outcomes in terms of delinquencies. Consider three possible reasons why inquiry may affect loan outcomes for prior borrowers. First, of course, an inquiry may produce credit *information* about the borrower, which augments the information the bank already has. Second, the act of inquiring may *signal* the care or due diligence the bank exercises for investigating the merits of the particular loan application. Third, inquiring may produce hard information such as a credit score that limits the loan officer's and possibly *disciplines* the lending. Let us now turn to the data to see what we have evidence for.

Start with the third reason. Table 4 (Panel B) shows that for prior relationship borrowers who are inquired, PSBs are less likely to lend than NPBs in all score categories. The hard information in a score certainly seems to discipline PSB lending. In contrast, when the inquiry for a prior client returns no scores, PSBs are three times as likely to lend as NPBs. Thus, the absence of hard information seems to let PSBs lend more freely to prior clients and Table 5 (Panel B) shows this lending is associated with higher delinquencies. However, for new clients, PSBs are more conservative in granting loans whether or not an inquiry returns a score (see Table 4 Panel A) and these inquired loans have lower delinquency rates (Table 5, Panel C). These results suggest there is nothing intrinsic in the unscored inquiries that prompts PSBs to lend freely. The freedom is used only for prior borrowers.

Turn next to the second reason. The important piece of evidence here is that the act of inquiry itself is associated with lower delinquency rates, both for inquires that return a score and those that don't, and regardless of whether the inquirer is a PSB or an NPB. Here again the critical case is the inquiry that returns no score. An inquiry that returns no score has little information (though the fact that the borrower does not have a loan record may itself be construed as good news, and therefore, comprise useful information).[19] A finding of no score, regardless of whether it is no news or good news, would not impose more constraints on the bank. Indeed, as we note above, the bank lends more freely to prior borrowers. Yet we find in Table 5 that unscored inquired applicants turn delinquent less frequently than unscored un-inquired applicants for both types of banks and applicants. The evidence suggests that the act of checking with credit bureaus signals that the lender is applying greater due diligence to the loan.

[19] This is indeed the rationale put forward by the 2014 RBI Committee to "Recommend Data Format for Furnishing of Credit Information to Credit Information Companies" for allowing credit bureaus to charge for inquiries that return no score. See https://rbidocs.rbi.org.in/rdocs/PublicationReport/Pdfs/APR220314FS.pdf

The first reason – that inquiry may produce credit *information* about the borrower, which augments the information the bank already has -- is ironically the hardest to establish independently. We have seen that higher scores are associated with lower delinquency rates and that the act of inquiring (regardless of whether the inquiry returns a score) lowers delinquency rates further. However, banks may already have all the information the credit bureau has so lower delinquencies associated with inquiries might stem from a signal of due diligence rather than the content of new information obtained from the bureau. We will find evidence that inquiries are associated with stricter bank wide due diligence, using tests that relate plausibly exogenous bank-wide policies to delinquency rates, but we cannot rule out the possibility that loan officers already have much of the information in credit bureau data.

In what follows, we want to understand organizational attributes that might lead to differences in inquiring prior relationship borrowers. We start with government ownership, the most salient differentiator between PSBs and NPBs. We will argue it is not a complete explanation. We then examine an alternative explanation, stemming from the legacy of regulations, that plausibly shaped bank structure and functioning.

A. Government Ownership

Majority ownership by the state is the most salient differentiator between PSBs and NPBs. To pin down the role of government ownership, we turn to another class of banks, old private banks (OPBs), that we have not analyzed so far. We have 14 OPBs in our sample. These banks have a median age of 89 years, which is similar to the median and mean of 87 years for PSBs. The OPBs escaped nationalization in 1969 and 1980 because they were considered too small. Perhaps scarred by the nationalization of private banks that grew too big, OPBs have remained small. For instance, in the 1% random sample between 2006 and 2013, OPBs have 35,838 total loans, which is about 10% of the number of loans made by NPBs in the same period for the 1% sample.

We examine whether OPBs behave similarly to NPBs or PSBs. The former would suggest that state ownership of PSBs makes them lean favorably to prior relationships; the latter would suggest that state ownership is not necessarily the driver of this behavior. To the extent OPBs are smaller than PSBs (and NPBs), examining OPBs also illustrates the role of bank size in scoring adoption.

In Table 7, we present data on inquiry intensities for OPBs for the 1% random sample that excludes priority sector, and gold loans. Panels A, B, and C present the data for all loans, new borrowers, and prior relationship borrowers, respectively. The inquiry behavior of OPBs differs sharply from NPBs but resembles that of PSBs. In fact, the rates of usage of credit

bureaus for OPBs are even lower than those for PSBs. For instance, for prior relationship borrowers, OPBs have a bureau usage rate of 14.44% over the full sample period (Panel B, Table 7), which is less than the 20.01% bureau usage rate for PSBs over the same time period (Panel A, Table 3B). However, for customers with no prior relationship with the inquiring bank, OPBs report bureau usage of 99.11% (Panel A, Table 7), or nearly full usage for all applicants. Therefore, like PSBs, OPBs are also slow in adopting new technology. Like PSBs, this is again only for existing clients.

The behavior of OPBs suggests that private ownership may not be the primary source of the difference between the inquiry behavior of PSBs and NPBs. Bank size is also unlikely to account for the differences in behavior as OPBs are small while PSBs are an order of magnitude larger. We turn to other traits that OPBs and PSBs share and that are distinct from those of NPBs. One possibility lies in the legacy regulatory environments shared by both OPBs and PSBs for several decades, which could shape how they respond to new credit scoring technologies.

B. Hysteresis From Legacy Practices

NPBs were licensed after India's 1991 economic liberalization but PSBs and OPBs are organizations that are several decades older. In particular, PSBs and OPBs were subject to a prior regulatory regime, which plausibly shaped their organizational structures and practices. Stickiness in these structures and the associated bank management practices – a form of hysteresis -- could shape the differences in bureau adoption relative to NPBs.

Importantly, after India's 1969 bank nationalization, central bank regulations prioritized financial inclusion, so banks were pushed to open branches in underserved rural areas. For instance, a 4:1 rule stipulated opening 4 branches in underbanked areas for every branch in high-traffic urban areas (Burgess and Pande, 2005). Given the difficulty of closing a branch (permission is needed from the central bank, which is rarely given if the branch is in an underserved area), a large share of OPB and PSB bank branches still remain in semi-urban and rural areas. In contrast, NPBs were given licenses when Indian regulations were being liberalized, and branching requirements were steadily done away with. Consequently, NPBs could concentrate their branches in the higher-density economically rewarding urban areas and use cost-saving new technologies like ATMs to grow in more remote areas, if they attempted to reach them at all.

And, of course, bank structure, and differences in bank environment, will affect bank policies. Even today, rural areas tend to have more informal and part-time employment, and households tend to be less connected to the formal financial system, as Badarinza,

Balasubramanian, and Ramadorai (2016) document. Many were unbanked, as suggested by the data from India's 2016 "PMJDY" program that resulted in 422 million new bank accounts (Agarwal et al. 2017; Chopra et al. 2017). Relatedly, Chodorow-Reich et al. (2020) find that even in 2017, cash transactions are widely prevalent in India.

The relative paucity of formal documentation and records in more rural areas is clear in our data also. The Reserve Bank of India (RBI) classifies each locality in India as belonging to one of six "tiers" based on population in 2001. Tier 1 includes the most populous metropolitan areas (towns greater than 100,000 people), while Tier 6 includes the least populous areas (less than 5000 people). These are typically rural areas, but to be precise (since they may include small towns), we will refer to higher tiers as non-urban areas. In Figure 3, we plot the fraction of unscored filtered applications by tier. In the most urban tier (Tier 1), approximately one third of the filtered applications are unscored, while in the least urban tier (Tier 6), over two third of the filtered applications are unscored. Since the lack of credit score is associated with the lack of formality and access, this substantiates the point that non-urban areas have high degrees of informality even today. Of course, this would have been substantially greater in the past when banks were forced to open branches in underserved areas.

Faced with a lack of formal documentation and records, a loan officer typically has to rely on soft information and subjective judgments – such as local gossip and face-to-face character assessments. If these are difficult to communicate in formal reports to headquarters, in part because of the difficulty of recording such assessments precisely on paper, and in part, because of the difficulty of communication, Stein (2002) suggests that delegating information-collection and loan decisions to loan officers might work better. The loan officer has a greater incentive to collect hard-to-communicate information since they have to act upon it. In sum then, theory would suggest that as they opened more remote non-urban branches, PSBs and OPBs might have optimally delegated more discretion over lending to their non-urban branch loan officers.

If a bank has to have common policies across all its branches – because of the difficulties of tailoring policies to specific branches -- banks with predominant footprints in non-urban branches would then be more likely to follow bank-wide policies that allowed more loan officer discretion, particularly for existing clients for whom the bank had more internally sourced information. With the advent of "hard" credit bureau information, there might be less need to allow so much discretion. Yet, the continuing high levels of financial exclusion in India meant that banks with a greater rural presence might still find hard information more difficult to come by for their customer base. Moreover, they may also find it hard to pull discretion back from

loan officers, especially for prior relationships.

The NPBs, in contrast, had many more reasons to limit loan officer discretion from the outset. First, not being subject to the era of mandatory branch opening in underserved areas, their branches were concentrated in urban areas where hard customer information was more likely available and communication with headquarters easy. Second, having emerged during a period of rapid computerization of business and improvements in communications technology and data availability in the economy, they may have adopted policies that were more receptive to the use of outside hard data in decisions. In particular, and starting with a blank slate, they may also have been more willing to reduce the discretion of loan officers in allowing them to choose whether to acquire hard data or not.

Put differently, the source of the difference between PSB and OPB inquiry behavior on the one hand and NPB inquiry behavior on the other may be hysteresis. The branching structures they had to adopt as a consequence of regulation, and the business and data environment when they put in place their early management policies differed. Some difference in branch location persists, so there may be less pressure on legacy practices to change in banks where the practices were more suited to their legacy structures. In addition, loan officers may be less willing to give up the discretion that they have become used to. In other words, both structure and history may matter.

B1. Charts

An immediate implication of the hysteresis hypothesis would be that bureau usage should be negatively related to bank age. Indeed it is the case in Figure 4, with the younger NPBs bunched high on the left and the older PSBs and OPBs arrayed low on the right. Of course, this simply suggests we may be on the right track.

We next examine the role played by where bank's loan business is predominantly located. The essential idea is that banks that are in less urban-facing face environments have to deal a lot more with more soft information and may have historically given loan officers more discretion (and continue to do so even today). We define Tier 1 and Tier 2 as urbanized and Tier 3-Tier 6 as non-urbanized. Using the credit bureau mapping of individuals to the tiers they reside in, we measure a bank's non-urban focus as the share of the bank's total loans to Tier 3-6 borrowers in our non-priority sector, non-gold final sample for the fiscal year ending March 2012.[20] Let us call this SH-NONURB-LNS.

The central question is whether more urban-focused banks inquire more. Figure 5

[20] Using fiscal year 2011 yields similar results

shows a scatter plot of SH-NONURB-LNS against the inquiry rate for prior relationships. There is a strong negative relationship. NPBs are bunched in the northwest corner, with low rural presence and high inquiry. The circled outlier is one NPB, whose share of non-urban loans is over 70 percent but inquires nearly as much as other NPBs. It turns out that this NPB, like the others, has branches largely in urban areas, but its primary business is rural vehicle finance.[21] As a result, its practices follow practices in urban areas, even though its loans are to rural areas.

If the nature of a bank's overall business influences policy on allowing loan officers discretion and thus inquiry, we should see it even in NPBs, albeit attenuated relative to PSBs and OPBs. Figure 6 (Panel A) shows inquiry rates for NPBs that have SH-NONURB-LNS below the 30th percentile (largely urban) and those above the 70th percentile for all banks (largely non-urban). The largely urban NPBs in the left side of Panel A have high bureau usage, above 95 percent for both their urban (Tier 1-2) and rural (Tier 3-6) loan applications. However, largely non-urban NPBs on the right side in Panel A use credit bureaus less for both the urban and non-urban clients. Bureau usage rates in all categories move up over time.

PSBs show a similar pattern in Panel 6B, although all PSBs have lower usage rates than even the non-urban NPBs. So bank type also matters over and above the effect of business location, perhaps related to when these banks entered.

Interestingly, bureau usage rates are trending up for largely urban PSBs – both for urban and non-urban applications. For largely non-urban PSBs, bureau usage rates in both non-urban and urban areas seem to be growing more slowly and converging to a lower level.[22] The overall policy for largely rural PSBs seems to permit substantial discretion and thus low inquiry for prior relationship applications, even for applicants from urban areas. All this is consistent with the view that the extent to which the bank-wide policy allows loan officer discretion depends on the extent to which the bank is non-urban-facing. A more discretionary policy manifests

[21] In To further examine this point, in the Online Appendix Figure A1, we plot SH-NONURB-LNS against the share of the bank's branches in rural areas based on RBI data. The correlation is positive. The NPBs are typically on the left, with their branch network largely in urban areas. As expected, PSBs and OPBs tend to be intermingled on the right, consistent with their much larger rural branch presence, the likely and lasting legacy of regulation. The one outlier NPB we highlight here identify makes a disproportionate fraction of its loans to non-urban areas (over 70 percent), even while having just over only about 30 percent of its branches in rural areas. The data reflects the bank's business reflecting its unique strategy of branching in urban areas (like other NPBs) but focusing its lending on financing buyers of vans and trucks, often routed through the urban branches at the point of sale although the buyer resides in rural areas.

[22] In a regression for the longer sample, including the interaction term between the dummy for urban PSBOPB x prior relationship x geographical tier x year, and summing the interaction terms across years suggests a higher pace of inquiries for urban PSBOPBs compared with rural PSBOPBs, for both Tiers 3-6 and Tiers 1-2 applications.

itself in lower overall inquiry rates for prior relationship applications, where loan officers may believe they have specific information (or can make a plausible claim to having it).

B2. Regression Evidence

We now move to regression analysis. We start by confirming that inquiry rates are greater for PSBs and OPBs especially for prior relationships. The data are filtered applications for the years ending March 2013 and March 2014, for which we have score and delinquency data.[23]

In Table 8, we report selected coefficients from estimates of a regression in which the dependent variable is whether a filtered application is inquired or not. We report all the regressions coefficients in Appendix Table A3. In column [1], the explanatory variables of interest are an indicator for bank type (whether the bank receiving the application is a public sector bank or an old private bank (PSBOPB=1) or a new private bank (PSBOPB=0)), an indicator for an existing prior relationship (PRIOREL=1), and the interaction of the two.[24] We also include several controls. These include indicators for whether the borrower has a low, medium or high score (the omitted category is no score), and their interactions with bank type. Demographic controls include the log of applicant age, and an indicator if the applicant is a male.[25] We control for bank age, size, and profitability.

The estimates in specification [1] confirm that NPBs inquire more, especially for prior relationship loans. The coefficient for PSBOPB is -0.0860, so the inquiry rate is 8.60 percentage points lower for PSBs and OPBs relative to NPBs after controlling for borrower and loan characteristics. The coefficient for the interaction term PSBOPB times PRIOREL further suggest that NPBs are 32% more likely to inquire an application from a prior relationship than are PSBs or OPBs. The indicators for high, medium, and low credit scores have positive coefficients, indicating that scored populations are more likely to be inquired compared to the unscored population, more so by PSBOPBs given the positive coefficient on the interaction between the score dummies and the PSBOPB indicator (not shown). Males are likely to be inquired more compared to females and banks inquire less for older borrowers. Finally, older banks inquire less, larger banks inquire more, as do more profitable banks**.**

We now turn to bank structure. In specification [2], we include indicators for geographic tiers (tier 6 is the omitted category), and their interactions with PSBOPB and PRIOREL as well

[23] Online Appendix Table A1 reports summary statistics for the main regression variables.

[24] The results are similar if we use separate indicators for PSBs and OPBs and if we drop OPBs.

[25] The gender variable is motivated by evidence that women take less risk (e.g., Dwyer, Gilkeson, and List, 2002) possibly due to less overconfidence (Barber and Odean, 2001; Huang and Kisgen, 2012) or intrinsic biological differences such as the blood chemistry of individuals (Sapienza, Zingales, and Maestripieri, 2009). We control for age by including log borrower age as a control. Young borrowers may be riskier than older borrowers because they have less income, borrowing, and histories of managing credit.

as with PSBOPB*PRIOREL. The coefficient for PSBOPB remains similar. The coefficients for the geographic tiers (reported in full in the online Appendix) are of some interest. We find that ceteris paribus, NPBs tend to inquire about as much for Tier 1 prior relationship applicants as for prior clients coming from Tier 6 (indeed, about 1.5 percent less), suggesting a bank-wide policy of requiring inquiry. However, for PSBOPBs, inquiry rates for prior relationship applicants in Tier 1 is 12 percent greater than for such clients from Tier 6. [26] These banks appear to give loan officers more discretion as to whether to inquire, which is exercised across all tiers, but more in non-urban tiers.

In specification [3], we replace the PSBOPB indicator in column [2] with SH-NONURB-LNS – the share of a bank's loans in Tiers 3-6. The coefficient estimate of SH-NONURB-LNS is negative and significant. Banks with greater non-urban presence inquire less. Curiously, the coefficient estimate for the interaction of the non-urban orientation with prior relationship is positive. This result stems from a single outlier NPB, the bank identified earlier that made rural vehicle loans from urban branches. When we drop that bank in specification [4], we find that more non-urban-focused banks inquire their prior relationship loans significantly less, as expected.

Specification [5] includes both the PSBOPB indicator and SH-NONURB-LNS both directly and with all their interactions. We find both the direct effects of each variable as well as their interaction with prior relationship to be significantly negative. The magnitudes of the coefficient estimates for PSBOPB and its interaction with past relationship are now smaller than in specification [2]. Thus, the share of a bank's loans to the non-urban tiers 3-6 in the initial sample period does explain some of the inquiry behavior of PSBs and OPBs. Of course, it does not explain all of it, for we find that a bank's characterization as PSBOPB still seems to explain its lower inquiry of applications from those with prior relationships. This PSBOPB indicator could capture the legacy effects associated with a non-urban presence, since having a non-urban presence in the past, when hard information was much more scarce, could have entrenched even more discretion than might be appropriate today.

One way to check this is to see whether the PSBOPB indicator modulates the effect of SH-NONURB-LNS on prior relationship inquiries. In specification [6] we include the interaction of PSBOPB with SH-NONURB-LNS, and this interaction further interacted with the indicator for prior relationship. Interestingly, the coefficient estimate of the PSBOPB and prior

[26] The inquiry rate for NPBs for prior clients in Tier 1 relative to Tier 6 is calculated as the sum of the coefficients on Tier 1 and Past Relationship* Tier 1 in column (2) of Table 8. For the PSBOPBs, we sum the coefficients on Tier 1, Past Relationship* Tier 1, Bank Type*Tier 1, and Bank Type*Past Relationship* Tier 1.

relationship interaction is small, positive, and not statistically significant. The estimates suggest that overall, PSBOPBs no longer inquire prior relationships less. Instead, it is the PSBOPBs that are predominantly focused on non-urban lending that inquire prior relationships significantly less (the estimate of the interaction between PSBOPB, SH-NONURB-LNS, and prior relationship is strongly negative). This result is consistent with PSBOPBs being influenced more by their non-urban structures, perhaps reflecting past legacy.

Our findings are consistent with the hysteresis explanation for slow adoption. In the days before the ICT revolution, PSBOPBs that branched more into non-urban areas optimally adopted a policy offering loan officers more discretion. Even though communications technology has advanced, and hard data are more widely available, they find it hard to reverse that policy of discretion. The effect of organizational hysteresis is compounded by regulations that prevent closing branches in remote areas, which makes it hard for them to change business focus significantly. Thus, PSBOPBs that had a non-urban focus in the past cannot turn away from their legacies, which results in stickiness of their past lending practices. The estimates suggest that PSBOPBs with a non-urban focus tend to be disproportionately less likely to inquire past relationships relative to PSBOPBs or NPBs without that focus.

