The Relationship Dilemma: Organizational Culture and the Adoption of Credit Scoring Technology in Indian Banking[1]

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Abstract

Credit bureaus and scoring were introduced in India in late 2007. We study the adoption of this technology in retail lending by private banks and state-owned public sector banks (PSBs). Both banks adopt scoring for new borrowers but PSBs significantly lag in adopting scoring for existing bank borrowers, to whom they often lend without credit checks. We quantify the information left on the table using score data available to but ignored by PSBs. Neither ownership nor bank characteristics such as size or profits explain PSB adoption patterns, which, instead, likely reflect the long-run imprints of organizational experiences in formative years that are slowly erased by learning and competitive forces. We discuss the implications of our results for other areas of economics including the adoption of technology and state-owned banks.

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I. Introduction

What determines whether an organization adopts a new process or technology? Do competitive forces push uniform adoption rates across organizations? If not, how important is the organizational culture in driving adoption? For example, does the legacy of the past determine adoption? How important is current ownership or organization structure? We examine these questions using as our setting the introduction of credit scoring technology in retail lending in India.

In contrast to developed countries such as the U.S. or Europe, where credit bureaus and credit scoring have been around for several decades, credit bureaus took root in India only around late 2007 after legislation requiring banks to submit data to bureaus was passed. The act of incorporating credit information from the bureau into a loan decision is a clear marker of the adoption of the credit bureau technology in lending. We examine the differences in the pace of adoption of this new technology across two types of banks, state-owned banks that account for 71% of India's market, and "new" private banks, relatively modern enterprises licensed after India's 1991 liberalization and that account for 21% of the banking market. For both types of banks, the usage of credit bureaus represents a new and unfamiliar process or technology. Moreover, the value of adopting this technology is unclear to both types of entities because the Indian credit bureaus are subsidiaries owned by foreign entities with short histories of operation in India and limited institutional knowledge of the Indian market.

We analyze adoption using data recorded at a major credit bureau in India. The process for initiating credit inquiries is straightforward. Banks submit an electronic request containing 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. The $0.15-0.30 inquiry fee is nominal and less than 0.04% of the average loan amount. Since the cost of requesting a score is negligible compared to default rates, and at worst the score can simply be ignored, the technology is worth adopting if at all useful. Using data on scores and repayment histories, we will see that credit scores are informative about credit risk, so the credit score is useful in lending decisions. With this in mind, we look at the adoption of credit scores in retail lending decisions in India.

We show that there is a significant gap in the use of credit scoring technology between the state-owned public sector banks (PSBs) and the new private banks (NPBs), several years after the introduction of bureaus. The new private banks move over to inquiring with the credit bureau before almost all lending decisions, while the public sector banks lag behind. We correct

for differences in focus of activity and narrow the gap somewhat, but the inquiry gap is still significant. Perhaps more interestingly, the bureau usage gap does not exist for *new* applicants for bank loans, where we find that PSBs have been as quick to use credit bureau technology as NPBs. Instead, the gap exists for borrowers with whom the PSBs have a prior lending relationship. Public sector banks seem to be more reluctant to inquire from the credit bureau for such clients, though the reluctance is fading over time.

We consider, but rule out through many empirical tests, the possibility that public sector banks have better information about past credit clients than may be obtained through a credit inquiry. Indeed, conditional on all information including the credit score, not inquiring is associated with higher delinquency rates even for the PSBs. If anything, it would appear that PSBs are effectively protecting existing and perhaps riskier clients from exposure by not inquiring with the credit bureau. We quantify the information that is "left on the table" by not inquiring enough.

It might appear that the slow adoption of the technology is because of the incentives induced by public ownership. While we cannot check this directly, we have a class of institutions, old private banks (OPBs), which are of similar vintage as India's public sector banks, but were not nationalized in the waves of nationalization in 1969 and 1980 that created India's public sector banks. It turns out that the pattern of adoption by OPBs resembles that of public sector banks than of new private banks, with old private banks too being lenient by not inquiring about existing clients.

We conjecture that the organizational culture of the legacy banks might explain the difference in adoption rates from that of the new private banks. The legacy banks grew and attained large market shares in an uncompetitive environment in which banks were protected from entry, which diminished profitability concerns and let them go the extra mile for the existing clients. The new banks emerged in a more competitive era after India's economic liberalization. In the post-reform environment, each transaction had to stand on its own merits. However, it also appears that more intense competitive environment drives out uncompetitive practices over time, which explains why even the older banks are now adopting credit information bureaus more frequently even for their existing customers. Competition does seem to drive out sentimental relationship oriented behavior, replacing it with more transaction driven behavior. See, for example, Eccles (1988) or Petersen and Rajan (1995) on relationship versus transaction banking.

The rest of the paper is organized as follows. Section II discusses the relevant literature. Section III gives institutional background of the Indian banking system. Section IV describes

the credit bureau dataset and gives baseline descriptive statistics on the consumer credit market in India. Section V establishes the basic empirical puzzle that we investigate, viz., the low rates of bureau usage by public sector banks and conduct tests to rule out a number plausible (and important) explanations. Section VI presents multivariate evidence and estimates of policy functions that explain how bureaus are used. Section VII undertakes a counterfactual analysis. For un-inquired loans made by public sector banks, we estimate the counterfactual loan quality had the un-inquired loans been inquired. Section VIII offers evidence from old private banks. Section IX concludes.

II. Related Literature

We study consumer lending by banks and the usage of credit bureaus in these loan decisions. However, our work informs other areas of economics. One is the adoption of technology where we bring to the table granular microeconometric data on technology adoption, and importantly, on the outcomes associated with adoption or non-adoption. In addition, our evidence is relevant to a stream of research on state-owned banks. We discuss these points briefly.

Adoption of Innovation Technological progress, the source of economic growth, reflects the generation of innovation and its adoption. While transformative innovations are important, they are infrequent, and most of the gains come from the adoption of innovation (Romer, 1990; Aghion and Howitt, 1992). Adoption is "... a series of individual decisions to begin using the new technology, ... [the result of a tradeoff between] uncertain benefits of the adoption with the uncertain costs of adopting it." (Hall and Khan, 2002). Our study examines microdata on such adoption decisions and adds to the literature in three ways. One is the very granular microdata on technology adoption. Our unit of analysis is an individual decision made with or without the use of bureau technology. Two, we have a reasonable measure of the economic outcome, the ex-post loan delinquency, that is directly attributable to the adoption. Finally, we estimate counterfactual outcomes, viz., outcomes if non-adopters instead adopted the new technology as we observe the real-time data potentially available to the non-adopter. Using plausible policy and outcome functions, we can specify and estimate the counterfactual outcome with greater adoption.

Better Management Practices. Firms in emerging markets are less productive than firms in developed economies (Hsieh and Klenow, 2009). Field experiments in textile mills and agriculture (Bloom, Eifert, Mahajan, MacKenzie, and Roberts, 2013; Cole and Fernando,

2016) suggests that the low productivity is because of the reluctance to embrace better management practices. Our study complements field evidence by providing direct microeconometric evidence on the use of credit scoring in retail lending, a standard practice in modern consumer banking.

Innovator's Dilemma 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. See Igami (2017) for a structural model of the innovator's dilemma for the disk industry. Our study can be viewed as the counterpart of the innovator's dilemma in the process adoption space. Interestingly, in our study, the stickiness towards status quo is *not* necessarily an organization-wide trait or even local to a product. We see varying adoption rates even within the same organization and product lines. The patterns are consistent with greater status quo bias in parts of organizations where a legacy processes ingrain a greater degree of inward orientation. The findings inform recent economics and finance work on organizational culture (Guiso, Sapienza, and Zingales (2006, 2015); Graham, Harvey, Popadak, and Rajagopal, 2017).

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). We complement this line of work by highlighting a channel that does not rely on political redirection of credit. Our point is broadly that state-owned banks operate in environments sheltered from competition because the state protects -- or is obligated or has economic incentives to protect -- what it owns. As a result, state-owned banks prefer what Bertrand and Mullainathan (2003) term as "the quiet life," which generates a preference for status quo. Of course, similar issues can arise in the context of state-owned enterprises, which control large parts of the economy in many countries.[2] As the September

[2] 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*

2015 issue of *The Economist* puts it, a key question is ``... the [state-owned] system's ability to capitalize on its successes when it wants to innovate rather than to catch up…" The ability of state-owned enterprises to absorb innovative technologies is, of course, our main focus.