VI. Why is Discretion Used for Past Relationships?

With new customers, loan officers have no prior information or relationship, so they have little to base discretion on and little reward (social or otherwise) to using it. With prior relationships, loan officers have information accumulated through the relationship to inform their discretion. It does seem that the information embedded in a credit score might limit their ability to lend (while a finding of "no score" limits them far less). Therefore, when afforded discretion, loan officers may prefer not to inquire prior relationships. But what do they get in return? Perhaps they get rents, either explicitly or implicitly. And perhaps they believe they are making better decisions when they do not have to respect the credit score generated by a remote bureau. We now explore these possibilities.

A. Relationships or Corruption

One possibility is that the loan officer obtains social rewards from using their discretion for favored clients; perhaps the smile on a hypothetical Mr. Sharma's face is enough reward as his housing loan is approved, if he and his family have been banking customers for years and always exchange sweets with their bank officer come festival time. Of course, there is a more sinister explanation for favoring bank clients through selective application of discretion: corruption.

If corruption is defined in its explicit and literal form, that is, extracting a pecuniary benefit or a bribe from a customer (and not simply obtaining the social reward of doing a favor for a friendly customer), it does not sit easily with PSB and OPB behavior toward new applicants. After all, the loan officer can exercise more discretion on loan approval vis a vis the new client where the bank has no past record whatsoever. Yet, the loan officers bind themselves by inquiring virtually all new applicants and lending to them conservatively. The social relationships' explanation has more bite here: helping a new anonymous loan applicant is less personally gratifying than helping someone who is a longtime regular visitor to the branch. So the loan officer may benefit from loans to prior relationships, but in non-pecuniary ways. That indeed is the characteristic of a social relationship, not corruption.

Nevertheless, we cannot totally rule out corruption. It may be that loan officers are scared of holding up new clients, not knowing if they may report them if asked for a bribe. They may have a better ability to size up the behavior of existing clients. Given the discussion above, though, it may be that a relatively short relationship is enough to gauge whether a customer will complain (to higher authorities) if asked for a bribe. A long relationship will, however, be associated with higher social rewards to helping the customer. So one way to distinguish the effects of relationships from bribes is to see if longer prior relationships enhance the exercise of discretion or reduce it relative to shorter prior relationships.

A1. A test

We look for insights on this question based on relationship duration. The longer the prior relationship with the borrower, the greater the social rewards for the loan officer from favoring the customer with her discretion. Conversely, the practice of foregoing inquiries for short duration past relationships is more redolent of corruption (though certainly not dispositive) – the loan officer knows enough about the customer to judge they will not squeal to senior management, but not long enough to want to do the customer a favor. In Table 8 specification [7], we include two indicators -- one for prior relationships formed less than a year before and one for prior relationships older than a year. We also include their interaction effects. We find that applications from those with long prior relationships with PSBOPBs tend to be inquired about 34 percent less than those with similar long relationships with NPBs while those with short prior relations with PSBOPBs are inquired about 11.7 percent less than those with short prior relations with NPBs. This suggests that the PSBOPB loan officer uses her discretion more for long standing clients.[27]

[27] The results are similar if we replace PSBOPB with SH-NONURB-LNS. See Appendix Table A5.

B. Better Information (or Hubris)

The above evidence does not rule out the possibility that loan officers exercising discretion have more information about their longstanding clients. Of course, NPBs would also have similar information but they still inquire. So a final possibility is that PSBOPB loan officers, based on their past practices, believe their credit decisions are better if not bound by the hard information in credit ratings. If they do inquire, they are constrained by the scores returned by the bureau except perhaps when the inquiry returns "no score" whence they retain some freedom. Put differently, loan officers may believe (possibly wrongly) that using their own information without inquiry results in better credit quality.

Confidence in one's loan decisions (possibly hubris) may be particularly pronounced in loan officers from the older banks that have had a history of relying on proprietary information to make loans and were inclined to allow loan officers discretion as a policy. Inquiry avoidance is perhaps more likely for moderate quality borrowers (which we see in the data in Table 4). If the bureau returns a very low credit score, it is hard for the loan officer to override the score without arousing suspicion, so better not to inquire in the first place if it is not mandated.

If loan officers are correct in believing that making loans without inquiry results in better credit quality, we should see that bank wide policies that reduce loan officer discretion and force them to inquire should result in a deterioration in the quality of credit decisions. If they are mistaken in their beliefs, we should see the opposite. We turn to delinquency data to address these issues.

B1. Delinquency Regressions

Does the exercise of loan officer discretion reduce or increase the chances of delinquencies? We use an instrumental variables framework to analyze this question but note in Online Appendix Table A7 that an OLS regression without the IV structure gives similar findings. The assumption in the IV framework is that some aspects of the decision to inquire are driven by bank-wide policy on loan officer discretion. As we have seen, this could be set based on SH-NONURB-LNS, reflecting the geographic focus of bank activity as well as by legacy drivers of bank-wide policy on discretion as reflected in whether the bank is a PSBOPB.

The regression results in Table 8 could be thought of as the first stage, with the PSBOPB indicator and its interactions in specification [2], or SH-NONURB-LNS and its interactions in specification [4] used as the pre-determined instruments for the degree of loan officer discretion permitted at the bank. The exclusion restriction in this setup is, for example, that the share of non-urban loans, SH-NONURB-LNS, that a bank has made in the past should affect a specific loan's likelihood of delinquency only through the bank's policy of allowing loan officer more

discretion – that is, only through its effect on inquiry. Note that the first stage (all filtered applications) is estimated using more observations than the second stage (only loans); in order to address this issue we use a bootstrap procedure for estimating standard errors.[28]

As before, a loan is termed delinquent if its days past due exceed 90 days at any time during the 360 days from when the loan was initiated. Selected coefficient estimates from the second stage of the instrumental variable regressions are shown in Table 9, with detailed estimates reported in Appendix Table A8. The dependent variable in the second stage is whether the loan is delinquent. When inquiry is instrumented with the PSBOPB indicator and its interactions, the coefficient estimate for inquiry in the second stage is -0.014 (see second stage estimates of specification [1]). In other words, the policy of discretion allowing a loan officer to not inquire (versus forcing inquiry) is associated with a 1.4 percent higher delinquency rate on the loan. The coefficient is economically significant given the mean delinquency rate is 1.2% in our sample. The other columns report IV results in which the instrument is SH-NONURB-LNS and its interactions. The results are similar.

Our analysis cannot tell whether non-inquiry impacts delinquency because of the loss of information from the credit bureau or because it proxies for the absence of due diligence when the loan officer is allowed discretion and uses it. Clearly, though, any private information held and used by the loan officer in un-enquired loans does not substitute for the information/discipline brought by inquiring from the bureau. Even if loan officers exhibit confidence that their judgments about loan decisions are superior to using bureau data, the delinquency regressions suggest that they are mistaken in their beliefs.

C. Putting Things Together

We bookend our study with a bank-level regression that captures the essence of our main findings in a simple way. The dependent variable is a bank's average bureau usage for prior relationship customers in the final sample of loans. The independent variables include indicators for bank type, the bank's share of non-urban loans in 2012 (SH-NONURB-LNS) and controls for bank financial characteristics including age, size, and profitability. Our interest is in exploring whether the non-urban share matters in a highly simplified bank-level regression too. Of course, given the small number of observations in the sample (about 45), the specification makes near-heroic demands of the data.

[28] Data at different levels of aggregation are often used in two-stage estimation, with estimates obtained at the higher level of aggregation entering the estimation at the lower level of aggregation. Petrin and Train (2002) use a bootstrap method to address this issue. Karaca-Mandic and Train (2003) show that the asymptotic standard errors that account for the sampling variance in the first-stage estimates are similar to those in the bootstrap.

The results are reported in Table 10. The coefficients of both the PSB and OPB indicators are small in magnitude and not statistically significant (specifications 2, 4, and 6), while the coefficient estimates for SH-NONURB-LNS is negative and remains significant across specifications, despite the small sample. We also find that older banks inquire less. These findings are consistent with the hysteresis effects of past regulation on the discretion afforded loan officers. Of course, this regression simply captures at the bank level what we have tried to establish through the paper.

VII. Implications and Related Literature

Our findings are relevant to multiple areas of research in economics and finance. To better position our work, we briefly review the related literature on the adoption of better management practices, as well as the literature on technology adoption, credit bureaus, and state-owned banks.

Better Management Practices: As Bloom and van Reenen (2010) discuss in their survey, there is an astounding difference in productivity of enterprises between firms and countries, which they attribute to non-adoption of modern management practices. Hsieh and Klenow (2009) find that firms in emerging markets are less productive than firms in developed economies. Experimental evidence on textile mills (Bloom, Eifert, Mahajan, MacKenzie, and Roberts, 2013), in agriculture (Cole and Fernando, 2016), and on small and medium enterprises in Mexico (Bruhn, Karlan, and Schoar, 2018) supports this point and notes that using modern management practices improves productivity.

Our study complements the literature on better management practices in a number of ways. First, we provide direct micro-econometric evidence from the field on the (non-)adoption of a new management practice, credit scoring in retail lending. Our evidence sheds light on the nature of the frictions that impede adoption. The list suggested by Bloom and van Reenen (2010) and Bloom et al. (forthcoming) include imperfect markets, ownership, regulations, and informational barriers. To this, we would add the hysteresis effect of practices that might have been optimal during a firm's earlier periods, which may be hard to undo.

We do see, though, evidence of differences in adoption even amongst those who have been through similar formative periods. PSBOPB banks that have more of an urban focus have come further in adopting bureau technology and eliminating discretion, even with respect to their non-urban customers (Figure 6). In contrast, PSBOPB banks with a more rural focus continue to lag in adoption.

Credit Bureaus: Both credit bureaus and credit registries have attracted considerable academic and policy interest. One part of the literature emphasizes the role of bureaus in alleviating information asymmetry, which has the potential to alter the flow of credit. Much of the recent work exploits the richness of the bureau and registry data to assess questions such as the transmission of monetary policy.[29]

Our study has a somewhat different focus relative to prior work on bureaus. We use credit bureau data to gain a micro-level understanding of the way bureau technology is adopted. Importantly, we highlight a point that has received limited attention in prior theory and empirical work on bureaus, viz., banks do *not* use credit bureaus to inform all their loan decisions. We show that this may be related to the share of bank business that comes from applicants who do not have much hard information, and where loan officer discretion may have been historically necessary. Today, however, a continued policy of allowing loan officers discretion may well leave information and value on the table.

State-Owned Banks: LaPorta, Lopez-de-Silanes, and Shleifer (2002) note that state ownership of banks is common across the world, possibly because state ownership of banks lets them undertake developmental activities necessary for growth that private banks do not. In practice, however, LaPorta et al. find that state ownership of banks has a reliable *negative* correlation with development. Several empirical studies suggest that the anomaly is likely due to the politically-induced distortions in credit flows (Sapienza, 2004; Khwaja and Mian, 2005; Dinç, 2005, Cole, 2009).[30] We point to a different reason for why such banks may fall behind in pushing credit and development: their historical focus on inclusion, possibly regulation induced, may make management adopt practices – such as loan officer discretion – that accord better with the historical needs of their clientele. Yet this may leave the bank poorly positioned to adopt new technologies, in part because legacy structures discourage adoption, and in part because existing staff may resist a curtailment of their powers. Importantly, we suggest that it may be the nature of regulation – the emphasis on branching in underserved sectors, for example – rather than the nature of ownership that might drive behavior.

[29] See Artigas (2004), Djankov, McLiesh, and Shleifer (2007), or the credit section of World Bank's doing business survey at http://www.doingbusiness.org/data/exploretopics/getting-credit. The literature includes Pagano and Jappelli (1993), Padilla and Pagano (1997, 2000), Brown, Jappelli, and Pagano (2009), Hertzberg, Liberti, and Paravasini (2011), Karapetyan and Stacescu (2014), Jimenez, Ongena, Peydro, and Saurina (2012, 2014, forthcoming), and Ippolito, Peydro, Polo, and Sette (2016). See also Puri, Rocholl, and Steffen (2011 b).

[30] See Shleifer (1998), Caprio, Laeven, and Levine (2007), Estrin, Hanousek, Kocenda, and Svejnar (2009), Megginson (2010), Karolyi and Liao (2010), and Dinç and Gupta (2011) or the special reports carried by *The Economist* in 2012 ("The Visible Hand," http://www.economist.com/node/21542931) and 2015 ("The good, the bad, and the ugly," September 12, 2015)

The Adoption of Innovation: The term "innovator's dilemma'' (Christensen, 1998) refers to a pattern where incumbents are slow to introduce innovative products because the new products cannibalize current ones. This bias towards status quo results in incumbents losing market shares to newer firms more open to innovation. Our study suggests a parallel to the innovator's dilemma in process adoption rather than new product introduction, where the legacy of past practices can impede new, and more appropriate, ones. As the world moves more toward services, the phenomenon we document will become more important.

VIII. Conclusions

Our work is suggestive that there are large differences across banks in bureau inquiry of applications from customers who have had a past relationship with the bank, but no such differences for new applications. It is these differences in adoption of bureau technology for a subset of a bank's customers that we seek to explain.

An explanation for the differences in behavior may lie in the past practices of the organizations. An organization that moves to a score-driven, transaction orientation in lending has to remove discretion from the loan officer and cede decision making to the scoring technology. Our findings suggest that PSBs are more reluctant to shift. We find that old private banks, which are of similar vintage and have similar formative experiences as PSBs but are smaller and continue to be privately held, behave similarly to PSBs. We attribute these behavior patterns to the way these older banks were forced by regulation to spread their activities to underserved areas. The difficulty of communication with these areas, and the paucity of hard information there, may indeed have made it optimal for management to offer loan officers discretion. Loan officers may value that discretion even today, especially for prior customers, and may indeed be able to make the case that their relationship-specific information allows them to make better decisions. We do see, however, that loan officer discretion does not result in higher quality loans, in fact quite the opposite. For this reason, banks seem to be adopting the new technology, and faster in urban-facing banks where the legacy practices of the past are perhaps less pronounced, and less appropriate because hard information is more easily available.

Perhaps formative experiences are thus an important organization characteristic in explaining the responses to new technology. Over time, and for banks that are more urban-focused, the behavior of older private and state-owned banks converges towards that of their newer private bank counterparts, suggesting there is pressure to adapt and adopt. The status quo bias created by relationships is eventually replaced with greater use of the new bureau

technology and modern retail lending practices that permeate banks around the world. Technology dominates… eventually.

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Table 1
Inquiries and Loans for the Full 1% Sample

The table reports data on inquiries made by banks with the credit bureau and loans made with or without credit bureau inquiries. The data comprises a 1% random sample of all loan types excluding credit cards and all lending inquiries between 2006 and 2015 at a major credit bureau in India. Filtered applications refer to the sum of the number of inquiries and the number of loans without inquiry. Bureau usage is the ratio of the number of inquiries to the number of filtered applications. Amounts are in billion rupees. The exchange rate at the end of our sample period is about US$1 = 65 rupees. Year refers to the fiscal year-end in March..

	# Filtered	#	Bureau	# Loans	# Loans	% Loans	Amount (INR Billion)			% Amount
Year	Applications	Inquiries	Usage	No Inquiry	Inquired	Inquired	Total	No Inquiry	Inquired	Inquired
2006	190,264	17,382	9.14%	172,882	5,150	2.89%	38.87	35.92	2.95	7.60%
2007	262,929	89,557	34.06%	173,372	21,403	10.99%	43.07	33.24	9.83	22.81%
2008	351,470	210,844	59.99%	140,626	44,127	23.88%	49.19	30.83	18.36	37.32%
2009	292,356	168,980	57.80%	123,376	32,673	20.94%	43.82	29.04	14.78	33.72%
2010	273,642	122,321	44.70%	151,321	33,250	18.01%	61.54	36.35	25.19	40.93%
2011	345,195	157,033	45.49%	188,162	51,403	21.46%	94.67	55.39	39.28	41.49%
2012	457,643	203,545	44.48%	254,098	80,227	24.00%	105.12	51.03	54.09	51.45%
2013	593,863	271,330	45.69%	322,533	101,746	23.98%	133.27	59.43	73.84	55.41%
2014	712,092	351,892	49.42%	360,200	131,576	26.76%	148.70	60.84	87.86	59.08%
2015	850,010	448,434	52.76%	401,576	177,439	30.64%	177.73	63.08	114.64	64.51%
Total	4,329,464	2,041,318	47.15%	2,288,146	678,994	22.88%	895.97	455.16	440.82	49.20%

Table 2
Inquiries and Loans for the Full 1% Sample: Classified by Bank Type

The table reports data on inquiries made by new private banks and public sector banks with the credit bureau and loans made with or without inquiring with the credit bureau. The 1% random sample includes all loan types excluding credit cards and all lending inquiries between 2006 and 2015 at a major credit bureau in India. Filtered applications refer to the sum of the number of inquiries and the number of loans without inquiry. Bureau usage is the ratio of the number of inquiries to the number of filtered applications. Amounts are in billion rupees. The exchange rate at the end of our sample period is about US$1 = 65 rupees. Year refers to the fiscal year-end in March. For example, 2015 refers to the year ending March 2015.

Panel A: Public Sector Banks

Year	# Filtered Applications	# Inquiries	Bureau Usage	# Loans No Inquiry	# Loans Inquired	% Loans Inquired	Amount Total	Amount No Inquiry	Amount Inquired	%Amt Inquired
2006	81,077	736	0.91%	80,341	194	0.24%	15.87	15.72	0.15	0.93%
2007	72,035	3,380	4.69%	68,655	1,116	1.60%	12.98	12.18	0.80	6.13%
2008	66,986	4,931	7.36%	62,055	1,700	2.67%	13.44	11.83	1.61	11.97%
2009	86,096	9,079	10.55%	77,017	3,010	3.76%	17.06	14.40	2.65	15.56%
2010	115,214	17,766	15.42%	97,448	6,394	6.16%	25.09	18.38	6.71	26.74%
2011	143,361	25,664	17.90%	117,697	8,425	6.68%	28.32	20.16	8.16	28.83%
2012	193,316	34,216	17.70%	159,100	11,222	6.59%	34.46	24.84	9.61	27.90%
2013	255,363	50,902	19.93%	204,461	17,080	7.71%	43.51	29.68	13.83	31.79%
2014	311,288	72,068	23.15%	239,220	24,485	9.28%	54.19	34.15	20.04	36.98%
2015	351,405	95,311	27.12%	256,094	33,838	11.67%	58.42	34.24	24.17	41.38%
Total	1,676,141	314,053	18.74%	1,362,088	107,464	7.31%	303.35	215.60	87.74	28.93%

Panel B: New Private Banks

Year	# Filtered Applications	# Inquiries	Bureau Usage	# Loans No Inquiry	# Loans Inquired	% Loans Inquired	Amount Total	Amount No Inquiry	Amount Inquired	%Amt Inquired
2006	48,136	4,334	9.00%	43,802	908	2.03%	11.28	10.72	0.56	4.96%
2007	78,862	32,310	40.97%	46,552	10,118	17.85%	13.88	9.38	4.50	32.43%
2008	105,448	82,774	78.50%	22,674	25,941	53.36%	12.55	4.81	7.74	61.65%
2009	70,286	61,834	87.97%	8,452	16,379	65.96%	6.09	1.54	4.55	74.75%
2010	48,485	41,423	85.43%	7,062	13,321	65.35%	7.19	1.54	5.64	78.52%
2011	61,263	52,640	85.92%	8,623	19,517	69.36%	13.31	2.13	11.18	84.00%
2012	82,802	67,478	81.49%	15,324	27,453	64.18%	19.01	2.88	16.13	84.86%
2013	110,792	90,671	81.84%	21,021	33,897	62.75%	25.66	4.27	21.39	83.36%
2014	136,302	115,875	85.01%	20,427	41,293	66.90%	27.02	4.32	22.69	83.99%
2015	173,313	148,058	85.43%	25,255	52,011	67.31%	36.62	5.42	31.20	85.19%
Total	915,689	697,397	76.16%	218,292	240,838	52.46%	172.61	47.02	125.59	72.76%

Table 3A
Inquiries and Loans in Final Sample: New Borrowers

The table reports data on inquiries with the credit bureau and loans made with or without inquiring by public sector banks and new private banks where the borrower or loan applicant has no prior lending relationship with the bank. The 1% random sample includes all loan types excluding credit cards, priority sector loans, and gold loans and all lending inquiries between 2006 and 2015 at a major credit bureau in India. Filtered applications refer to the sum of the number of inquiries and the number of loans without inquiry. Bureau usage is the ratio of the number of inquiries to the number of filtered applications. Amounts are in billion rupees. The exchange rate at the end of our sample period is about US$1 = 65 rupees. Year refers to the fiscal year-end in March. For example, 2015 refers to the year ending March 2015.