Credit Bureaus Credit registers and bureaus are repositories of loan data. Credit registers are loan databases maintained by central banks while bureaus are private entities that record not only loans but also credit inquiries. Both have been of academic and policy interest because they contain rich individual-level lending data. The most recent literature uses bureau data to better understand monetary transmission.[3] We exploit bureau data to gain a detailed micro-level understanding of the credit granting practices of different banks. Moreover, ours is a study of the introduction of credit bureaus and their uptake in a large economy, India, which is a relatively rare event. Bureaus have been in existence for decades in mature economies (Jappelli and Pagano, 2002; Djankov, McLiesh, and Shleifer, 2007). For example, the U.S. bureau Equifax was incorporated on December 20, 1913 and was listed on NYSE on May 11, 1971.

III. Institutional Background

A. Indian Banking Sector

India has had a national banking market since its independence in 1947 in which national "scheduled commercial" banks account for a significant majority of India's banking system assets. India's central bank, the Reserve Bank of India (RBI), regulates the Indian banking industry through powers conferred under the 1949 Banking Regulations Act. Entry requires licensing and has been rare. Thus, most bank growth has been through expansion of existing banks that have large all-India branch networks (Burgess and Pande, 2005). As of March 2015, roughly the end of our sample period, India had 96 major banks. These banks had 125,672 branch offices in 2015 compared to 8,826 branches in 1969, INR 89 trillion of deposits, and INR 65 trillion in credit outstanding.[4]

Economist in 2012 ("The Visible Hand," http://www.economist.com/node/21542931) and 2015 ("The good, the bad, and the ugly," September 12, 2015)

[3] 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. Academic literature includes Pagano and Jappelli (1993), Padilla and Pagano (1997, 2000), Jappelli and Pagano (2002), Brown, Jappelli, and Pagano (2009), Hertzberg, Liberti, and Paravasini (2011), Puri, Rocholl, and Steffen (2011), Karapetyan and Stacescu (2014), Jimenez, Ongena, Peydro, and Saurina (2012, 2014, forthcoming), and Ippolito, Peydro, Polo, and Sette (2016).

[4] 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 nationalized banks.

State-owned banks (called "public sector banks" in India or PSBs henceforth) were formed through two waves of nationalizations in 1969 and 1980. Together with the State Bank of India, which was taken over by the state in 1955, these banks account for about 71% of credit outstanding. The second category of banks are new private sector banks (henceforth NPBs) formed in the wake of India's economic liberalization in 1991. These 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. Our sample excludes 56 small Regional Rural Banks and Local Area Banks serving small town and rural markets, and thousands of small co-operative banks. While over 100 foreign banks are licensed to operate in India, they have small market shares with limited geographical footprints restricted to very large urban areas. These are also not part of our study.

B. Origins of Public Sector Banks and New Private Banks

The formative history of India's public sector banks indicates that the banks have been incorporated for much longer periods than they have been in the public sector. For example, India's largest bank, the State Bank of India, was founded as Bank of Calcutta in 1806, and acquired its current name in 1955 when it came under state ownership.

Other public sector banks are private banks that became state-owned through nationalizations of private banks in 1969 and 1980. The nationalizations reflected India's tilt towards a mixed economic model with extensive central planning and industrial licensing. Nationalized banks were viewed as critical to help drive planning priorities. Moreover, the formerly private banks were seen as being overly focused on a few corporate entities to the exclusion of new entrants and poorer customers. Nationalization was seen as a way of promoting greater inclusion.

In the 1969 nationalization, the government took over all banks with aggregate deposits exceeding INR 500 million. This resulted in the takeover of nearly 85% of the branch network. In the second round of nationalization in 1980, the government took over banks with nationwide deposits exceeding INR 2 billion, at which point 90% of the banking market was nationalized. After the second round, a number of small banks, the "old private banks" or OPBs, still remained private.

After nationalization, bank personnel of the nationalized banks retained their jobs. However, bank management processes changed significantly. Boards of directors were often staffed with political appointees, and the government's writ extended to nearly all aspects of

bank functioning. This includes, for example, policies towards personnel such as recruitment, pay, promotion, and job rotation across geographies and functions.