Panel A: Public Sector Banks (PSBs)

Year	# Filtered Applications	# Inquiries	Bureau Usage	# Loans No Inquiry	# Loans Inquired	% Loans Inquired	Amount Total	Amount No Inquiry	Amount Inquired	%Amt Inquired
2006	702	701	99.86%	1	163	99.39%	0.13	0.00	0.13	98.49%
2007	3,108	3,094	99.55%	14	871	98.42%	0.63	0.01	0.61	98.08%
2008	4,472	4,404	98.48%	68	1,298	95.02%	1.31	0.04	1.28	97.28%
2009	8,182	8,047	98.35%	135	2,302	94.46%	2.15	0.08	2.07	96.47%
2010	15,598	15,398	98.72%	200	4,783	95.99%	5.43	0.13	5.30	97.67%
2011	21,566	21,252	98.54%	314	5,630	94.72%	6.18	0.25	5.93	95.93%
2012	27,738	27,287	98.37%	451	6,610	93.61%	6.56	0.31	6.25	95.26%
2013	40,017	39,456	98.60%	561	9,215	94.26%	8.98	0.38	8.59	95.73%
2014	54,713	53,941	98.59%	772	12,221	94.06%	13.03	0.84	12.18	93.52%
2015	69,251	68,230	98.53%	1,021	14,824	93.56%	13.98	0.71	13.26	94.91%
Total	245,347	241,810	98.56%	3,537	57,917	94.24%	58.37	2.75	55.62	95.28%

Panel B: New Private Banks (NPBs)

Year	# Filtered Applications	# Inquiries	Bureau Usage	# Loans No Inquiry	# Loans Inquired	% Loans Inquired	Amount Total	Amount No Inquiry	Amount Inquired	%Amt Inquired
2006	3,454	3,440	99.59%	14	579	97.64%	0.36	0.01	0.36	98.38%
2007	22,233	22,009	98.99%	224	6,077	96.45%	2.66	0.09	2.57	96.58%
2008	54,485	54,067	99.23%	418	17,054	97.61%	4.20	0.15	4.04	96.33%
2009	39,850	39,766	99.79%	84	10,636	99.22%	2.45	0.04	2.41	98.52%
2010	27,375	27,270	99.62%	105	8,992	98.85%	3.31	0.06	3.25	98.30%
2011	35,220	35,099	99.66%	121	12,934	99.07%	5.87	0.10	5.76	98.27%
2012	45,575	45,408	99.63%	167	17,831	99.07%	8.17	0.11	8.05	98.62%
2013	60,468	60,250	99.64%	218	21,637	99.00%	10.90	0.12	10.78	98.90%
2014	76,082	75,802	99.63%	280	24,673	98.88%	12.05	0.31	11.75	97.44%
2015	96,461	96,200	99.73%	261	28,973	99.11%	15.48	0.20	15.28	98.72%
Total	461,203	459,311	99.59%	1,892	149,386	98.75%	65.44	1.18	64.26	98.19%

Table 3B
Inquiries and Loans in Final Sample; Prior Relationship Borrowers

The table reports data on inquiries with the credit bureau and loans made with or without inquiring by public sector banks and new private banks where the borrower or loan applicant has a prior lending relationship with the bank. The 1% random sample includes all loan types excluding credit cards, priority sector loans, and gold loans and all lending inquiries between 2006 and 2015 at a major credit bureau in India. Filtered applications refer to the sum of the number of inquiries and the number of loans without inquiry. Bureau usage is the ratio of the number of inquiries to the number of filtered applications. Amounts are in billion rupees. The exchange rate at the end of our sample period is about US$1 = 65 rupees. Year refers to the fiscal year-end in March. For example, 2015 refers to the year ending March 2015.

Panel A: Public Sector Banks (PSB)

Year	# Filtered Applications	# Inquiries	Bureau Usage	# Loans No Inquiry	# Loans Inquired	% Loans Inquired	Amount Total	Amount No Inquiry	Amount Inquired	%Amt Inquired
2006	32,636	35	0.11%	32,601	8	0.02%	8.05	8.04	0.00	0.03%
2007	26,975	286	1.06%	26,689	94	0.35%	6.86	6.77	0.09	1.32%
2008	22,623	527	2.33%	22,096	152	0.68%	6.37	6.24	0.13	2.00%
2009	26,629	1,032	3.88%	25,597	365	1.41%	7.61	7.33	0.28	3.69%
2010	33,009	2,368	7.17%	30,641	856	2.72%	9.91	9.09	0.81	8.22%
2011	35,296	4,412	12.50%	30,884	1,376	4.27%	10.44	9.29	1.16	11.08%
2012	38,631	6,929	17.94%	31,702	2,215	6.53%	10.57	8.94	1.63	15.42%
2013	39,617	11,446	28.89%	28,171	3,563	11.23%	10.79	7.89	2.90	26.91%
2014	49,605	18,127	36.54%	31,478	5,721	15.38%	13.33	8.98	4.36	32.67%
2015	56,084	27,081	48.29%	29,003	8,868	23.42%	13.67	7.49	6.18	45.20%
Total	361,105	72,243	20.01%	288,862	23,218	7.44%	97.61	80.07	17.54	17.97%

Panel B: New Private Banks (NPB)

Year	# Filtered Applications	# Inquiries	Bureau Usage	# Loans No Inquiry	# Loans Inquired	% Loans Inquired	Amount Total	Amount No Inquiry	Amount Inquired	%Amt Inquired
2006	43,090	894	2.07%	42,196	126	0.30%	10.16	10.12	0.04	0.36%
2007	54,758	10,301	18.81%	44,457	3,644	7.58%	10.17	8.61	1.56	15.36%
2008	48,952	28,707	58.64%	20,245	8,008	28.34%	7.20	3.99	3.21	44.58%
2009	27,605	22,068	79.94%	5,537	4,915	47.02%	2.76	1.08	1.68	60.89%
2010	19,262	14,153	73.48%	5,109	3,752	42.34%	2.86	1.05	1.81	63.21%
2011	23,729	17,541	73.92%	6,188	5,840	48.55%	5.82	1.65	4.17	71.59%
2012	29,460	22,070	74.92%	7,390	8,164	52.49%	8.31	1.83	6.48	77.96%
2013	37,827	30,421	80.42%	7,406	9,878	57.15%	10.94	2.48	8.46	77.34%
2014	46,451	40,073	86.27%	6,378	11,009	63.32%	11.25	2.24	9.02	80.12%
2015	57,424	51,858	90.31%	5,566	14,248	71.91%	15.21	2.51	12.70	83.48%
Total	388,558	238,086	61.27%	150,472	69,584	31.62%	84.70	35.57	49.13	58.00%

Table 4

Credit Bureau Inquiries and Lending by Credit Scores

The table reports data on inquiries and loans made by public sector banks and new private banks classified by whether the credit is scorable and credit score buckets where available for a 1% random sample of records at a major credit bureau in India in fiscal years ending in March 2013 and March 2014. The sample includes all loan types excluding credit cards, priority sector loans, and gold loans and all lending inquiries. Filtered applications refer to the sum of the number of inquiries and the number of loans without inquiry. Bureau usage is the ratio of the number of inquiries to the number of filtered applications. New borrowers are defined as those where the borrower or loan applicant has no prior lending relationship with the bank. Prior borrowers are defined as those where the borrower or loan applicant has a prior lending relationship with the bank. Amounts are in billion rupees. The exchange rate for the sample period is about US$1 = 65 rupees.

Panel A: New Borrowers

Score Bucket	# Filtered Applications	# Loans No Inquiry	# Inquiries	# L | I	Bureau Usage	P (L|I)	P (L|FA)
			Public Sector Banks				
≤ 650	5,566	67	5,499	408	98.80%	7.42%	8.53%
650-750	15,257	269	14,988	2,339	98.24%	15.61%	17.09%
≥ 750	12,998	217	12,781	2,130	98.33%	16.67%	18.06%
All Scores	33,821	553	33,268	4,877	98.36%	14.66%	16.06%
No Score	60,909	780	60,129	16,559	98.72%	27.54%	28.47%
Total	94,730	1,333	93,397	21,436	98.59%	22.95%	24.04%
			Private Sector Banks				
≤ 650	8,748	34	8,714	878	99.61%	9.69%	10.04%
650-750	21,711	138	21,573	6,272	99.36%	28.43%	28.89%
≥ 750	10,842	45	10,797	3,073	99.58%	28.04%	28.34%
All Scores	41,301	217	41,084	10,223	99.47%	24.35%	24.75%
No Score	95,249	281	94,968	36,585	99.70%	38.23%	38.41%
Total	136,550	498	136,052	46,808	99.64%	34.04%	34.28%

Panel B: Prior Borrowers

Score Bucket	# Filtered Applications	# Loans No Inquiry	# Inquiries	# L | I	Bureau Usage	P (L|I)	P (L|FA)
			Public Sector Banks				
≤ 650	4,784	1,655	3,129	482	65.41%	15.40%	44.67%
650-750	22,704	10,322	12,382	2,915	54.54%	23.54%	58.30%
≥ 750	10,706	3,988	6,718	1,578	62.75%	23.49%	51.99%
All Scores	38,194	15,965	22,229	4,975	58.20%	22.38%	54.83%
No Score	51,028	43,684	7,344	4,309	14.39%	58.67%	94.05%
Total	89,222	59,649	29,573	9,284	33.15%	31.39%	77.26%
			Private Sector Banks				
≤ 650	9,849	235	9,614	1,711	97.61%	17.80%	19.76%
650-750	26,878	939	25,939	9,601	96.51%	37.01%	39.21%
≥ 750	13,262	387	12,875	4,741	97.08%	36.82%	38.67%
All Scores	49,989	1,561	48,428	16,053	96.88%	33.15%	35.24%
No Score	34,289	12,223	22,066	4,834	64.35%	21.91%	49.74%
Total	84,278	13,784	70,494	20,887	83.64%	29.63%	41.14%

Table 5

Delinquency Rates LQ 360 By Bank Type, Relationships and Credit Score Bucket

The table reports data on delinquency rates for loans made by public sector banks and new private banks classified by whether the credit is scorable and credit score buckets where available for a 1% random sample of records at a major credit bureau in India in fiscal years ending in March 2013 and March 2014. The sample includes all loan types excluding credit cards, priority sector loans, and gold loans and all lending inquiries. We identify delinquent accounts using a field called "days past due" (DPD), which is the number of days a borrower is late on payments. We define a loan as being delinquent if at least one of the available DPDs during the 360 days from opening the account exceeds 90 days. Loans with prior relation are defined as those where the borrower or loan applicant has a prior lending relationship with the bank. Loans with no prior relation are defined as those where the borrower or loan applicant has no prior lending relationship with the bank.

Panel A: All loans

	Public Sector Banks			*New Private Banks*		
	All	No Inq	Inq	All	No Inq	Inq
<=650	4.15%	5.45%	2.00%	2.14%	5.26%	1.90%
650-750	0.78%	0.97%	0.48%	0.76%	2.62%	0.68%
>=750	0.34%	0.46%	0.23%	0.25%	2.19%	0.17%
Scored	0.96%	1.29%	0.51%	0.74%	2.90%	0.64%
Unscored	1.52%	1.95%	0.78%	1.61%	2.89%	1.43%
All Loans	1.34%	1.75%	0.68%	1.27%	2.89%	1.11%

Panel B: Loans with prior relation

	Public Sector Banks			*New Private Banks*		
<=650	4.83%	5.98%	2.28%	1.30%	5.26%	1.11%
650-750	0.82%	0.95%	0.51%	0.51%	0.62%	0.51%
>=750	0.38%	0.48%	0.22%	0.19%	1.47%	0.14%
Scored	1.06%	1.29%	0.58%	0.49%	1.36%	0.45%
Unscored	1.14%	1.19%	1.03%	0.80%	1.99%	0.64%
All Loans	1.10%	1.24%	0.77%	0.55%	1.62%	0.49%

Panel C: Loans with no prior relation

	Public Sector Banks			*New Private Banks*		
	All	No Inq	Inq	All	No Inq	Inq
<=650	2.70%	3.85%	1.63%	3.76%	5.26%	3.56%
650-750	0.65%	1.08%	0.43%	1.16%	5.61%	0.94%
>=750	0.27%	0.39%	0.23%	0.36%	3.26%	0.23%
Scored	0.71%	1.33%	0.44%	1.14%	4.97%	0.93%
Unscored	1.66%	2.31%	0.71%	1.69%	2.99%	1.52%
All Loans	1.51%	2.22%	0.64%	1.58%	3.19%	1.39%

Table 6

Counterfactual Loan Supply and Delinquency Rates for PSB Loans Without Inquiry

The data comprise loans made by state-owned banks (PSBs) without inquiry in fiscal years 2013 and 2014 excluding priority sector and gold loans. For each loan, we estimate the probability of inquiry and probability of acceptance given inquiry based on inquiry and acceptance rates for new private banks (NPBs) whose estimates we do not report here. The loan supply is the product of the loan amount and the compound probability of inquiry and acceptance given inquiry. The actual delinquency rate is the realized delinquency rate for PSBs for the un-inquired pool of loans. Counterfactual 1 is the delinquency rate for the counterfactual loan supply using the realized delinquency rate on each loan. Counterfactual 2 is the delinquency rate for the counterfactual loan supply using the delinquency rate based on the projected rate for a loan of similar characteristics made by an NPB.

		Delinquency Rate		
Past Relationship	Loan Supply	Actual	Counterfactual 1	Counterfactual 2
No	281,603,448	1.33%	0.700%	0.569%
Yes	719,841,267	1.29%	0.972%	0.575%
All	1,001,444,714	1.29%	0.895%	0.573%

Table 7
Old Private Banks

The table reports data on inquiries with the credit bureau and loans made with or without inquiring by old private banks (OPBs) classified by whether the borrower or loan applicant has a prior lending relationship with the bank. The 1% random sample includes all loan types excluding credit cards, priority sector loans, and gold loans and all lending inquiries between 2006 and 2015 at a major credit bureau in India. Filtered applications refer to the sum of the number of inquiries and the number of loans without inquiry. Bureau usage is the ratio of the number of inquiries to the number of filtered applications. Amounts are in billion rupees. The exchange rate at the end of our sample period is about US$1 = 65 rupees. Year refers to the fiscal year-end in March. For example, 2015 refers to the year ending March 2015.

Year	# Filtered Applications	# Inquiries	Bureau Usage	# Loans No Inquiry	# Loans Inquired	% Loans Inquired	Amount Total	Amount No Inquiry	Amount Inquired	%Amt Inquired
Panel A: New Borrowers										
2006	738	738	100.00%	-	152	3.21%	0.95	0.94	0.01	1.18%
2007	7,301	7,290	99.85%	11	1,003	22.18%	2.73	2.57	0.16	6.01%
2008	4,989	4,967	99.56%	22	274	13.51%	3.48	3.27	0.22	6.24%
2009	1,226	1,224	99.84%	2	56	3.00%	1.81	1.72	0.08	4.51%
2010	1,081	1,074	99.35%	7	150	6.76%	1.39	1.17	0.22	16.06%
2011	1,626	1,619	99.57%	7	300	13.74%	1.71	1.17	0.54	31.41%
2012	2,135	2,113	98.97%	22	468	17.75%	2.55	1.30	1.25	49.19%
2013	2,439	2,385	97.79%	54	448	19.11%	3.84	1.73	2.11	54.98%
2014	3,324	3,260	98.07%	64	634	25.57%	3.19	1.35	1.84	57.63%
2015	5,456	5,374	98.50%	82	692	28.51%	4.05	1.53	2.52	62.18%
Total	30,315	30,044	99.11%	271	4,177	16.34%	25.71	16.75	8.96	34.85%
Panel B: Prior Relationship Borrowers										
2006	4,911	20	0.41%	4,891	10	0.20%	0.94	0.94	0.00	0.04%
2007	3,928	220	5.60%	3,708	57	1.51%	2.58	2.57	0.01	0.36%
2008	2,263	281	12.42%	1,982	39	1.93%	3.29	3.26	0.02	0.73%
2009	2,057	86	4.18%	1,971	5	0.25%	1.72	1.72	0.00	0.11%
2010	2,564	186	7.25%	2,378	23	0.96%	1.22	1.16	0.05	4.24%
2011	2,929	336	11.47%	2,593	114	4.21%	1.33	1.17	0.16	11.97%
2012	3,812	557	14.61%	3,255	239	6.84%	2.08	1.28	0.80	38.45%
2013	3,909	792	20.26%	3,117	301	8.81%	3.10	1.69	1.41	45.52%
2014	3,932	1,070	27.21%	2,862	371	11.48%	2.13	1.27	0.86	40.30%
2015	4,420	1,465	33.14%	2,955	519	14.94%	2.70	1.49	1.21	44.80%
Total	34,725	5,013	14.44%	29,712	1,678	5.35%	21.09	16.56	4.53	21.47%

Table 8

Determinants of Bureau Inquiry

*The dependent variable is one if a filtered application inquired and zero if not. The data are a 1% random sample of the credit bureau data and include all inquiries as well as loans made without inquiry for the years ending in March 2013 and March 2014 excluding credit cards, priority sector loans, and gold loans. PSBOPB is an indicator that takes the value 1 for state-owned or old private banks. PRIOREL is an indicator for a filtered application by a borrower has borrowed in the past from the inquiring bank. LONGREL (SHORTREL) equals one if duration of the relationship is greater than (less than or equal to) one year. SH-NON-URB-LNS is the share of bank's total lending in fiscal 2012 to borrowers residing in Tiers 3-6 (non-urban) areas. Standard errors (in parentheses) are clustered at the borrower level. For brevity, the table reports coefficients for the key variables. The Appendix Table A3 reports the coefficients for the remaining variables. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.*

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
VARIABLES	Baseline	Add Tier	Tier, SH-NON-URB-LNS	Tier, SH-NON-URB-LNS, No Outlier NPB	Tier, SH-NON-URB-LNS, PSBOPB, No Outlier NPB	Tier, SH-NON-URB-LNS, PSBOPB, No Outlier NPB	Long and short bank relationship
PSBOPB	-0.0860***	-0.0952***			-0.0653***	-0.0975***	-0.1477***
	(0.005)	(0.006)			(0.008)	(0.011)	(0.006)
PRIOREL	-0.0047***	0.0659***	-0.2824***	0.1459***	0.0362**	-0.1821***	
	(0.002)	(0.004)	(0.014)	(0.015)	(0.017)	(0.019)	
PRIOREL*PSBOPB	-0.3175***	-0.3537***			-0.2727***	0.0263	
	(0.003)	(0.006)			(0.011)	(0.022)	
SH-NON-URB-LNS			-0.4012***	-0.4767***	-0.4117***	-0.4543***	
			(0.012)	(0.015)	(0.022)	(0.024)	
PRIOREL* SH-NON-URB-LNS			0.2106***	-0.7414***	-0.0907**	0.5058***	
			(0.025)	(0.030)	(0.046)	(0.052)	
SH-NON-URB-LNS* PSBOPB						0.0671***	
						(0.020)	
SH-NON-URB-LNS* PSBOPB * PRIOREL						-0.7449***	
						(0.044)	
LONGREL							-0.0089*
							(0.005)
LONGREL*PSBOPB							-0.3421***
							(0.007)
SHORTREL							0.0003
							(0.007)
SHORTREL*PSBOPB							-0.1168***
							(0.011)
LOW	0.1184***	0.1016***	0.0011	-0.1034***	-0.0022	0.0115	0.0711***
	(0.002)	(0.002)	(0.006)	(0.008)	(0.009)	(0.009)	(0.003)

Table 8 (continued)
Determinants of Bureau Inquiry

	[1]	[2]	[3]	[4]	[5]	[6]	[7]
VARIABLES	Baseline	Add Tier	Tier, SH-NON-URB-LNS	Tier, SH-NON-URB-LNS, No Outlier NPB	Tier, SH-NON-URB-LNS, PSBOPB, No Outlier NPB	Tier, SH-NON-URB-LNS, PSBOPB, No Outlier NPB	Long and short bank relationship
MEDIUM SCORE	0.0998***	0.0853***	0.0225***	-0.0627***	0.0062	0.0186***	0.0604***
	(0.002)	(0.002)	(0.005)	(0.005)	(0.007)	(0.007)	(0.002)
HIGH SCORE	0.0954***	0.0790***	0.0091	-0.0962***	0.0044	0.0149*	0.0578***
	(0.002)	(0.002)	(0.006)	(0.006)	(0.008)	(0.008)	(0.003)
MALE	0.0038*	0.0090***	0.0190***	0.0162***	0.0147***	0.0151***	0.0126***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
LOG AGE	-0.0102***	0.0011	-0.0217***	-0.0118***	-0.0043	-0.0033	0.0045
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
LOG BANK AGE	-0.0667***	-0.0637***	-0.0930***	-0.0762***	-0.0584***	0.0625*	-0.0650***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.032)	(0.003)
BIG BANK	0.1581***	0.1509***	0.1128***	0.1312***	0.1244***	0.0631*	0.1410***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.035)	(0.003)
HIGH ROA BANK	0.1191***	0.1232***	0.1581***	0.1483***	0.1291***	0.1294***	0.1197***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
PSBOPB × SCORE	Yes	Yes	No	No	Yes	Yes	Yes
SH-NON-URB-LNS x SCORE	No	No	Yes	Yes	Yes	Yes	No
TIER	No	Yes	Yes	Yes	Yes	Yes	Yes
PSBOPB×TIER	No	Yes	No	No	Yes	Yes	Yes
PRIOREL×TIER	No	Yes	No	No	Yes	Yes	Yes
PSBOPB×PRIOREL×TIER	No	Yes	No	No	Yes	Yes	Yes
SH-NON-URB-LNS×TIER	No	No	Yes	Yes	Yes	Yes	No
SH-NON-URB-LNS×TIER	No	No	Yes	Yes	Yes	Yes	No
SH-NON-URB-LNS × PRIOREL×TIER	No	No	Yes	Yes	Yes	Yes	No
LONGREL×TIER	No	No	No	No	No	No	Yes
PSBOPB×LONGREL×Tier	No	No	No	No	No	No	Yes
SHORTREL×Tier	No	No	No	No	No	No	Yes
PSBOPB×SHORTREL×Tier	No	No	No	No	No	No	Yes
# OBSERVATIONS	359,540	359,540	359,540	315,829	315,829	315,829	315,829
Adjusted R^2	0.232	0.242	0.220	0.262	0.271	0.272	0.276

Table 9

Delinquency and Bureau Inquiry. Instrumental Variable Regressions

*The table reports estimates of two sets of instrumental variable regressions. One set is reported in columns (1)-(2) and the second set is reported in columns (3)-(4). In each case, the instrumented variable is whether a filtered application is inquired or not and the second stage dependent variable is loan delinquency LQ 360. We define a loan as being delinquent if at least one of the available DPDs (days past due) during the 360 days from loan grant date exceeds 90 days. PSBOPB is an indicator that takes the value 1 for state-owned or old private banks. PRIOREL is an indicator for a filtered application by a borrower has borrowed in the past from the inquiring bank. Tiers are indicators for the borrower geography, with Tier 1 representing the most urban and Tier 6 representing the most rural areas. SH-NON-URB-LNS is the share of ' bank's total lending in fiscal 2012 to borrowers residing in Tiers 3-6 (non-urban) areas. For brevity, we report the first-stage coefficient for instrumented inquiry and the first stage regression coefficients for the instruments. The Appendix Table A8 reports the remaining coefficients. Standard errors are estimated using a bootstrap procedure, with 500 replications. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.*

	Specification (1)		*Specification (2)*	
VARIABLES	*First stage*	*Second Stage*	*First stage*	*Second Stage*
Inquired		-0.0143***		-0.0223***
		(0.002)		(0.002)
PSBOPB * PRIOREL	-0.2553***			
	(0.006)			
PSBOPB	-0.3031***			
	(0.003)			
PSBOPB * LOW	0.1954***			
	(0.005)			
PSBOPB * MEDIUM SCORE	0.1321***			
	(0.004)			
PSBOPB * HIGH SCORE	0.1737***			
	(0.004)			
PSBOPB * TIER 1	0.1079***			
	(0.004)			
PSBOPB * TIER 2	0.1013***			
	(0.005)			
PSBOPB * TIER 3	0.0594***			
	(0.006)			
PSBOPB * TIER 4	0.0439***			
	(0.006)			
PSBOPB * TIER 5	0.0198***			
	(0.006)			
PSBOPB * PRIOREL*TIER 1	0.0051			
	(0.009)			
PSBOPB * PRIOREL*TIER 2	-0.0532***			
	(0.011)			
PSBOPB * PRIOREL*TIER 3	-0.0179			
	(0.013)			
PSBOPB * PRIOREL*TIER 4	-0.0027			
	(0.013)			
PSBOPB * PRIOREL*TIER 5	-0.0197			
	(0.013)			
PRIOREL* SH-NON-URB-LNS			-0.7289***	
			(0.035)	
SH-NON-URB-LNS			-1.0130***	
			(0.013)	

Table 9 (continued)
Delinquency and Bureau Inquiry. Instrumental Variable Regressions

	(1)	(2)	(3)	(4)
VARIABLES	First stage	Second Stage	First stage	Second Stage
SH-NON-URB-LNS * TIER 1			0.4407***	
			(0.016)	
SH-NON-URB-LNS * TIER 2			0.3862***	
			(0.022)	
SH-NON-URB-LNS * TIER 3			0.1404***	
			(0.028)	
SH-NON-URB-LNS * TIER 4			0.2464***	
			(0.026)	
SH-NON-URB-LNS * TIER 5			0.2576***	
			(0.028)	
SH-NON-URB-LNS * PRIOREL*TIER 1			-0.0122	
			(0.042)	
SH-NON-URB-LNS * PRIOREL*TIER 2			-0.3817***	
			(0.054)	
SH-NON-URB-LNS * PRIOREL*TIER 3			-0.1512**	
			(0.065)	
SH-NON-URB-LNS * PRIOREL*TIER 4			-0.1201*	
			(0.068)	
SH-NON-URB-LNS * PRIOREL*TIER 5			-0.1125*	
			(0.065)	
MALE	0.0180***	0.0017**	0.0357***	0.0021**
	(0.002)	(0.001)	(0.002)	(0.001)
LOG (AGE)	-0.0026	-0.0063***	-0.0438***	-0.0070***
	(0.003)	(0.001)	(0.003)	(0.001)
LOG (1+AMOUNT)		-0.0026***		-0.0025***
		(0.000)		(0.000)
PRIOREL*TIER	Y	Y	Y	Y
CREDIT SCORE BUCKET	Y	Y	Y	Y
PSBOPB x SCORE	Y	N	N	N
SH-NON-URB-LNS x SCORE	N	N	Y	N
TIER DUMMY VARIABLES	Y	Y	Y	Y
# OBSERVATIONS	303,064	102,725	303,064	102,725

Table 10
Inquiry Rate and Bank Characteristics: Bank-level Regression

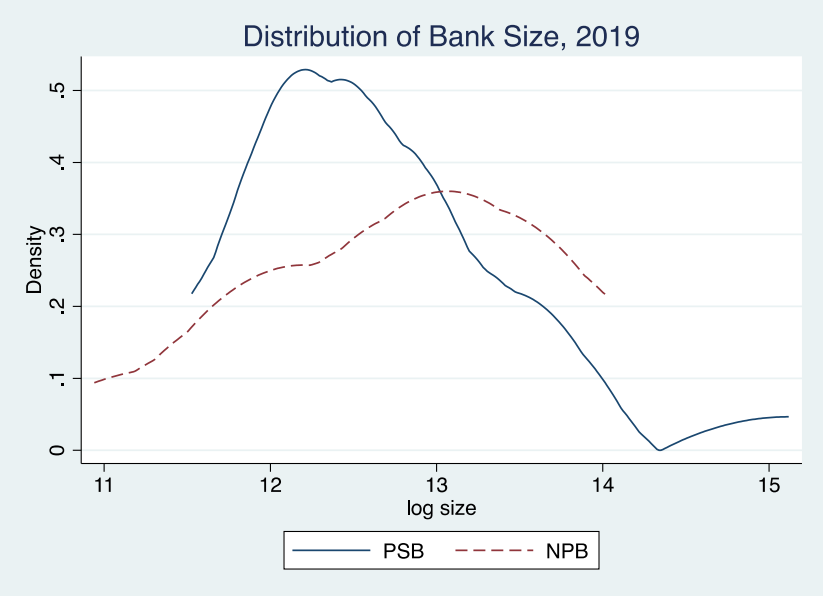
*The tables reports estimates of several bank-level regressions of the average share of filtered applications (FA) that are inquired. Specifications (1) and (2) analyze all clients. Specifications (3) to (6) analyze prior relationship clients. For robustness, specifications (5) and (6) exclude one outlier private bank. The independent variables are dummy variables for bank type, log bank age, indicators for large bank and profitable bank (based on whether the market capitalization and return on assets exceed the median), and SH-NON-URB-LNS, which is bank's share of loans in geographical tiers 3-6, i.e., non-urban areas in our pre-regression sample in 2012. Bank age is the difference between 2015 and the bank founding year. Bank-level financial characteristics are averages for the years ending March 2013 and March 2014. Robust standard errors are reported in parentheses. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.*

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	Fraction of FA inquired		Fraction of FA from Prior Relationships inquired		Fraction of FA from Prior Relationships inquired Drop Outlier Bank	
PSB	-0.2303*	0.0264	-0.2584*	-0.0252	-0.2585*	0.0024
	(0.130)	(0.115)	(0.141)	(0.121)	(0.140)	(0.125)
OPB	-0.2134	-0.0696	-0.3188**	-0.1881	-0.3253**	-0.1297
	(0.156)	(0.121)	(0.154)	(0.130)	(0.159)	(0.136)
LOG BANK AGE	-0.0481	-0.0772*	-0.0880	-0.1145**	-0.0891	-0.1105**
	(0.054)	(0.043)	(0.061)	(0.050)	(0.060)	(0.049)
BIG BANK	0.1496	0.0366	0.0837	-0.0189	0.0772	0.0128
	(0.102)	(0.101)	(0.082)	(0.084)	(0.095)	(0.094)
HIGH ROA BANK	0.1009	0.1617**	0.1362	0.1915**	0.1372	0.1913**
	(0.102)	(0.078)	(0.109)	(0.090)	(0.110)	(0.091)
SH-NON-URB-LNS		-0.5757***		-0.5229**		-0.5831**
		(0.209)		(0.207)		(0.227)
CONSTANT	0.8902***	1.1587***	1.0413***	1.2853***	1.0520***	1.2428***
	(0.177)	(0.179)	(0.198)	(0.208)	(0.200)	(0.200)
# Observations	45	45	45	45	44	44
Adjusted R^2	0.304	0.423	0.417	0.495	0.399	0.487

Figure 1: Indian Banking Industry

This figure displays key characteristics of PSBs and NPBs, as reported by the Reserve Bank of India. Bank size is measured by total assets. Non-performing assets are defined by days past due of more than 90 days.

Panel A: Distribution of Bank Size



Panel B: Bank Capital Adequacy Ratio

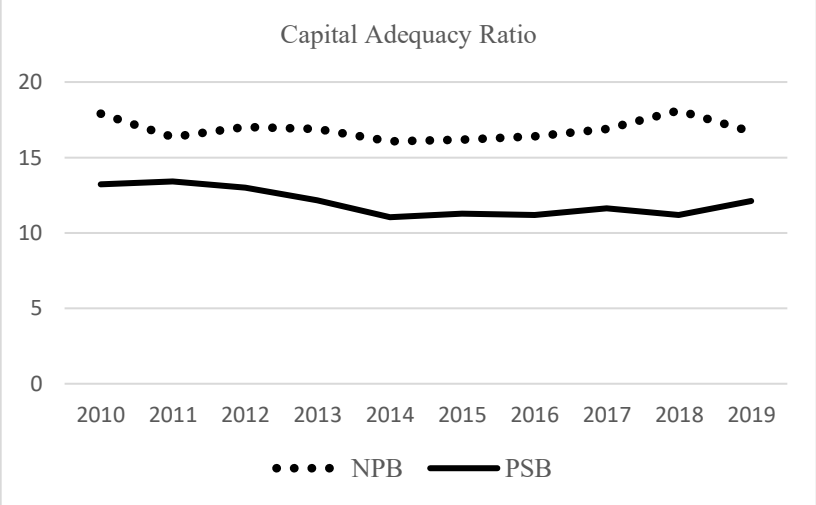
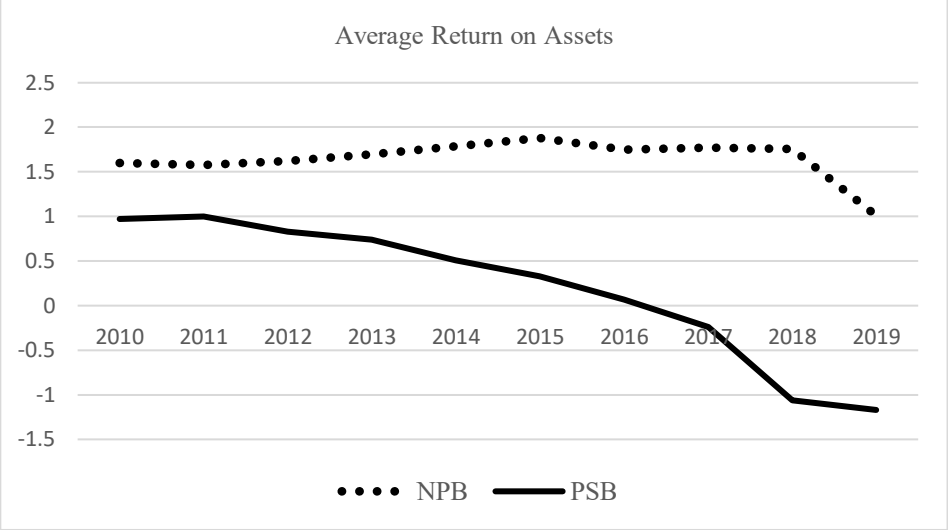


Figure 1: Indian Banking Industry (continued)

Panel C; Return on Assets



Panel D: Non Performing Assets

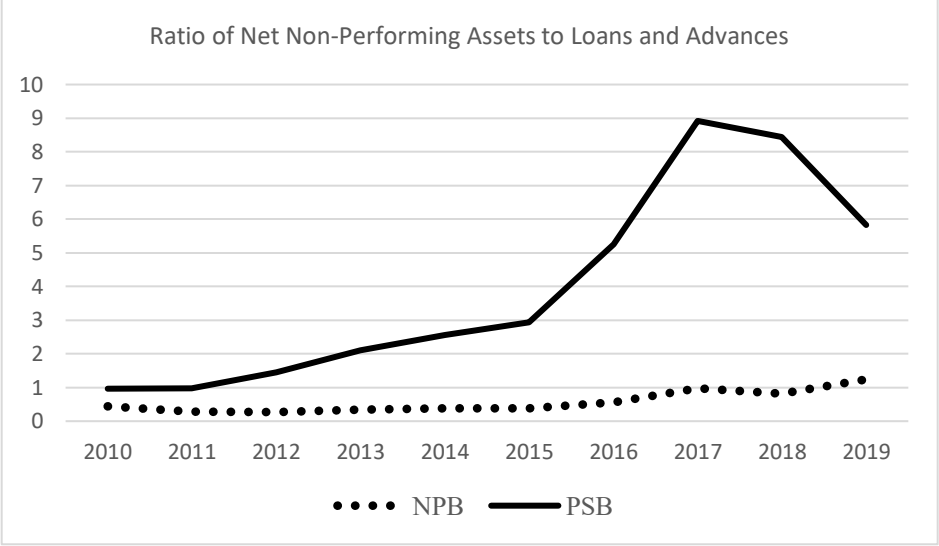
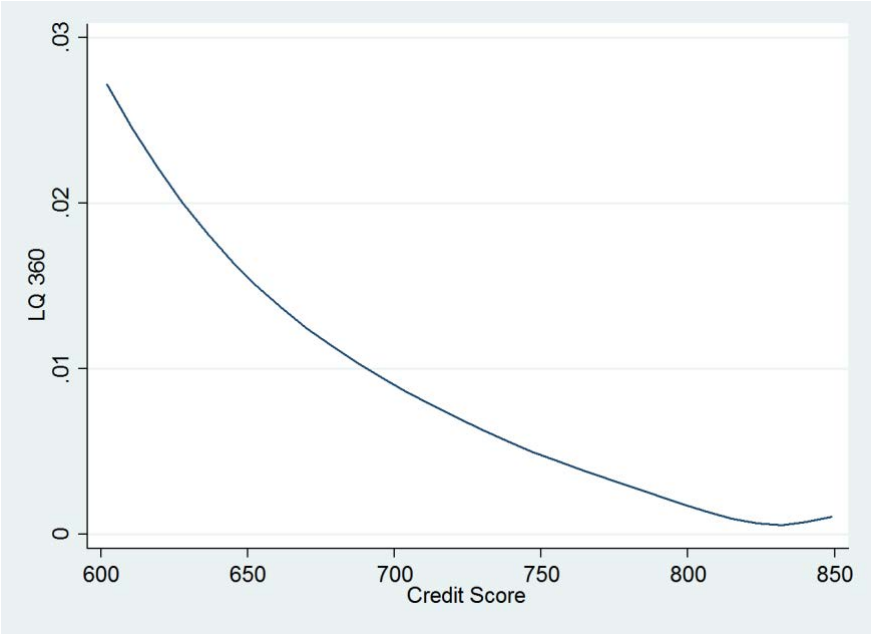


Figure 2

This figure depicts the relationship between credit scores and delinquencies for all banks (Panel A), and for PSBs and NPBs separately (Panel B). The variable LQ360 equals 1 if at least one of the available DPDs during the 360 days from opening the account exceeds 90 days. The credit scores are historical "point in time" numbers that were available to banks in real time when inquiries or loans were made. Credit scores range between 600 and 850. Scores of 750 or above are considered excellent, those between 650 and 750 are good, and scores below 650 are fair to poor.