India's new private banks (hereafter NPBs) were formed after 1991, when a significant economic crisis led the country to liberalize its economy and many of its industrial and trade policies. In this period, the country's Banking Act was amended in 1993 to allow new private banks to enter, subject to licensing by the RBI. Some of these new banks were carved out of former financial institutions engaged in development lending or non-banking financial companies while others developed organically. The banks inherited few operating legacies, and typically started with a relatively blank slate while formulating their operational procedures and growth strategies.[5] They had the normal problems of new entrants in a market surrounded by incumbents, though economic growth also picked up in the post-reform era, giving them room to expand.

C. Technology Adoption By Indian Banks

The benefits of computerizing operations were recognized by all banks as early as the 1990s but adoption was slow due to the typical fears of job losses (Rishi and Saxena, 2004).[6] After pressure from central bank committees (Rangarajan Committee, 1989; Narasimhan Committee, 1991), from customers used to better service at the new private banks, and from interoperability issues in areas such as clearing, unions signed modernization agreements in October 1993 and March 1997. Nevertheless, adoption was slow. In 2001, only 9,777 out of 46,426 branches of nationalized banks were computerized.

An entirely different path towards technology was followed by the new private banks (NPBs) that entered after India's post-1991 economic liberalization. The NPBs faced a liberalizing banking environment that allowed them to operate without the burdens of legacy institutional, human, regulatory, and physical capital constraints. For example, requirements that banks open 4 branches in underserved areas for every ordinary branch were relaxed and commercial viability introduced as a criteria for branch expansion.[7] Moreover, NPBs did not have physical branch infrastructure that the nationalized banks had, so communications and information technology like ATMs were necessary for their rapid growth. Thus, NPBs were open to and adopted technology in all aspects of banking, not just backroom operations.

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[5] See Bandopadhyay, T., 2012, "A Bank For the Buck." Jaico Publishing for an account of HDFC, one such bank.
[6] These concerns about job losses from automation are the in the modern debate over AI. See, e.g., the address by the famous investor Warren Buffett at https://finance.yahoo.com/news/warren-buffett-ai-good-society-enormously-disruptive-203957098.html
[7] See, for instance, https://www.rbi.org.in/upload/notification/pdfs/55197.pdf

Many new private banks emerged as relatively modern enterprises within a decade after their birth. Their technology intensive operations are reflected in their aggregate operating ratios even at early stages in their existence. 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.

D. Establishment of Credit Bureaus in India

In the U.S, three national credit bureaus, Equifax, Experian, and Transunion, hold vast repositories of credit data (Avery, Calem, and Canner, 2003) and have long histories of operation.[8] These bureaus now track consumer spending, repayment histories, identity information, and over time, have added data such as court records. The *Getting Credit* section of the World Bank Doing Business section shows that information sharing arrangements such as credit bureaus are common in European countries but less so in developing countries (Djankov, McLiesh, and Shleifer, 2007).[9]

In India, bureaus have more limited operating histories. Enabling legislation like the 1970 Fair Credit Reporting Act and the 1974 Equal Credit Opportunity Act in the U.S. was initially mooted in February 2000 based on a report by the central bank's N. H. Siddiqui committee. The oldest bureau in India, Transunion CIBIL, was established around that time and began a fledgling consumer bureau service with 4 million records 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. As of December 2017, besides Transunion CIBIL, three other bureaus, Experian, Equifax, and CRIF-Highmark, are licensed to operate in India.

E. Bank Use of Credit Bureaus

Current regulations require lenders to submit data on new loans and repayments of existing loans to bureaus. However, the rules do not say whether or how banks should use the data in their lending process. Banks vary in the extent to which they use bureaus, as we will show shortly. The variation in bureau usage, and the limited use of bureaus is also an important policy concern. For example, a committee formed by India's central bank, the Aditya Puri committee,

[8] Equifax traces its origin to a single shop set up in 1899 and assumed its current name in 1979. Experian was formerly TRW as part of an engineering and electronics company. It has been in operation since the 1960s and assumed its current name in 1996. Transunion's history in consumer credit dates back to 1969.
[9] See http://www.doingbusiness.org/data/exploretopics/getting-credit

notes in 2014 that using bureaus should be a standard best practice but empirical evidence on the benefits from doing so is lacking. The committee recommends this issue for further study.[10]