Panel A: Delinquency LQ360 Versus Credit Score (All Banks)



Panel B: Delinquency LQ360 Versus Credit Score (PSBs and NPBs Separately)

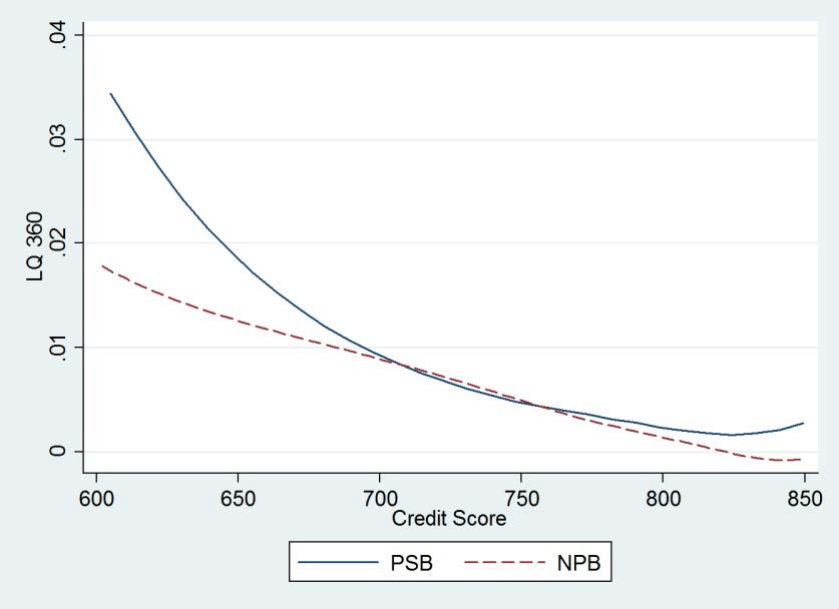


Figure 3.

This chart shows the fraction of filtered applications that are unscored calculated over our regression sample of 2013 and 2014. The Reserve Bank of India (RBI) classifies each locality in India as belonging to one of six "tiers" based on population in 2001. Tier 1 includes the most populous metropolitan areas (towns greater than 100,000 people), while Tier 6 includes the least populous areas (less than 5000 people).

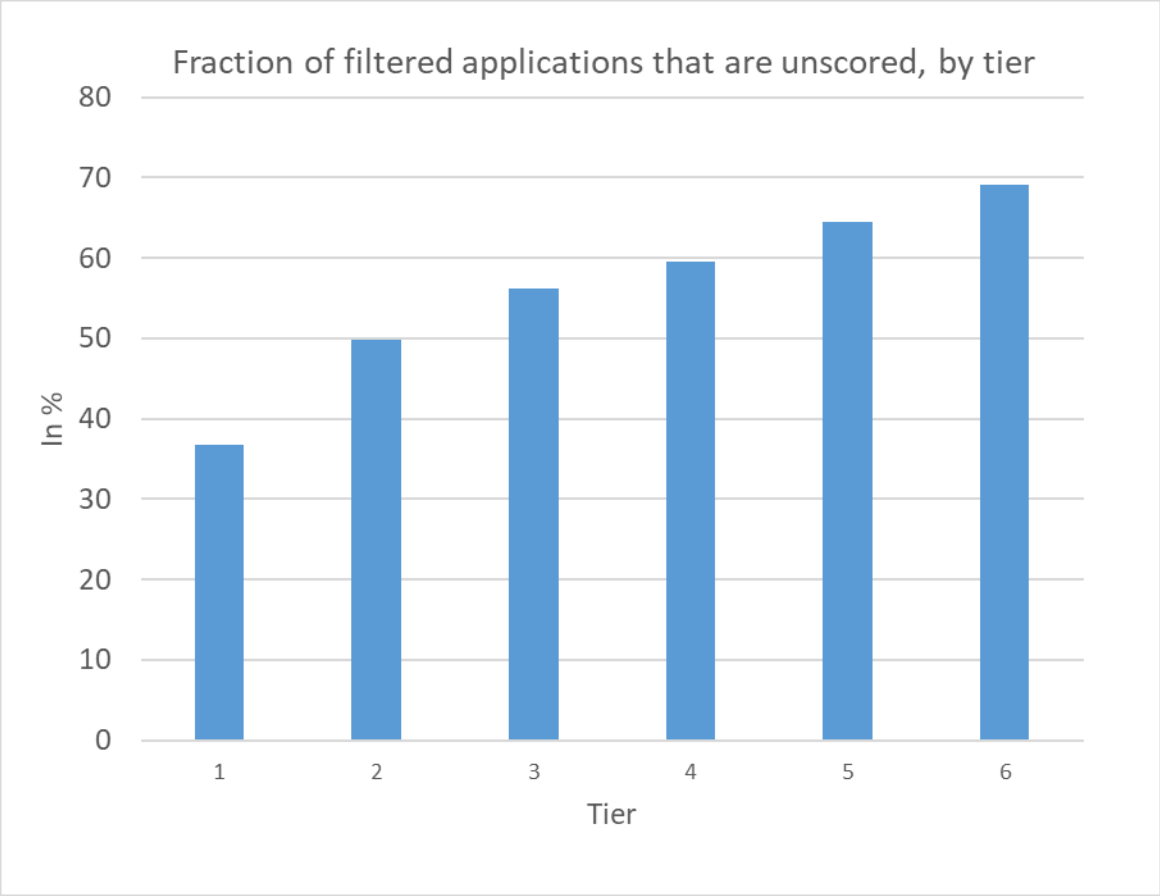
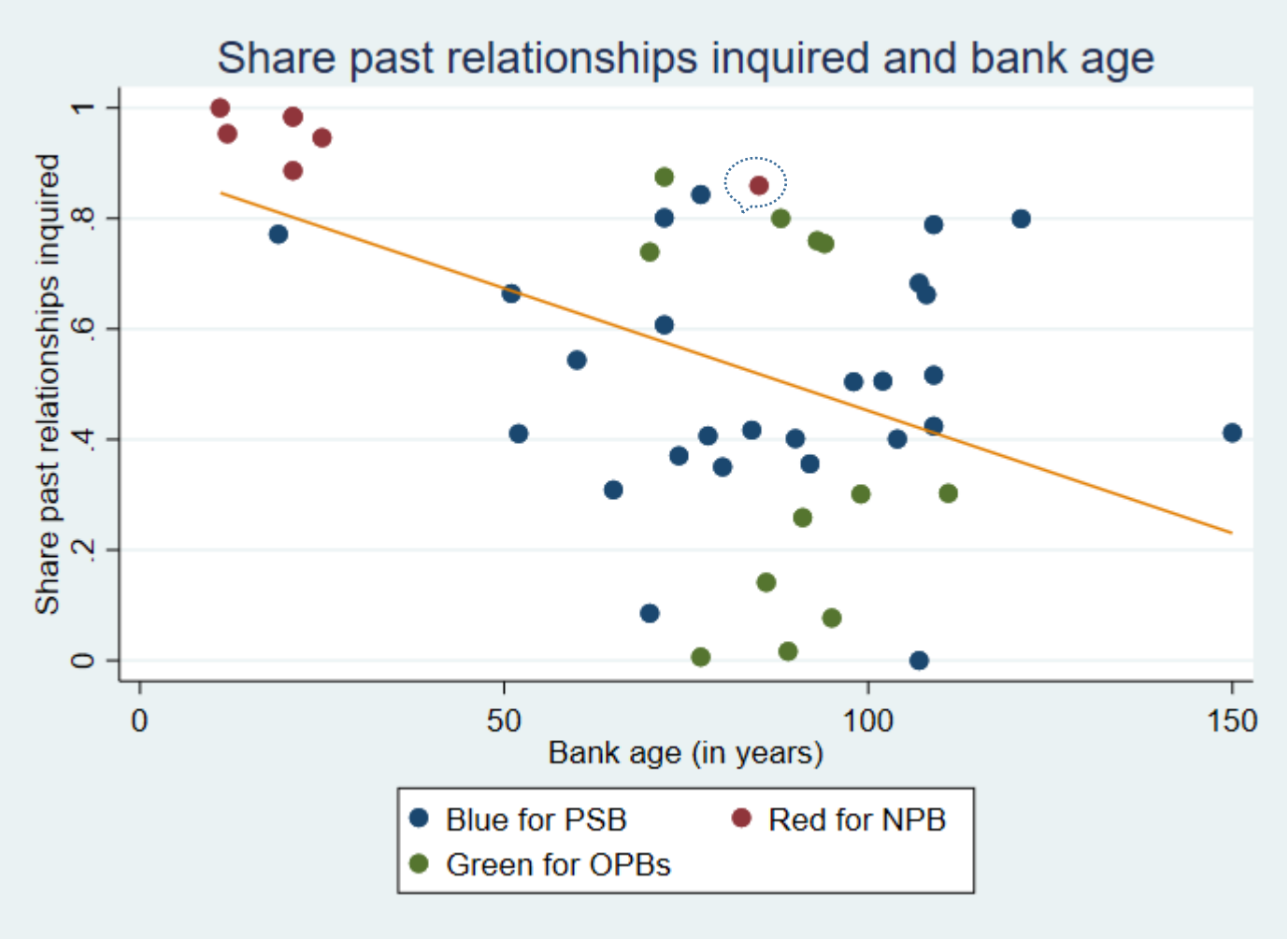


Figure 4

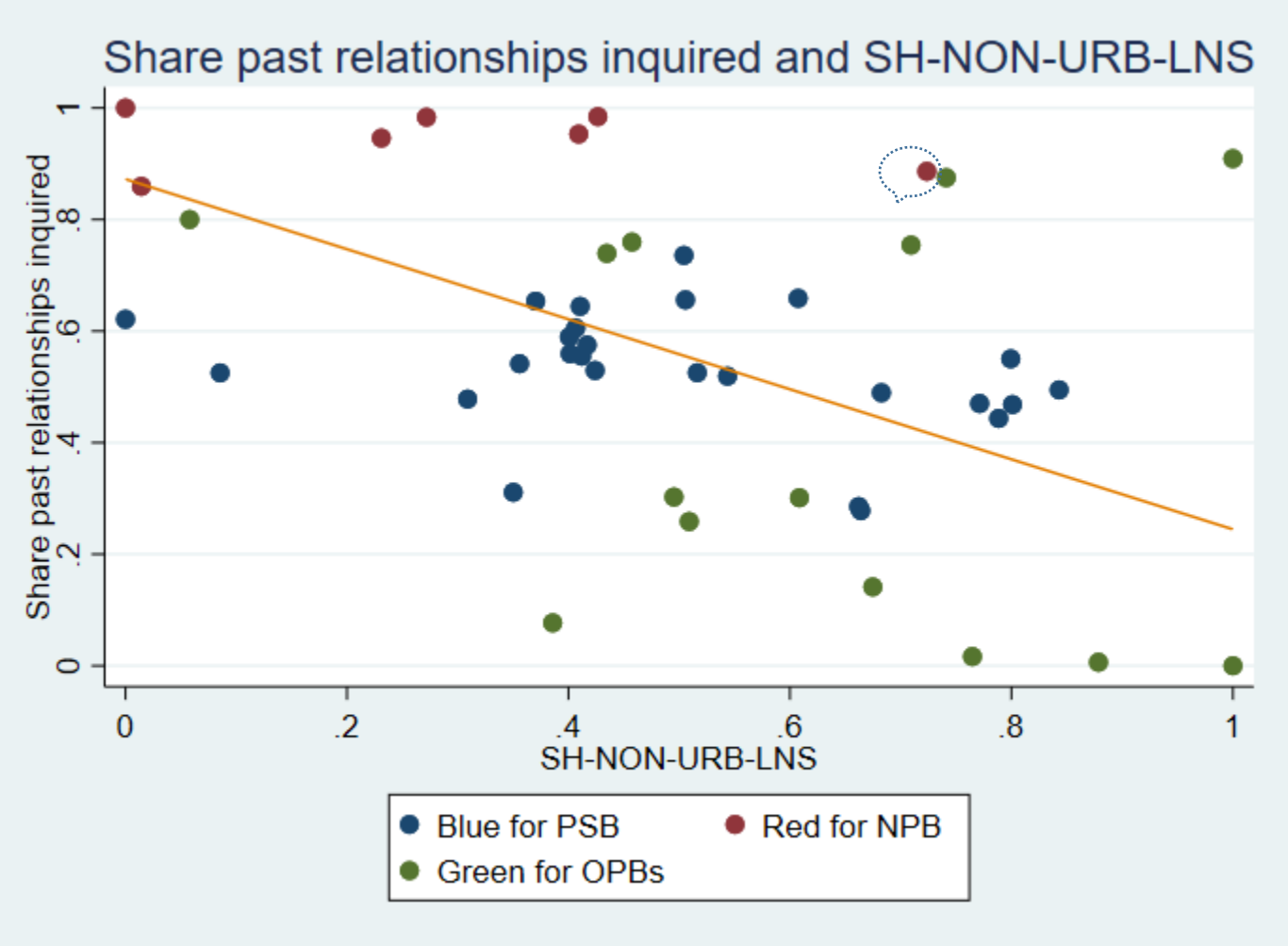
This chart shows a bank-level scatter plot between the average share of filtered applications that are inquired for prior relationship clients and age of the bank. The averages are calculated over our regression sample of 2013 and 2014. The age of the bank is calculated as the difference between 2015 and founding year of the bank.



SH-PRIOR-REL-INQUIRED = 0.8951*** - 0.0044***Bank Age

Figure 5

This chart shows a bank-level scatter plot between average share of filtered applications that are inquired for prior relationship clients and SH-NON-URB-LNS (i.e. bank's share of loans in non-urban areas, i.e. in Tiers 3-6, in our pre-regression sample in 2012. The averages are calculated over our regression sample of 2013 and 2014.

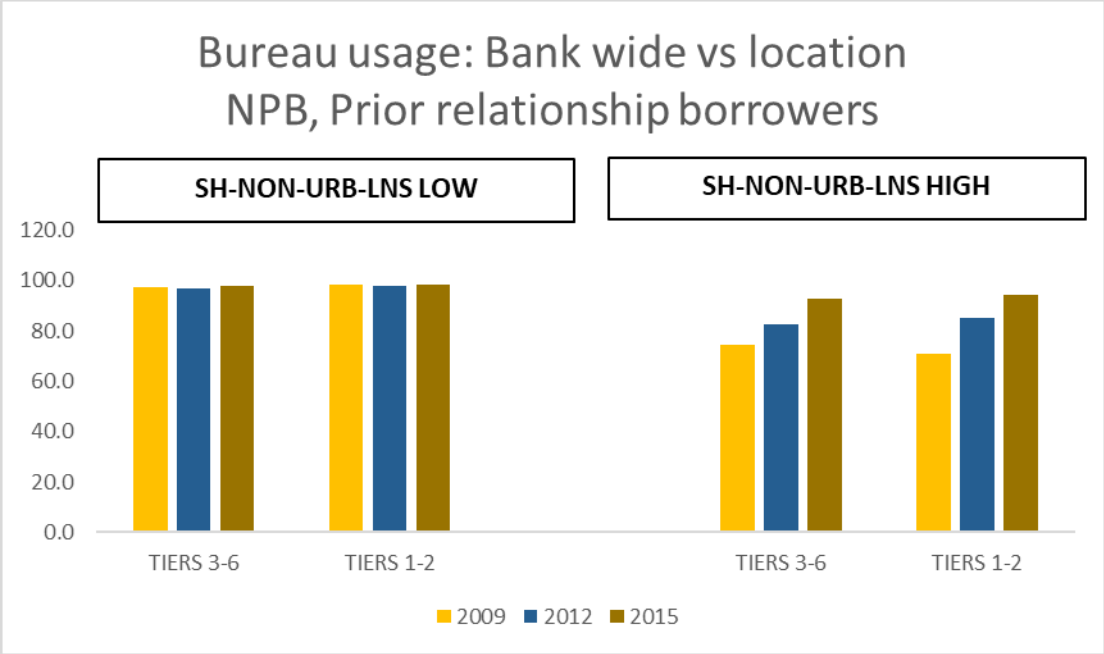


SH-PRIOR-REL-INQUIRED = 0.8724*** -0.6278*** *SH-NON-URB-LNS*

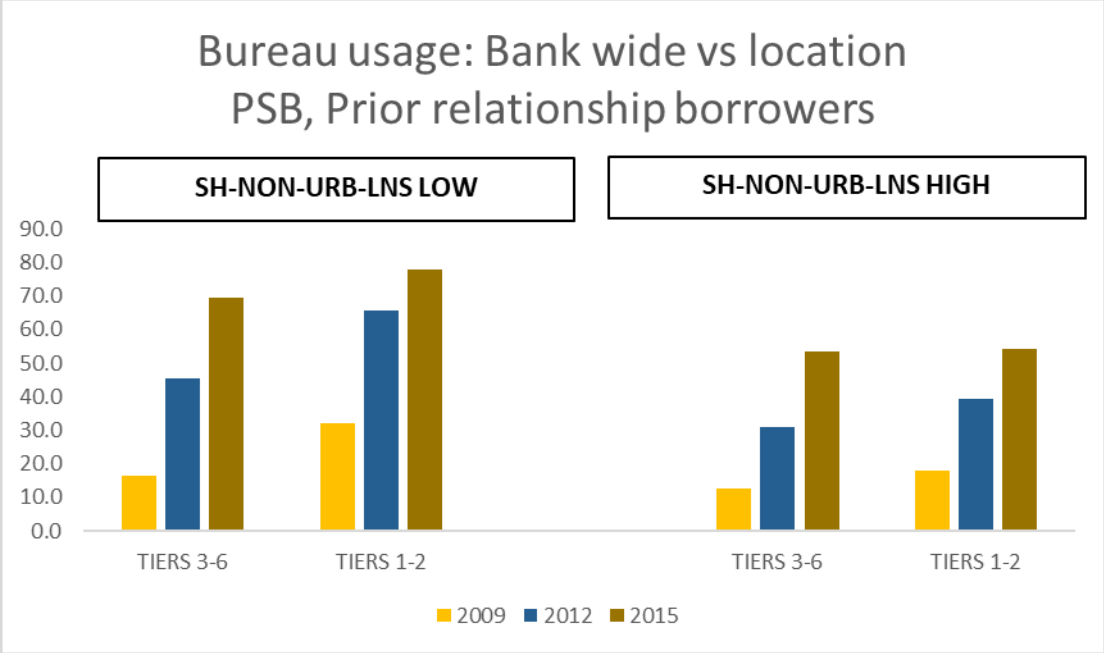
Figure 6

The figure shows Bureau Usage (share of filtered applications that are inquired) for prior relationship borrowers for New Private Banks (NPBs) (Panel A) and for Public Sector Banks (PSBs) (Panel B) for low (< 30th percentile) and high (> 70th percentile) SH-NON-URB-LNS (i.e. bank's share of loans in non-urban areas in Tiers 3-6, in our pre-regression sample in 2012) by Tier (urban – Tiers 1 and 2) and non-urban (Tiers 3-6).

Panel A



Panel B



ONLINE APPENDIX

Table A1. Summary Statistics

This table reports summary statistics for the key variables used in the baseline regression specifications in Tables 8 and 9.

Variable	# Observations	Mean	SD	Min	Max
D=1 if filtered application is followed by an inquiry	359,540	0.777	0.416	0.000	1.000
PSBOPB	359,540	0.526	0.499	0.000	1.000
PRIOREL	359,540	0.328	0.470	0.000	1.000
LOW (< 650)	359,540	0.083	0.275	0.000	1.000
MEDIUM SCORE (650-750)	359,540	0.249	0.432	0.000	1.000
HIGH SCORE (> 750)	359,540	0.136	0.343	0.000	1.000
MALE	359,540	0.801	0.399	0.000	1.000
LOG AGE (borrower)	359,540	3.651	0.297	2.890	4.382
LOG BANK AGE	359,540	3.713	0.723	2.398	5.011
BIG BANK	359,540	0.796	0.403	0.000	1.000
HIGH ROA BANK	359,540	0.588	0.492	0.000	1.000
SH-NON-URB-LNS	359,540	0.484	0.151	0.000	0.879
LQ360 (Delinquency_	102,725	0.012	0.110	0.000	1.000
LOG (1+LOAN AMOUNT)	102,725	12.247	1.417	2.398	17.734

Table A2a Past Relationship Borrowers
Final 1% Consumer Loan Sample

The sample includes all public sector and new private banks excluding credit card companies, all account types excluding credit cards, agriculture and other priority sector loans granted between 2006 and 2015. The average size per loan is calculated as the ratio of the amount to # loans.