The credit bureaus in India compile and standardize consumer lending data, develop analytical insights into delinquencies, and assign scores. However, the Indian market poses unique challenges. Primary among these is financial exclusion. Large segments of India's population simply do not access the formal financial system for credit even now and do not have ways to build credit histories (Agarwal et al., 2017; Chopra et al., 2017). Moreover, legacy systems for identification are primitive, featuring multiple permitted identity documents. Many are paper-based and hand-written, vary in what fields are collected and the languages they are printed or written in. Establishing a person's identity and attributing data to that person has not been easy, but the credit bureaus have tried-and-tested algorithms for doing so. India has since moved to a single biometric based unique identity card, the "Aadhaar" card. However, these data are not integrated into credit databases and face legal challenges on the permissible end-uses even today. Given the challenges on very basic issues such as customer identity, bank managers may well be skeptical about the benefits of bureaus.

IV. Data and Baseline Descriptive Statistics

A. Credit Bureaus

Financial institutions joining the bureaus submit monthly data on all new loans granted and repayment. The bureau records these data and also all inquiries made by banks with it. Our data are a random and anonymized subset of the data from Transunion CIBIL, which is India's oldest bureau. For a nominal fee, currently $0.15-0.30, members can inquire with Transunion CIBIL about new applicants for credit. The bureau cross-checks member identities through proprietary de-duplication algorithms that account for variations in names and their representation from India's 22 official languages and the nature of identity documents. A match is returned only when matching exceeds a threshold based on 10 fields such as name, age, address, zip codes, phone numbers, and family members staying in the same dwelling. 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.

[10] 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;

B. The Random Sample

Our sample period ends in fiscal 2015, i.e., March 2015. As of this date, Transunion CIBIL covers 1,840 member financial institutions and 255 million individuals who have 472 million loan records.[11] We start with the universe of all individuals covered and extract a 1% sample at random. Any 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."

C. Inquiry and Trade Files

The credit bureau data are organized into 3 files. The *address* file contains demographic data. From this file, we are supplied the age and gender to use as demographic controls in regressions. The *inquiry* file records all inquiries made by member financial institutions with the bureau. There are two types of inquiries. Active inquiries are for the purpose of potentially extending credit to borrowers. Passive inquiries are for routine risk management purposes for existing accounts. Our inquiry sample includes the former. Bureau records do not show the type of loan for which there is an inquiry. The *trade* file includes all new credit with an indicator for product types such as agricultural or automobile loans.[12] For each credit facility, this file includes the loan amount granted and a monthly indicator of delayed repayment.

Older loan data are populated only on a best efforts basis. because of substantial variations in the computerization and accuracy of older bank records. These issues are less salient for our study, which focuses on the differences between state-owned and private banks in or after fiscal 2013. However, the aggregate statistics from earlier periods, which we report for descriptive purposes, should be interpreted with caution.

D. Growth in Consumer Lending: Central Bank Statistics

The Indian consumer credit market has been witnessing a boom. As of fiscal year ending March 31, 2016, total bank credit outstanding in India was INR 78.9 trillion or US$ 1.2 trillion, or around 60% of India's GDP of US$ 2 trillion. 28.7% of total bank credit is consumer credit. Consumer credit excluding agriculture is INR 13.9 trillion, or 17.63% of total bank credit, and

[11] For confidentiality reasons, we have no access to fields such as the names of the individuals or their exact address in these files and the bureau requires all analysis to be performed on site with no remote access.
[12] 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)

is growing rapidly at 15.8% per year.[13] The growth in Indian consumer credit is at both the intensive and the extensive margins. Between 2015 and 2016, the aggregate number of borrowers increased by 18.6%. RBI data on outstanding credit indicate that there are a total of 144 million active credit accounts. Consumer credit is likely to witness further growth as India remedies the high level of financial exclusion (Demirguc-Kunt, Klapper, Singer, and van Oudhusen, 2015) through its "PMJDY" program that has brought in more than 260 million individuals into the banking system between 2014 and 2016 (Agarwal, Alok, Ghosh, Ghosh, and Seru, 2017; Chopra, Prabhala, and Tantri, 2017).

E. Growth In Consumer Lending Market: Bureau Aggregates

Consider an applicant who walks into a bank seeking a loan. The loan could be rejected summarily without further processing. 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, or loan preceded by inquiry, as a loan made by an institution to an individual for which the institution 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 know applications 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 as *filtered applications*. It is a proxy for applications but it does not capture rejects deemed as unserious requests that are summarily dismissed by banks.

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. Between 2006 and 2015, the 1% sample contains 4.33 million filtered applications, 2.3 million loans made without inquiry, and 0.7 million loans made after inquiry. The total amount of new loans in this sample is INR 896 billion (about US$ 13.78 billion at $1 = INR 65).

The data in Table 1 show that India's consumer lending market is booming. In 2006, the 1% sample contains 178,032 loans, with an aggregate amount of INR 38.87 billion. In 2015, there are 579,000 loans for an aggregate amount of INR 177 billion. Between 2006 and 2015, the number of new loans granted increases at 15.2% per year. The growth in the amount disbursed is even more impressive and is close to 20% per year. The growth reflects both the

[13] See RBI's database on the Indian Economy (https://dbie.rbi.org.in). For comparison, in 2016, the total consumer credit in the U.S. excluding real estate is $3.6 trillion, which is about 20% of GDP. Mortgage credit adds about $11 trillion, or another 60% of U.S. GDP. Source: FRB Release G.19.

consumer credit boom in India and also the better coverage of credit by bureaus as reporting technologies become better integrated into the banking system.[14]

The data in Table 1 also show that bureau usage increases over time. The number of inquired loans in the 1% sample (column 5) goes up 30-fold from 5,150 in 2006 to 177,439, and inquired loan amounts increase by about 40 times from INR 2.95 billion to INR 114.64 billion. The percentage of loan amount inquired, reported in column 8, increases from 7.60% in 2006 to 64.51% in 2015. Thus, over one-third of the amount -- and close to 71% of the number -- of new loans are made without a credit bureau inquiry, 8 years after bureaus were legally enabled in India.

V. Bureau Usage By Public Sector Banks

In Table 2, we partition the data into loans made by state-owned or Public Sector Banks (PSBs) and New Private Banks (NPBs). Our sample has 26 public sector banks that are majority owned by the central government. Inquiries are systematically lower for public sector banks compared to new private banks in every year of the sample. In the final year of our sample, 2015, PSBs inquire for only 11.67% of the number and 41.38% of the amount of consumer loans they make versus comparable figures of 67.31% by number and 85.19% by amount for NPBs. We define the variable "bureau usage" as the number of inquiries divided by filtered applications. Usage is thus the proportion of the broad applicant pool that is inquired. In 2015, Table 2 shows that bureau usage is 27.12% for PSBs versus 85.43% for NPBs.

There could be a variety of natural explanations for why PSBs use bureaus less that have nothing to do with their organizational traits. Three explanations come immediately to mind: a) PSBs make different kinds of loans. For instance, they may have greater numbers of government-mandated loans in which they have less flexibility in using credit scores to inform lending; b) PSB clientele are unlikely to be tracked by the credit bureaus; c) Bureau information is irrelevant for PSBs, for instance because the internal information held by PSBs is special and bureau data are not incrementally informative. We explore these possibilities next.

[14] It is not possible to get a precise decomposition into better coverage versus growth in aggregate lending because the bureau data reflect annual loan flows, or new loans granted, while the official statistics compiled by the RBI reflect loan stocks outstanding. That a good portion of the bureau statistics reflect growth rather than just better coverage is clear from the RBI Basic Statistical Returns, in which the number of consumer and agriculture loans outstanding increase from 65.29 million to 106.29 million accounts and the corresponding amounts increase from INR 5.27 trillion (US$ 81 billion) to INR 11.4 trillion (US$ 309 billion) over the sample period.

A. Excluding Priority Sector and Gold Loans

Government mandates require Indian banks to lend a certain fraction of their portfolio to entities that are traditionally cut off from the formal credit market such as farmers and the poor (Banerjee, Cole, and Duflo, 2005; Burgess, Pande, and Wong, 2005). Such loans are called priority sector loans. PSBs may meet these obligations to a greater extent with small ticket loans to farmers and financially excluded individuals who are less likely to be scorable. Even if they inquire for such borrowers, PSBs may have less ability to alter credit decisions based on scores for priority sector borrowers. PSBs may also make more gold loans than NPBs, and these loans may be less inquired. because they are safer. The regulations require significant haircuts on gold collateral. Moreover, gold has a special place in Indian culture as a means of saving and making intergenerational wealth transfers.[15] Thus, borrowers are reluctant to pledge gold and loath to default on gold loans when they do so. Given this propensity and over-collateralization, gold loans are quite safe even in the absence of inquiries.