Panel A: Public Sector bank

Year	# Loans			Amount (INR million)			Average size per loan (INR '000)		
	Auto	Housing	Consumer	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	1932	7807	22870	334	4480	3233	173	574	141
2007	2100	6098	18585	451	3771	2638	215	618	142
2008	1907	4426	15915	448	3216	2706	235	727	170
2009	2502	4409	19051	644	3459	3511	257	784	184
2010	3994	5619	21884	1091	5081	3737	273	904	171
2011	3863	4865	23532	1220	4620	4602	316	950	196
2012	3656	4320	25941	1212	4588	4769	332	1062	184
2013	3980	4383	23371	1569	4790	4436	394	1093	190
2014	4168	4855	28176	1687	5905	5740	405	1216	204
2015	3797	4679	29395	1637	5891	6145	431	1259	209
Total	31899	51461	228720	10293	45801	41517	323	890	182

Panel B: New Private Bank

Year	# Loans			Amount (INR million)			Average size per loan (INR '000)		
	Auto	Housing	Consumer	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	27637	4053	10632	4097	4778	1284	148	1179	121
2007	30108	2937	15056	3933	4525	1716	131	1541	114
2008	14986	1191	12076	2789	2677	1734	186	2248	144
2009	5977	316	4159	1278	618	869	214	1955	209
2010	6239	442	2180	1445	833	586	232	1884	269
2011	9034	678	2316	2848	2080	896	315	3068	387
2012	11697	780	3077	4170	3036	1105	357	3892	359
2013	12471	995	3818	4556	4901	1483	365	4926	388
2014	11657	1092	4638	4251	5028	1973	365	4605	425
2015	11933	1375	6506	5423	6988	2799	454	5082	430
Total	141739	13859	64458	34792	35465	14,445	245	2559	224

Table A2b. New Borrowers
Final 1% Consumer Loan Sample

The sample includes all public sector and new private banks excluding credit card companies, all account types excluding credit cards, agriculture and other priority sector loans granted between 2006 and 2015.

Panel A: Public Sector bank

Year	# Loans			Amount (INR million)			Average size per loan (INR '000)		
	Auto	Housing	Consumer	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	27	104	33	10	110	13	363	1056	393
2007	201	478	206	60	490	75	298	1026	363
2008	282	781	303	84	1087	143	299	1392	473
2009	594	1200	643	189	1674	287	318	1395	447
2010	1230	2721	1032	404	4628	398	329	1701	386
2011	1603	2829	1512	581	4902	698	363	1733	462
2012	1877	2939	2245	738	4810	1012	393	1637	451
2013	2921	3501	3354	1372	6357	1250	470	1816	373
2014	3257	4423	5313	1545	8794	2687	474	1988	506
2015	3790	4549	7506	1760	9109	3106	464	2002	414
Total	15782	23525	22147	6743	41961	9669	427	1784	437

Panel B: New Private Bank

Year	# Loans			Amount (INR million)			Average size per loan (INR '000)		
	Auto	Housing	Consumer	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	220	104	269	51	251	61	232	2411	228
2007	1753	735	3813	501	1521	643	286	2070	169
2008	10906	919	5647	1440	1882	876	132	2048	155
2009	8375	367	1978	1310	648	488	156	1765	247
2010	7442	546	1109	1497	1472	335	201	2697	302
2011	10794	775	1486	2463	2874	529	228	3708	356
2012	14554	1034	2410	3539	3792	834	243	3667	346
2013	17401	1373	3081	4119	5609	1174	237	4085	381
2014	19560	1604	3789	4307	6253	1494	220	3898	394
2015	22371	2031	4832	5047	8538	1893	226	4204	392
Total	113376	9488	28414	24275	32840	8326	214	3461	293

Table A2c
% of Loans Inquired by Loan Type: Prior Relationship Borrowers
Final 1% Consumer Loan Sample

The sample includes all public sector and new private banks excluding credit card companies, all account types excluding credit cards, agriculture and other priority sector loans granted between 2006 and 2015.

Panel A: Public Sector bank

Year	% # Loans Inquired			% Amount Loans Inquired		
	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	0.05	0.04	0.04	0.05	0.02	0.04
2007	0.71	0.77	1.16	0.86	1.49	1.16
2008	1.00	2.10	0.40	1.55	3.41	0.40
2009	3.20	3.63	1.71	4.93	5.47	1.71
2010	6.23	6.87	3.03	8.91	11.89	3.03
2011	9.71	11.45	3.60	14.66	17.59	3.60
2012	15.54	17.01	7.03	19.38	23.08	7.03
2013	23.52	22.79	13.97	31.01	37.55	13.97
2014	28.84	26.82	19.92	37.63	43.64	19.92
2015	41.59	33.66	35.06	53.72	53.40	35.06
Total	15.75	11.38	5.39	24.82	22.60	11.16

Panel B: New Private Bank

Year	% # Loans Inquired			% Amount Loans Inquired		
	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	0.21	0.12	0.58	0.41	0.10	1.20
2007	2.72	9.67	16.88	7.76	17.02	28.42
2008	16.98	36.94	41.60	27.37	54.61	56.80
2009	39.65	41.14	58.07	64.62	38.52	71.30
2010	36.03	35.75	61.74	70.26	43.66	73.62
2011	41.24	51.47	76.21	72.98	67.92	75.69
2012	44.76	58.72	80.27	74.95	80.43	82.52
2013	48.66	68.54	81.93	78.00	75.81	80.38
2014	53.74	77.29	84.09	80.95	79.50	79.91
2015	66.26	77.75	81.03	85.62	83.67	78.85
Total	26.28	31.89	43.32	56.82	57.11	63.03

Table A2d
% of Loans Inquired by Loan Type: New Borrowers
Final 1% Consumer Loan Sample

The sample includes all public sector and new private banks excluding credit card companies, all account types excluding credit cards, agriculture and other priority sector loans granted between 2006 and 2015.

Panel A: Public Sector bank

Year	% # Loans Inquired			% Amount Loans Inquired		
	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	100.00	99.04	100.00	100.00	98.18	100.00
2007	99.50	98.74	97.29	99.50	98.03	97.29
2008	97.87	97.44	88.11	96.20	98.58	88.11
2009	98.15	96.67	87.28	98.32	97.84	87.28
2010	97.56	97.68	94.04	97.60	97.99	94.04
2011	97.44	96.82	87.44	97.43	96.96	87.44
2012	95.10	95.88	86.36	95.06	97.16	86.36
2013	96.17	95.60	91.87	96.18	96.39	91.87
2014	95.30	96.27	80.68	95.25	97.14	80.68
2015	96.70	94.70	90.59	96.75	96.03	90.59
Total	96.38	96.17	90.68	96.28	96.94	87.40

Panel B: New Private Bank

Year	% # Loans Inquired			% Amount Loans Inquired		
	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	95.91	100.00	98.14	93.73	100.00	95.60
2007	95.15	96.19	97.09	96.43	96.27	97.43
2008	98.36	96.84	96.28	95.49	97.04	96.18
2009	99.71	96.73	97.57	99.73	96.52	97.94
2010	99.44	94.14	97.20	98.77	97.90	98.00
2011	99.36	96.26	98.45	99.36	97.18	99.17
2012	99.17	97.87	99.00	98.71	98.40	99.25
2013	99.22	98.32	98.05	99.34	99.06	96.62
2014	99.05	97.69	98.47	98.44	97.23	95.46
2015	99.40	98.67	97.93	99.52	98.67	96.82
Total	99.13	97.48	97.64	98.81	98.03	97.03

Table A3
Determinants of Bureau Inquiry

*The dependent variable is one if a filtered application inquired and zero if not. The data are a 1% random sample of the credit bureau data and include all inquiries as well as loans made without inquiry for the years ending in March 2013 and March 2014 excluding credit cards, priority sector loans, and gold loans. PSBOPB is an indicator that takes the value 1 for state-owned or old private banks. PRIOREL is an indicator for a filtered application by a borrower has borrowed in the past from the inquiring bank. LONGREL (SHORTREL) equals one if duration of the relationship is greater than (less than or equal to) one year. SH-NON-URB-LNS is the share of a bank's total lending in fiscal 2012 to borrowers residing in Tiers 3-6 (non-urban) areas. Standard errors (in parentheses) are clustered at the borrower level. For brevity, the table reports coefficients for the key variables. The Appendix Table A3 reports the coefficients for the remaining variables. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.*

VARIABLES	(1) Baseline	(2) Add Tier	(3) Tier, SH-NON-URB-LNS	(4) Tier, SH-NON-URB-LNS, No Outlier NPB	(5) Tier, SH-NON-URB-LNS, PSBOPB, No Outlier NPB	(6) Tier, SH-NON-URB-LNS, PSBOPB, No Outlier NPB	(7) Long and short bank relationship
PSBOPB	-0.0860***	-0.0952***			-0.0653***	-0.0975***	-0.0816***
	(0.005)	(0.006)			(0.008)	(0.011)	(0.005)
PRIOREL	-0.0047***	0.0659***	-0.2824***	0.1459***	0.0362**	-0.1821***	
	(0.002)	(0.004)	(0.014)	(0.015)	(0.017)	(0.019)	
PRIOREL* PSBOPB	-0.3175***	-0.3537***			-0.2727***	0.0263	
	(0.003)	(0.006)			(0.011)	(0.022)	
SH-NON-URB-LNS			-0.4012***	-0.4767***	-0.4117***	-0.4543***	
			(0.012)	(0.015)	(0.022)	(0.024)	
PRIOREL* SH-NON-URB-LNS			0.2106***	-0.7414***	-0.0907**	0.5058***	
			(0.025)	(0.030)	(0.046)	(0.052)	
SH-NON-URB-LNS* PSBOPB						0.0671***	
						(0.020)	
SH-NON-URB-LNS* PSBOPB * PRIOREL						-0.7449***	
						(0.044)	
LOW	0.1184***	0.1016***	0.0011	-0.1034***	-0.0022	0.0115	0.1134***
	(0.002)	(0.002)	(0.006)	(0.008)	(0.009)	(0.009)	(0.002)
MEDIUM SCORE	0.0998***	0.0853***	0.0225***	-0.0627***	0.0062	0.0186***	0.0951***
	(0.002)	(0.002)	(0.005)	(0.005)	(0.007)	(0.007)	(0.002)

HIGH SCORE	0.0954***	0.0790***	0.0091	-0.0962***	0.0044	0.0149*	0.0904***
	(0.002)	(0.002)	(0.006)	(0.006)	(0.008)	(0.008)	(0.002)
LONGREL							0.0075
							(0.005)
LONG REL*PSBOPB							-0.3585***
							(0.007)
SHORTREL							0.1507***
							(0.005)
SHORTREL*PSBOPB							-0.2666***
							(0.010)
MALE	0.0038*	0.0090***	0.0190***	0.0162***	0.0147***	0.0151***	0.0093***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
LOG (AGE)	-0.0102***	0.0011	-0.0217***	-0.0118***	-0.0043	-0.0033	0.0098***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
PSBOPB*LOW	0.2053***	0.1929***			0.1837***	0.1949***	0.1907***
	(0.005)	(0.005)			(0.007)	(0.008)	(0.005)
PSBOPB*MEDIUM SCORE	0.1583***	0.1537***			0.1467***	0.1575***	0.1582***
	(0.003)	(0.004)			(0.006)	(0.006)	(0.004)
PSB*HIGH SCORE	0.2205***	0.2012***			0.1956***	0.1995***	0.2030***
	(0.004)	(0.004)			(0.006)	(0.006)	(0.004)
SH-NON-URB-LNS*LOW			0.4230***	0.6972***	0.2112***	0.1640***	
			(0.014)	(0.020)	(0.027)	(0.027)	
SH-NON-URB-LNS*MEDIUM SCORE			0.3047***	0.5292***	0.1602***	0.1158***	
			(0.010)	(0.013)	(0.021)	(0.021)	
SH-NON-URB-LNS*HIGH SCORE			0.4005***	0.6598***	0.1506***	0.1215***	
			(0.013)	(0.016)	(0.024)	(0.024)	
TIER 1		0.0933***	-0.0997***	-0.0675***	-0.0458***	-0.0576***	0.0895***
		(0.003)	(0.006)	(0.007)	(0.009)	(0.009)	(0.003)
TIER 2		0.0420***	0.0270***	-0.0567***	-0.0332***	-0.0403***	0.0401***
		(0.004)	(0.008)	(0.009)	(0.011)	(0.011)	(0.004)
TIER 3		0.0535***	0.0518***	0.0362***	0.0597***	0.0566***	0.0526***
		(0.004)	(0.010)	(0.012)	(0.014)	(0.014)	(0.004)
TIER 4		0.0622***	-0.0137	-0.0167	-0.0180	-0.0200	0.0611***
		(0.004)	(0.010)	(0.011)	(0.014)	(0.014)	(0.004)
TIER 5		0.0312***	-0.0645***	-0.0739***	-0.1096***	-0.1109***	0.0309***
		(0.004)	(0.010)	(0.012)	(0.015)	(0.014)	(0.004)
PSBOPB * TIER 1		0.0339***			0.0257***	0.0210***	0.0326***
		(0.004)			(0.008)	(0.008)	(0.004)

PSBOPB * TIER 2	0.0818***			0.0407***	0.0384***	0.0800***
	(0.005)			(0.009)	(0.009)	(0.005)
PSBOPB * TIER 3	0.0344***			0.0560***	0.0554***	0.0328***
	(0.007)			(0.011)	(0.011)	(0.007)
PSBOPB * TIER 4	0.0064			0.0037	0.0032	0.0056
	(0.006)			(0.011)	(0.011)	(0.006)
PSBOPB * TIER 5	-0.0076			-0.0611***	-0.0616***	-0.0075
	(0.007)			(0.011)	(0.011)	(0.006)
SH-NON-URB-LNS * TIER 1		0.4102***	0.3483***	0.2743***	0.3072***	
		(0.012)	(0.016)	(0.029)	(0.028)	
SH-NON-URB-LNS * TIER 2		0.1036***	0.3255***	0.2140***	0.2337***	
		(0.017)	(0.021)	(0.034)	(0.034)	
SH-NON-URB-LNS * TIER 3		0.0372*	0.0779***	-0.0572	-0.0491	
		(0.021)	(0.027)	(0.043)	(0.043)	
SH-NON-URB-LNS * TIER 4		0.1476***	0.1564***	0.1523***	0.1573***	
		(0.020)	(0.025)	(0.042)	(0.043)	
SH-NON-URB-LNS * TIER 5		0.1734***	0.1960***	0.3628***	0.3665***	
		(0.020)	(0.026)	(0.043)	(0.043)	
PRIOREL*TIER 1	-0.1078***	0.3513***	0.0330**	-0.0178	0.1145***	
	(0.005)	(0.015)	(0.017)	(0.019)	(0.022)	
PRIOREL*TIER 2	-0.0537***	0.2272***	0.1191***	0.0408	0.1173***	
	(0.006)	(0.019)	(0.021)	(0.026)	(0.027)	
PRIOREL*TIER 3	-0.0522***	0.1221***	0.0035	-0.0533	-0.0189	
	(0.007)	(0.023)	(0.026)	(0.033)	(0.033)	
PRIOREL*TIER 4	-0.0776***	0.1892***	0.0342	0.0287	0.0625*	
	(0.007)	(0.023)	(0.026)	(0.032)	(0.032)	
PRIOREL*TIER 5	-0.0264***	0.0855***	0.0616**	0.0642*	0.0631*	
	(0.008)	(0.026)	(0.030)	(0.034)	(0.035)	
PSBOPB * PRIOREL*TIER 1	0.0976***			0.0254*	0.0699***	
	(0.009)			(0.014)	(0.014)	
PSBOPB * PRIOREL*TIER 2	-0.0196*			-0.0161	0.0012	
	(0.011)			(0.017)	(0.017)	
PSBOPB * PRIOREL*TIER 3	0.0056			-0.0448**	-0.0402*	
	(0.013)			(0.021)	(0.021)	
PSBOPB * PRIOREL*TIER 4	0.0546***			0.0419**	0.0473**	
	(0.012)			(0.020)	(0.020)	
PSBOPB * PRIOREL*TIER 5	-0.0123			0.0215	0.0228	
	(0.013)			(0.021)	(0.021)	
SH-NON-URB-LNS* PRIOREL*TIER 1		-0.7081***	-0.0480	-0.0396	-0.3816***	

			(0.032)	(0.039)	(0.054)	(0.059)	
SH-NON-URB-LNS * PRIOREL*TIER 2			-0.5094***	-0.3598***	-0.1890**	-0.3733***	
			(0.041)	(0.048)	(0.074)	(0.075)	
SH-NON-URB-LNS * PRIOREL*TIER 3			-0.2955***	-0.0769	0.0990	0.0237	
			(0.048)	(0.059)	(0.092)	(0.092)	
SH-NON-URB-LNS * PRIOREL*TIER 4			-0.4194***	-0.1132**	-0.1767**	-0.2512***	
			(0.047)	(0.057)	(0.088)	(0.088)	
SH-NON-URB-LNS * PRIOREL*TIER 5			-0.2247***	-0.1818***	-0.2319**	-0.2306**	
			(0.050)	(0.063)	(0.092)	(0.092)	
LOG BANK AGE	-0.0667***	-0.0637***	-0.0930***	-0.0762***	-0.0584***	-0.0552***	-0.0733***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.002)
BIG BANK	0.1581***	0.1509***	0.1128***	0.1312***	0.1244***	0.1228***	0.1542***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.002)
HIGH ROA BANK	0.1191***	0.1232***	0.1581***	0.1483***	0.1291***	0.1294***	0.1256***
	(0.003)	(0.003)	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)
SHORTREL*TIER 1							-0.1609***
							(0.006)
SHORTREL*TIER 2							-0.0814***
							(0.008)
SHORTREL*TIER 3							-0.0595***
							(0.010)
SHORTREL*TIER 4							-0.1025***
							(0.011)
SHORTREL*TIER 5							-0.0402***
							(0.013)
PSBOPB *SHORTREL*TIER 1							0.1422***
							(0.015)
PSBOPB *SHORTREL*TIER 2							-0.0594***
							(0.018)
PSBOPB *SHORTREL*TIER 3							-0.0812***
							(0.023)
PSBOPB *SHORTREL*TIER 4							0.0856***
							(0.021)

PSBOPB *SHORTREL*TIER 5							-0.0584**
							(0.030)
LONGREL *TIER 1							-0.0639***
							(0.005)
LONGREL *TIER 2							-0.0223***
							(0.007)
LONGREL *TIER 3							-0.0304***
							(0.008)
LONGREL *TIER 4							-0.0512***
							(0.008)
LONGREL *TIER 5							-0.0178**
							(0.008)
PSBOPB * LONGREL *TIER 1							0.0734***
							(0.010)
PSBOPB * LONGREL *TIER 2							-0.0277**
							(0.012)
PSBOPB * LONGREL *TIER 3							0.0138
							(0.014)
PSBOPB * LONGREL *TIER 4							0.0429***
							(0.014)
PSBOPB * LONGREL *TIER 5							-0.0015
							(0.014)
CONSTANT	0.8757***	0.7750***	1.1243***	1.0469***	0.9819***	0.9840***	0.7664***
	(0.012)	(0.012)	(0.013)	(0.013)	(0.015)	(0.016)	(0.012)
# Observations	359,540	359,540	359,540	315,829	315,829	315,829	361,158
Adjusted R^2	0.232	0.242	0.220	0.262	0.271	0.272	0.250

Table A4
Determinants of Bureau Inquiry: Probit Estimates

*The table reports probit estimates. The dependent variable is one if a filtered application inquired and zero if not. The data are a 1% random sample of the credit bureau data and include all inquiries as well as loans made without inquiry for the years ending in March 2013 and March 2014 excluding credit cards, priority sector loans, and gold loans. PSBOPB is an indicator that takes the value 1 for state-owned or old private banks. PRIOREL is an indicator for a filtered application by a borrower has borrowed in the past from the inquiring bank. Standard errors (in parentheses) are clustered at the borrower level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.*

	Linear Regression		Probit	
	(1)	(2)	(3)	(4)
VARIABLES	Baseline	Add Tiers	Baseline	Add Tiers
PSBOPB	-0.0860***	-0.0952***	-0.4439***	-0.3840***
	(0.005)	(0.006)	(0.020)	(0.021)
PRIOREL	-0.0047***	0.0659***	0.0119	0.2358***
	(0.002)	(0.004)	(0.016)	(0.027)
PRIOREL*PSB	-0.3175***	-0.3537***	-1.0189***	-1.1052***
	(0.003)	(0.006)	(0.019)	(0.031)
LOW	0.1184***	0.1016***	1.1049***	1.0091***
	(0.002)	(0.002)	(0.030)	(0.031)
Medium Score	0.0998***	0.0853***	0.8676***	0.7938***
	(0.002)	(0.002)	(0.017)	(0.018)
HIGH SCORE	0.0954***	0.0790***	0.8704***	0.7687***
	(0.002)	(0.002)	(0.025)	(0.027)
Male	0.0038*	0.0090***	0.0164**	0.0429***
	(0.002)	(0.002)	(0.008)	(0.008)
Log (Age)	-0.0102***	0.0011	-0.0595***	-0.0149
	(0.003)	(0.003)	(0.011)	(0.011)
PSBOPB * LOW	0.2053***	0.1929***	0.0105	0.0243
	(0.005)	(0.005)	(0.036)	(0.037)
PSBOPB * Medium Score	0.1583***	0.1537***	-0.0210	-0.0003
	(0.003)	(0.004)	(0.020)	(0.021)
PSBOPB * HIGH SCORE	0.2205***	0.2012***	0.2117***	0.2113***
	(0.004)	(0.004)	(0.028)	(0.030)
TIER 1		0.0933***		0.6587***
		(0.003)		(0.030)
TIER 2		0.0420***		0.1711***
		(0.004)		(0.018)
TIER 3		0.0535***		0.2310***
		(0.004)		(0.022)
TIER 4		0.0622***		0.2967***
		(0.004)		(0.022)
TIER 5		0.0312***		0.1280***
		(0.004)		(0.019)
PSBOPB * TIER 1		0.0339***		-0.1994***
		(0.004)		(0.032)
PSBOPB * TIER 2		0.0818***		0.2440***
		(0.005)		(0.023)
PSBOPB * TIER 3		0.0344***		0.0493*
		(0.007)		(0.028)
PSBOPB * TIER 4		0.0064		-0.0840***

		(0.006)		(0.027)
PSBOPB * TIER 5		-0.0076		-0.0588**
		(0.007)		(0.024)
PRIOREL*TIER 1		-0.1078***		-0.5629***
		(0.005)		(0.044)
PRIOREL*TIER 2		-0.0537***		-0.1404***
		(0.006)		(0.053)
PRIOREL*TIER 3		-0.0522***		-0.1370**
		(0.007)		(0.059)
PRIOREL*TIER 4		-0.0776***		-0.3700***
		(0.007)		(0.057)
PRIOREL*TIER 5		-0.0264***		-0.0649
		(0.008)		(0.060)
PSBOPB * PRIOREL*TIER 1		0.0976***		0.3984***
		(0.009)		(0.051)
PSBOPB * PRIOREL*TIER 2		-0.0196*		-0.1646***
		(0.011)		(0.060)
PSBOPB * PRIOREL*TIER 3		0.0056		-0.0538
		(0.013)		(0.068)
PSBOPB * PRIOREL*TIER 4		0.0546***		0.2775***
		(0.012)		(0.065)
PSBOPB * PRIOREL*TIER 5		-0.0123		-0.0522
		(0.013)		(0.068)
Bank age (in logs)	-0.0667***	-0.0637***	-0.1966***	-0.1918***
	(0.003)	(0.003)	(0.009)	(0.009)
Big bank (assets>median)	0.1581***	0.1509***	0.7823***	0.7379***
	(0.002)	(0.002)	(0.010)	(0.010)
Profitable bank (ROA>median)	0.1191***	0.1232***	0.3993***	0.4128***
	(0.003)	(0.003)	(0.011)	(0.011)
Constant	0.8757***	0.7750***	0.8919***	0.4677***
	(0.012)	(0.012)	(0.047)	(0.050)
Observations	359,540	359,540	359,540	359,540
R-squared	0.232	0.242		

Table A5. Determinants of Bureau Inquiry
Long and Short Relationships Interactions with SH-NON-URB-LNS

*The dependent variable is one if a filtered application inquired and zero if not. The data are a 1% random sample of the credit bureau data and include all inquiries as well as loans made without inquiry for the years ending in March 2013 and March 2014 excluding credit cards, priority sector loans, and gold loans. PSBOPB is an indicator that takes the value 1 for state-owned or old private banks. PRIOREL is an indicator for a filtered application by a borrower has borrowed in the past from the inquiring bank. LONGREL (SHORTREL) equals one if duration of the relationship is greater than (less than or equal to) one year. SH-NON-URB-LNS is the share of a bank's total lending in fiscal 2012 to borrowers residing in Tiers 3-6 (non-urban) areas. Standard errors (in parentheses) are clustered at the borrower level. For brevity, the table reports coefficients for the key variables. The Appendix Table A3 reports the coefficients for the remaining variables. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.*

	(1)	(2)	(3)	(4)	(5)	(6)
VARIABLES	LONG REL	SHORT REL	LONG + SHORT REL	LONGREL + TIER	SHORT REL + TIER	LONGREL + SHORTREL + TIER
SH-NON-URB-LNS	-0.3762***	-0.5116***	-0.3327***	-0.5168***	-0.6789***	-0.4806***
	(0.011)	(0.011)	(0.011)	(0.015)	(0.015)	(0.015)
LONGREL	0.2460***		0.2541***	0.1767***		0.1849***
	(0.006)		(0.006)	(0.017)		(0.017)
LONGREL* SH-NON-URB-LNS	-1.0227***		-1.0726***	-0.8776***		-0.9215***
	(0.015)		(0.014)	(0.034)		(0.035)
LOW	-0.1295***	-0.0820***	-0.1303***	-0.1107***	-0.0592***	-0.1132***
	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)	(0.008)
MEDIUM SCORE	-0.0856***	-0.0090	-0.0870***	-0.0741***	0.0034	-0.0762***
	(0.005)	(0.006)	(0.005)	(0.006)	(0.006)	(0.005)
HIGH SCORE	-0.1369***	-0.0853***	-0.1332***	-0.1120***	-0.0556***	-0.1099***
	(0.006)	(0.006)	(0.006)	(0.006)	(0.007)	(0.006)
MALE	0.0122***	0.0085***	0.0123***	0.0166***	0.0139***	0.0167***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
LOG (AGE)	-0.0128***	-0.0494***	-0.0150***	-0.0010	-0.0350***	-0.0033
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
SH-NON-URB-LNS* LOW	0.8131***	0.5542***	0.8265***	0.7222***	0.4514***	0.7407***
	(0.021)	(0.022)	(0.020)	(0.021)	(0.022)	(0.020)
SH-NON-URB-LNS* MEDIUM SCORE	0.6131***	0.2550***	0.6364***	0.5564***	0.1958***	0.5815***
	(0.014)	(0.014)	(0.013)	(0.014)	(0.015)	(0.013)
SH-NON-URB-LNS* HIGH SCORE	0.8192***	0.5563***	0.8187***	0.7092***	0.4301***	0.7139***
	(0.015)	(0.017)	(0.015)	(0.016)	(0.017)	(0.016)
TIER 1				-0.0689***	-0.1013***	-0.0608***
				(0.007)	(0.007)	(0.007)
TIER 2				-0.0447***	-0.0563***	-0.0519***
				(0.009)	(0.009)	(0.009)
TIER 3				0.0405***	0.0222**	0.0385***
				(0.012)	(0.011)	(0.012)
TIER 4				-0.0239**	-0.0105	-0.0156
				(0.011)	(0.011)	(0.011)
TIER 5				-0.0623***	-0.0501***	-0.0726***
				(0.013)	(0.012)	(0.012)
SH-NON-URB-LNS * TIER 1				0.3497***	0.4628***	0.3278***
				(0.016)	(0.017)	(0.016)

SH-NON-URB-LNS * TIER 2				0.2747***	0.3249***	0.3104***
				(0.021)	(0.022)	(0.021)
SH-NON-URB-LNS * TIER 3				0.0425	0.1104***	0.0694**
				(0.027)	(0.026)	(0.027)
SH-NON-URB-LNS * TIER 4				0.1680***	0.1370***	0.1518***
				(0.025)	(0.025)	(0.025)
SH-NON-URB-LNS * TIER 5				0.1511***	0.1323***	0.1919***
				(0.029)	(0.026)	(0.026)
LONGREL *TIER 1				0.0369*		0.0297
				(0.019)		(0.019)
LONGREL *TIER 2				0.1059***		0.1143***
				(0.023)		(0.023)
LONGREL *TIER 3				-0.0006		0.0019
				(0.028)		(0.028)
LONGREL *TIER 4				0.0575**		0.0497*
				(0.029)		(0.029)
LONGREL *TIER 5				0.0430		0.0544*
				(0.033)		(0.033)
SH-NON-URB-LNS* LONGREL *TIER 1				-0.0272		-0.0084
				(0.044)		(0.044)
SH-NON-URB-LNS* LONGREL *TIER 2				-0.2686***		-0.3078***
				(0.054)		(0.055)
SH-NON-URB-LNS* LONGREL *TIER 3				0.0035		-0.0251
				(0.064)		(0.064)
SH-NON-URB-LNS* LONGREL *TIER 4				-0.1342**		-0.1193*
				(0.063)		(0.064)
SH-NON-URB-LNS* LONGREL *TIER 5				-0.0894		-0.1329*
				(0.070)		(0.069)
Bank age (in logs)	-0.0846***	-0.0723***	-0.0854***	-0.0772***	-0.0639***	-0.0780***
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Big bank (assets>median)	0.1386***	0.1343***	0.1363***	0.1361***	0.1311***	0.1340***
	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Profitable bank (RoA>median)	0.1474***	0.1590***	0.1465***	0.1473***	0.1598***	0.1462***
	(0.002)	(0.003)	(0.002)	(0.002)	(0.002)	(0.002)
SHORTREL		0.0378***	0.0935***		0.0332	0.0726***
		(0.009)	(0.009)		(0.024)	(0.024)
SHORTREL* SH-NON-URB-LNS		-0.1678***	-0.4485***		-0.0820*	-0.3220***
		(0.024)	(0.025)		(0.050)	(0.050)
SHORTREL *TIER 1					-0.0282	-0.0222
					(0.028)	(0.028)
SHORTREL *TIER 2					0.0674*	0.1014***
					(0.035)	(0.035)
SHORTREL *TIER 3					-0.0217	-0.0206
					(0.050)	(0.051)
SHORTREL *TIER 4					-0.0942*	-0.0738
					(0.049)	(0.048)
SHORTREL *TIER 5					0.0187	0.0461
					(0.059)	(0.059)

SH-NON-URB-LNS* SHORTREL *TIER 1					0.0292	0.0289
					(0.065)	(0.063)
SH-NON-URB-LNS* SHORTREL *TIER 2					-0.3400***	-0.4406***
					(0.080)	(0.081)
SH-NON-URB-LNS* SHORTREL *TIER 3					-0.1588	-0.1783
					(0.106)	(0.110)
SH-NON-URB-LNS* SHORTREL *TIER 4					0.1602	0.0983
					(0.104)	(0.103)
SH-NON-URB-LNS* SHORTREL *TIER 4					-0.1735	-0.2541**
					(0.128)	(0.130)
Constant	1.0650***	1.1932***	1.0679***	1.0173***	1.1374***	1.0208***
	(0.012)	(0.013)	(0.012)	(0.013)	(0.014)	(0.013)
# Observations	315,829	315,829	315,829	315,829	315,829	315,829
Adjusted R^2	0.253	0.194	0.258	0.263	0.209	0.269

Table A6
Determinants of Bureau Inquiry: Continuous Credit Score

	(1)	(2)	(3)	(4)
VARIABLES	Baseline	ADD TIER	ADD CONTINUOUS SCORE	ADD TIER + CONTINUOUS SCORE
PSBOPB	-0.0860***	-0.0952***	0.1057	0.2223**
	(0.005)	(0.006)	(0.116)	(0.113)
PRIOREL	-0.0047***	0.0659***	-0.0121***	-0.0040
	(0.002)	(0.004)	(0.001)	(0.004)
PRIOREL* PSBOPB	-0.3175***	-0.3537***	-0.3079***	-0.3467***
	(0.003)	(0.006)	(0.004)	(0.008)
Credit score			-0.0276***	-0.0271***
			(0.004)	(0.004)
PSBOPB *Score			-0.0045	-0.0252
			(0.018)	(0.017)
LOW	0.1184***	0.1016***		
	(0.002)	(0.002)		
MEDIUM SCORE	0.0998***	0.0853***		
	(0.002)	(0.002)		
HIGH SCORE	0.0954***	0.0790***		
	(0.002)	(0.002)		
MALE	0.0038*	0.0090***	0.0438***	0.0448***
	(0.002)	(0.002)	(0.003)	(0.003)
LOG (AGE)	-0.0102***	0.0011	-0.0240***	-0.0183***
	(0.003)	(0.003)	(0.004)	(0.004)
PSBOPB * LOW	0.2053***	0.1929***		
	(0.005)	(0.005)		
PSBOPB * MEDIUM SCORE	0.1583***	0.1537***		
	(0.003)	(0.004)		
PSBOPB * HIGH SCORE	0.2205***	0.2012***		
	(0.004)	(0.004)		
TIER 1		0.0933***		0.0198***
		(0.003)		(0.003)
TIER 2		0.0420***		0.0100***
		(0.004)		(0.004)
TIER 3		0.0535***		0.0141***
		(0.004)		(0.004)
TIER 4		0.0622***		0.0121***
		(0.004)		(0.004)
TIER 5		0.0312***		-0.0042
		(0.004)		(0.005)
PSBOPB * TIER 1		0.0339***		0.0342***
		(0.004)		(0.005)
PSBOPB * TIER 2		0.0818***		0.0280***
		(0.005)		(0.006)
PSBOPB * TIER 3		0.0344***		0.0148*
		(0.007)		(0.008)
PSBOPB * TIER 4		0.0064		0.0039

		(0.006)		(0.008)
PSBOPB * TIER 5		-0.0076		-0.0054
		(0.007)		(0.009)
PRIOREL*TIER 1		-0.1078***		-0.0113***
		(0.005)		(0.004)
PRIOREL*TIER 2		-0.0537***		-0.0033
		(0.006)		(0.005)
PRIOREL*TIER 3		-0.0522***		-0.0087
		(0.007)		(0.006)
PRIOREL*TIER 4		-0.0776***		-0.0131**
		(0.007)		(0.006)
PRIOREL*TIER 5		-0.0264***		0.0006
		(0.008)		(0.007)
PSBOPB * PRIOREL*TIER 1		0.0976***		0.1274***
		(0.009)		(0.011)
PSBOPB * PRIOREL*TIER 2		-0.0196*		0.0436***
		(0.011)		(0.013)
PSBOPB * PRIOREL*TIER 3		0.0056		0.0366**
		(0.013)		(0.015)
PSBOPB * PRIOREL*TIER 4		0.0546***		0.0706***
		(0.012)		(0.015)
PSBOPB * PRIOREL*TIER 5		-0.0123		-0.0033
		(0.013)		(0.017)
LOG BANK AGE	-0.0667***	-0.0637***	-0.0804***	-0.0790***
	(0.003)	(0.003)	(0.003)	(0.003)
BIG BANK	0.1581***	0.1509***	0.0798***	0.0770***
	(0.002)	(0.002)	(0.003)	(0.003)
HIGH ROA BANK	0.1191***	0.1232***	0.0528***	0.0537***
	(0.003)	(0.003)	(0.005)	(0.005)
CONSTANT	0.8757***	0.7750***	1.3446***	1.3032***
	(0.012)	(0.012)	(0.031)	(0.031)
# Observations	359,540	359,540	168,136	168,136
Adjusted R^2	0.232	0.242	0.247	0.259

Table A7
Delinquency and Bureau Inquiry. OLS Regressions

*The table reports OLS results. The dependent variable is loan delinquency LQ 360, which is an indicator for whether the loan goes 90 days past due within 360 days of granting the loan. Standard errors are reported in parentheses and clustered at the level of an individual borrower. All regressions include loan product type and quarter-year fixed effects. *** p<0.01, ** p<0.05, * p<0.1.*

VARIABLES	(1)	(2)	(3)	(4)
INQUIRED	-0.0100***	-0.0098***	-0.0094***	-0.0094***
	(0.001)	(0.001)	(0.001)	(0.001)
PSBOPB	-0.0198***	-0.0193***		
	(0.002)	(0.003)		
PRIOREL	-0.0067***	-0.0070***	-0.0012	-0.0050
	(0.002)	(0.002)	(0.004)	(0.008)
PRIOREL* PSBOPB	0.0045***	0.0050*		
	(0.001)	(0.003)		
LOW SCORE	0.0191***	0.0107***	0.0193***	0.0089
	(0.003)	(0.004)	(0.003)	(0.012)
MEDIUM SCORE	-0.0040***	-0.0029**	-0.0039***	0.0098**
	(0.001)	(0.001)	(0.001)	(0.004)
HIGH SCORE	-0.0068***	-0.0064***	-0.0068***	0.0072**
	(0.001)	(0.001)	(0.001)	(0.004)
MALE	0.0025***	0.0025***	0.0027***	0.0027***
	(0.001)	(0.001)	(0.001)	(0.001)
LOG (AGE)	-0.0088***	-0.0088***	-0.0089***	-0.0088***
	(0.001)	(0.001)	(0.001)	(0.001)
PSBOPB * LOW		0.0160***		
		(0.006)		
PSBOPB * MEDIUM SCORE		-0.0023		
		(0.002)		
PSBOPB * HIGH SCORE		-0.0008		
		(0.002)		
TIER 1	-0.0016	-0.0007	-0.0009	-0.0020
	(0.001)	(0.002)	(0.001)	(0.006)
TIER 2	-0.0048***	-0.0043**	-0.0044***	-0.0059
	(0.001)	(0.002)	(0.001)	(0.006)
TIER 3	-0.0028	-0.0051**	-0.0027	0.0009
	(0.002)	(0.002)	(0.002)	(0.007)
TIER 4	-0.0027	-0.0018	-0.0025	0.0045
	(0.002)	(0.003)	(0.002)	(0.007)
TIER 5	0.0004	-0.0013	0.0003	0.0101
	(0.002)	(0.003)	(0.002)	(0.008)
PSBOPB * TIER 1		-0.0019		
		(0.003)		
PSBOPB * TIER 2		-0.0012		
		(0.003)		
PSBOPB * TIER 3		0.0047		
		(0.004)		
PSBOPB * TIER 4		-0.0017		
		(0.003)		
PSBOPB * TIER 5		0.0030		
		(0.004)		

PRIOREL*TIER 1	-0.0010	-0.0011	-0.0022	-0.0006
	(0.002)	(0.003)	(0.002)	(0.009)
PRIOREL*TIER 2	0.0023	0.0029	0.0017	0.0024
	(0.002)	(0.003)	(0.002)	(0.011)
PRIOREL*TIER 3	0.0002	0.0032	-0.0002	-0.0227
	(0.003)	(0.004)	(0.003)	(0.016)
PRIOREL*TIER 4	0.0006	-0.0012	0.0003	-0.0114
	(0.003)	(0.004)	(0.003)	(0.012)
PRIOREL*TIER 5	0.0018	0.0012	0.0017	0.0136
	(0.003)	(0.005)	(0.003)	(0.017)
PSBOPB * PRIOREL*TIER 1		0.0002		
		(0.004)		
PSBOPB * PRIOREL*TIER 2		-0.0007		
		(0.004)		
PSBOPB * PRIOREL*TIER 3		-0.0057		
		(0.005)		
PSBOPB * PRIOREL*TIER 4		0.0029		
		(0.005)		
PSBOPB * PRIOREL*TIER 5		-0.0002		
		(0.006)		
LOG BANK AGE	0.0126***	0.0124***	0.0037***	0.0038***
	(0.001)	(0.001)	(0.001)	(0.001)
BIG BANK	-0.0089***	-0.0093***	-0.0064***	-0.0062***
	(0.001)	(0.001)	(0.001)	(0.001)
HIGH ROA BANK	-0.0013	-0.0013	0.0061***	0.0063***
	(0.002)	(0.002)	(0.001)	(0.001)
SH-NON-URB-LNS			0.0159***	0.0241***
			(0.005)	(0.008)
PRIOREL* SH-NON-URB-LNS			-0.0053	0.0026
			(0.007)	(0.016)
SH-NON-URB-LNS* LOW				0.0211
				(0.026)
SH-NON-URB-LNS* MEDIUM SCORE				-0.0282***
				(0.009)
SH-NON-URB-LNS* HIGH SCORE				-0.0295***
				(0.008)
SH-NON-URB-LNS * TIER 1				0.0025
				(0.012)
SH-NON-URB-LNS * TIER 2				0.0034
				(0.014)
SH-NON-URB-LNS * TIER 3				-0.0071
				(0.015)
SH-NON-URB-LNS * TIER 4				-0.0140
				(0.015)
SH-NON-URB-LNS * TIER 5				-0.0191
				(0.016)
SH-NON-URB-LNS * PRIOREL*TIER 1				-0.0035
				(0.019)
SH-NON-URB-LNS * PRIOREL*TIER 2				-0.0018
				(0.024)
SH-NON-URB-LNS * PRIOREL*TIER 3				0.0445
				(0.033)
SH-NON-URB-LNS * PRIOREL*TIER 4				0.0234
				(0.026)

SH-NON-URB-LNS * PRIOREL*TIER 5				-0.0220
				(0.032)
Constant	0.0255***	0.0263***	0.0337***	0.0284***
	(0.006)	(0.006)	(0.006)	(0.007)
# Observations	112,852	112,852	112,852	112,852
Adjusted R^2	0.007	0.007	0.007	0.007

Table A8
Delinquency and Bureau Inquiry
Instrumental Variable Regressions

*The table reports estimates of two sets of instrumental variable regressions. One set is reported in columns (1)-(2) and the second set is reported in columns (3)-(4). In each case, the instrumented variable is whether a filtered application is inquired or not and the second stage dependent variable is loan delinquency LQ 360. We define a loan as being delinquent if at least one of the available DPDs (days past due) during the 360 days from loan grant date exceeds 90 days. PSBOPB is an indicator that takes the value 1 for state-owned or old private banks. PRIOREL is an indicator for a filtered application by a borrower has borrowed in the past from the inquiring bank. Tiers are indicators for the borrower geography, with Tier 1 representing the most urban and Tier 6 representing the most rural areas. SH-NON-URB-LNS is the share of a bank's total lending in fiscal 2012 to borrowers residing in Tiers 3-6 (non-urban) areas.. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.*

	(1)	(2)	(3)	(4)
VARIABLES	First stage	Second Stage	First stage	Second Stage
INQUIRED		-0.0143***		-0.0223***
		(0.002)		(0.002)
PRIOREL* PSBOPB	-0.2553***			
	(0.006)			
PSBOPB	-0.3031***			
	(0.003)			
PSBOPB * LOW	0.1954***			
	(0.005)			
PSBOPB * MEDIUM SCORE	0.1321***			
	(0.004)			
PSBOPB * HIGH SCORE	0.1737***			
	(0.004)			
PSBOPB * TIER 1	0.1079***			
	(0.004)			
PSBOPB * TIER 2	0.1013***			
	(0.005)			
PSBOPB * TIER 3	0.0594***			
	(0.006)			
PSBOPB * TIER 4	0.0439***			
	(0.006)			
PSBOPB * TIER 5	0.0198***			
	(0.006)			
PSBOPB * PRIOREL*TIER 1	0.0051			
	(0.009)			
PSBOPB * PRIOREL*TIER 2	-0.0532***			
	(0.011)			
PSBOPB * PRIOREL*TIER 3	-0.0179			
	(0.013)			
PSBOPB * PRIOREL*TIER 4	-0.0027			
	(0.013)			
PSBOPB * PRIOREL*TIER 5	-0.0197			
	(0.013)			
PRIOREL* SH-NON-URB-LNS			-0.7289***	
			(0.035)	
SH-NON-URB-LNS			-1.0130***	
			(0.013)	

SH-NON-URB-LNS* LOW			0.6370***	
			(0.019)	
SH-NON-URB-LNS* MEDIUM SCORE			0.4212***	
			(0.014)	
SH-NON-URB-LNS* HIGH SCORE			0.5432***	
			(0.016)	
SH-NON-URB-LNS * TIER 1			0.4407***	
			(0.016)	
SH-NON-URB-LNS * TIER 2			0.3862***	
			(0.022)	
SH-NON-URB-LNS * TIER 3			0.1404***	
			(0.028)	
SH-NON-URB-LNS * TIER 4			0.2464***	
			(0.026)	
SH-NON-URB-LNS * TIER 5			0.2576***	
			(0.028)	
SH-NON-URB-LNS*PRIOREL*TIER 1			-0.0122	
			(0.042)	
SH-NON-URB-LNS*PRIOREL*TIER 2			-0.3817***	
			(0.054)	
SH-NON-URB-LNS*PRIOREL*TIER 3			-0.1512**	
			(0.065)	
SH-NON-URB-LNS*PRIOREL*TIER 4			-0.1201*	
			(0.068)	
SH-NON-URB-LNS*PRIOREL*TIER 5			-0.1125*	
			(0.065)	
PRIOREL*TIER 1	-0.0057	0.0001	0.0626***	0.0009
	(0.004)	(0.002)	(0.019)	(0.002)
PRIOREL*TIER 2	-0.0048	0.0029	0.1599***	0.0028
	(0.004)	(0.002)	(0.024)	(0.002)
PRIOREL*TIER 3	-0.0056	-0.0011	0.0695**	-0.0012
	(0.005)	(0.003)	(0.029)	(0.003)
PRIOREL*TIER 4	-0.0182***	0.0003	0.0454	0.0003
	(0.006)	(0.003)	(0.031)	(0.003)
PRIOREL*TIER 5	-0.0073	0.0010	0.0384	0.0009
	(0.008)	(0.003)	(0.031)	(0.003)
PRIOREL	-0.0058	-0.0062***	0.1499***	-0.0079***
	(0.004)	(0.001)	(0.017)	(0.001)
LOW	0.0363***	0.0231***	-0.1213***	0.0247***
	(0.002)	(0.003)	(0.007)	(0.003)
MEDIUM SCORE	0.0351***	-0.0018**	-0.0634***	-0.0007
	(0.002)	(0.001)	(0.005)	(0.001)
HIGH SCORE	0.0328***	-0.0043***	-0.1039***	-0.0030***
	(0.002)	(0.001)	(0.006)	(0.001)
MALE	0.0180***	0.0017**	0.0357***	0.0021**
	(0.002)	(0.001)	(0.002)	(0.001)
LOG (AGE)	-0.0026	-0.0063***	-0.0438***	-0.0070***
	(0.003)	(0.001)	(0.003)	(0.001)
TIER 1	0.0292***	-0.0020	-0.1112***	-0.0009
	(0.003)	(0.001)	(0.007)	(0.001)
TIER 2	0.0277***	-0.0055***	-0.0913***	-0.0045***

	(0.003)	(0.002)	(0.009)	(0.002)
TIER 3	0.0281***	-0.0029	-0.0031	-0.0022
	(0.003)	(0.002)	(0.012)	(0.002)
TIER 4	0.0281***	-0.0022	-0.0573***	-0.0016
	(0.003)	(0.002)	(0.011)	(0.002)
TIER 5	0.0084**	0.0014	-0.1016***	0.0016
	(0.004)	(0.002)	(0.013)	(0.002)
LOG (1+ AMOUNT)		-0.0026***		-0.0025***
		(0.000)		(0.000)
# Observations	303,064	102,725	303,064	102,725

Table A9
Determinants of Bureau Inquiry: Loan Sample

*The table reports estimates of determinants of inquiry based on the loan sample (overall in Column (1), and by loan type in Columns (2)-(4)). The dependent variable is one if a loan was inquired in the past 180 days, and zero if not. The data are a 1% random sample of the credit bureau data and include all inquiries as well as loans made without inquiry for the years ending in March 2013 and March 2014 excluding credit cards, priority sector loans, and gold loans. PSBOPB is an indicator that takes the value 1 for state-owned or old private banks. PRIOREL is an indicator for a filtered application by a borrower has borrowed in the past from the inquiring bank. Standard errors (in parentheses) are clustered at the borrower level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.*

	(1)	(2)	(3)	(4)
VARIABLES	All	Auto	Housing	Consumer
PSBOPB	-0.2550***	-0.1685***	-0.2049***	-0.3234***
	(0.009)	(0.019)	(0.019)	(0.011)
PRIOREL	0.0164***	0.0417***	-0.0570***	-0.0019
	(0.004)	(0.005)	(0.010)	(0.006)
PRIOREL* PSBOPB	-0.1848***	-0.2035***	-0.0793***	-0.0699***
	(0.005)	(0.010)	(0.013)	(0.007)
LOW SCORE	0.0954***	0.0851***	0.0598**	0.0762***
	(0.008)	(0.009)	(0.027)	(0.015)
MEDIUM SCORE	0.1089***	0.0877***	0.0835***	0.1244***
	(0.004)	(0.005)	(0.012)	(0.007)
HIGH SCORE	0.1087***	0.0759***	0.0604***	0.1203***
	(0.004)	(0.006)	(0.012)	(0.008)
MALE	0.0668***	0.0319***	0.0317***	0.0913***
	(0.003)	(0.005)	(0.007)	(0.003)
LOG (AGE)	-0.0585***	-0.0026	-0.0977***	-0.1113***
	(0.004)	(0.006)	(0.013)	(0.005)
PSBOPB * LOW	0.0110	-0.0160	0.0823**	-0.0344*
	(0.014)	(0.023)	(0.037)	(0.020)
PSBOPB * MEDIUM SCORE	-0.0192***	0.0447***	0.0922***	-0.0992***
	(0.006)	(0.012)	(0.016)	(0.008)
PSBOPB * HIGH SCORE	0.0856***	0.1088***	0.1545***	-0.0734***
	(0.008)	(0.014)	(0.016)	(0.011)
LOG BANK AGE	-0.1657***	-0.1742***	-0.1257***	-0.1983***
	(0.005)	(0.010)	(0.010)	(0.006)
BIG BANK	0.2301***	0.3243***	0.0743***	0.0534***
	(0.003)	(0.004)	(0.013)	(0.006)
HIGH ROA BANK	0.0117**	-0.0684***	-0.0567***	0.0071
	(0.005)	(0.011)	(0.011)	(0.006)
Observations	188,046	80,111	24,121	83,814
R-squared	0.330	0.242	0.126	0.390

Table A10
Determinants of Bureau Inquiry: Control for Past Loan Inquired

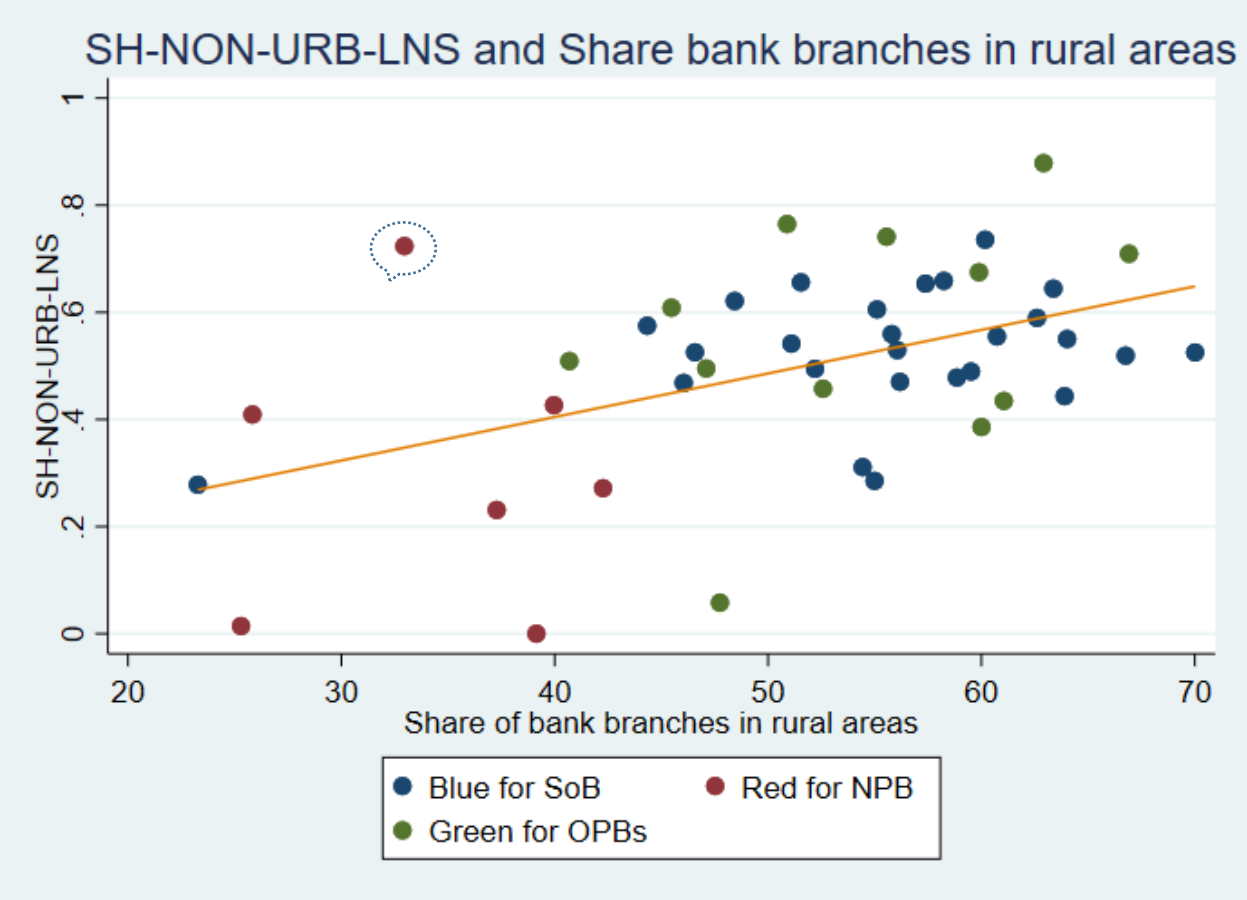
*The table reports estimates of determinants of inquiry after controlling for indicators for whether the borrower had a loan from the same bank in the past which was inquired, and a past housing loan which was inquired. The dependent variable is one if a filtered application inquired and zero if not. The data are a 1% random sample of the credit bureau data and include all inquiries as well as loans made without inquiry for the years ending in March 2013 and March 2014 excluding credit cards, priority sector loans, and gold loans. PSBOPB is an indicator that takes the value 1 for state-owned or old private banks. PRIOREL is an indicator for a filtered application by a borrower has borrowed in the past from the inquiring bank. Standard errors (in parentheses) are clustered at the borrower level. ***, **, and * denote significance at the 1%, 5%, and 10% levels, respectively.*

VARIABLES	(1) Baseline	(2) Baseline With tier	(3) Baseline: Control for past loan inquired	(4) With Tier: Control for past loan inquired
PSBOPB	-0.0860***	-0.0952***	-0.0900***	-0.0984***
	(0.005)	(0.006)	(0.005)	(0.006)
PRIOREL	-0.0047***	0.0659***	-0.0379***	0.0413***
	(0.002)	(0.004)	(0.002)	(0.004)
PRIOREL* PSBOPB	-0.3175***	-0.3537***	-0.2979***	-0.3351***
	(0.003)	(0.006)	(0.003)	(0.006)
PAST LOAN INQUIRED			0.0687***	0.0709***
			(0.003)	(0.003)
PAST HOUSING LOAN INQUIRED			0.1058***	0.0977***
			(0.007)	(0.007)
LOW SCORE	0.1184***	0.1016***	0.1126***	0.0956***
	(0.002)	(0.002)	(0.002)	(0.002)
MEDIUM SCORE	0.0998***	0.0853***	0.0936***	0.0787***
	(0.002)	(0.002)	(0.002)	(0.002)
HIGH SCORE	0.0954***	0.0790***	0.0852***	0.0690***
	(0.002)	(0.002)	(0.002)	(0.002)
MALE	0.0038*	0.0090***	0.0038*	0.0088***
	(0.002)	(0.002)	(0.002)	(0.002)
LOG (AGE)	-0.0102***	0.0011	-0.0103***	0.0009
	(0.003)	(0.003)	(0.003)	(0.003)
PSBOPB * LOW	0.2053***	0.1929***	0.2074***	0.1955***
	(0.005)	(0.005)	(0.005)	(0.005)
PSBOPB * MEDIUM SCORE	0.1583***	0.1537***	0.1621***	0.1577***
	(0.003)	(0.004)	(0.003)	(0.004)
PSBOPB * HIGH SCORE	0.2205***	0.2012***	0.2206***	0.2022***
	(0.004)	(0.004)	(0.004)	(0.004)
TIER 1		0.0933***		0.0962***
		(0.003)		(0.003)
TIER 2		0.0420***		0.0435***
		(0.004)		(0.004)
TIER 3		0.0535***		0.0544***
		(0.004)		(0.004)
TIER 4		0.0622***		0.0630***
		(0.004)		(0.004)
TIER 5		0.0312***		0.0314***
		(0.004)		(0.004)
PSBOPB * TIER 1		0.0339***		0.0327***
		(0.004)		(0.004)
PSBOPB * TIER 2		0.0818***		0.0815***
		(0.005)		(0.005)

PSBOPB * TIER 3		0.0344***		0.0343***
		(0.007)		(0.007)
PSBOPB * TIER 4		0.0064		0.0062
		(0.006)		(0.006)
PSBOPB * TIER 5		-0.0076		-0.0076
		(0.007)		(0.007)
PRIOREL*TIER 1		-0.1078***		-0.1214***
		(0.005)		(0.005)
PRIOREL*TIER 2		-0.0537***		-0.0647***
		(0.006)		(0.006)
PRIOREL*TIER 3		-0.0522***		-0.0621***
		(0.007)		(0.007)
PRIOREL*TIER 4		-0.0776***		-0.0842***
		(0.007)		(0.007)
PRIOREL*TIER 5		-0.0264***		-0.0275***
		(0.008)		(0.008)
PSBOPB * PRIOREL*TIER 1		0.0976***		0.0926***
		(0.009)		(0.009)
PSBOPB * PRIOREL*TIER 2		-0.0196*		-0.0222**
		(0.011)		(0.011)
PSBOPB * PRIOREL*TIER 3		0.0056		0.0056
		(0.013)		(0.013)
PSBOPB * PRIOREL*TIER 4		0.0546***		0.0540***
		(0.012)		(0.012)
PSBOPB * PRIOREL*TIER 5		-0.0123		-0.0127
		(0.013)		(0.013)
LOG BANK AGE	-0.0667***	-0.0637***	-0.0651***	-0.0621***
	(0.003)	(0.003)	(0.003)	(0.003)
BIG BANK	0.1581***	0.1509***	0.1558***	0.1490***
	(0.002)	(0.002)	(0.002)	(0.002)
HIGH ROA BANK	0.1191***	0.1232***	0.1171***	0.1215***
	(0.003)	(0.003)	(0.003)	(0.003)
Observations	359,540	359,540	359,540	359,540
R-squared	0.232	0.242	0.235	0.245

Figure A1

This chart shows a bank-level scatter plot SH-NON-URB-LNS (i.e. bank's share of loans in non-urban areas, i.e. in Tiers 3-6) and share of bank's branches in rural areas. The averages are calculated over our regression sample of 2012.



SH-NON-URB-LNS = 0.0081*** +0.0.0793* *sha_ruralbr*