In unreported results, we find that priority sector and gold 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 public sector banks. Both categories of loans also have low inquiry rates. For instance, only 1.80% (2.88%) of a random sample of priority sector (gold) loans were preceded by a bureau inquiry. To control for these sources of heterogeneity, we exclude both priority sector and gold loans from our sample.[16]

The remaining loans in our 1% sample are housing loans, automobile loans, and other retail consumer loans. In Table 3A, we report the volume and value of these loans and in Table 3B the relative market shares of these three categories. Over the sample period, housing and auto loans account for 13.20% and 40.65% of the loan portfolio respectively, while 46.15% are retail consumer loans. In terms of amounts, housing and consumer loans account for 50.98% and 24.16%, respectively, reflecting the greater ticket sizes of real estate loans. There are differences between the portfolios of public sector banks and private sector banks. Public sector banks have more housing and consumer loans, both by number and volume, while private sector banks have more auto loans. We will correct for these portfolio differences in the regression analysis.

[15] See http://www.gold.org/supply-and-demand/gold-demand-trends, accessed September 2015. India's 2015 gold consumption is 668.5 tons, 27% of the world demand, compared to its 6-7% share of World GDP.

[16] We note a small bias here. We exclude priority sector and gold loans but 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.

It is reasonable to expect credit bureaus to be helpful for all three categories of loan decisions. Housing loans have longer maturity and are for large amounts. Although auto loans are smaller and shorter-term, a key issue is that collateral enforcement is difficult in India (Gopalan, Mukherjee, Singh, 2016; Bhue, Prabhala, and Tantri, 2016; Vig, 2013; Visaria 2009). Banks can begin to move only after 90 days of non-payment, after which banks 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. Thus, even collateralized loans need to be sensitive to the borrower's repayment capacity. Of course, loans without collateral require even more diligence in assessing borrower repayment capacity.

In Table 4A, we present inquiry and lending data for the final consumer loan sample. Between 2006 and 2015, filtered loan applications in our 1% subsample at PSBs increase by 276% from 33,338 to 125,335 while those at NPBs increase by 231%. Bureau usage rates remain lower for PSBs. Between 2006 and 2015, PSBs increase their bureau usage rate from 2.21% to 76.05% while for NPBs, it increases from 9.31% to 96.21%. In 2015, NPBs subject virtually all applications to inquiry, while PSBs do so for three-quarters of their pool. Other metrics of bureau usage in Table 4A such as the fraction of the number or amount of loans made after inquiries show similar patterns. For instance, 44.11% of loans are made after inquiry in PSBs in 2015 while 88.12% of loans are made after inquiry in NPBs.

C. New Customers Versus Prior Relationships

Both NPBs and PSBs have limited information about new customers. However, for existing customers, internal data exist. For instance, loan officers can rely on repayment histories, checking account activity, and other data that come from customer-bank interactions. Legacy processes to harvest these internal data exist, likely routinized through internal training systems adapted to the bank's own record keeping systems and human capital. The more ingrained these processes, the less likely are banks to be receptive to outside data to inform lending for existing customers. These perceptions about outside data need not be correct, of course, but may drive a bank's decision not to use bureau data for existing customers.

In Tables 4B and 4C, we break up the inquiry and lending data by bank type and by whether customers have a prior relationship (Table 4B) or not (Table 4C). For customers with no prior relationship with the inquiring bank, bureau usage shows a minor difference, at 98.5% in PSBs and 99.7% in NPBs. In sharp contrast, when the bank has prior lending relationship, bureau usage is lower for PSBs. Even in 2015, towards the end of our sample period, Table 4B shows

that the bureau usage rate is 48% for PSBs compared to 90% for NPBs, a 42% gap when customers have prior relationships. PSBs seem to be more trusting of their internal data for existing relationships to the point where they eschew market information from outside. At the same time, PSBs exhibit nearly universal due diligence for new customers. Table 4C shows that PSB usage of bureaus for new customers is above 98% right from 2006. Thus, the low bureau usage by PSBs for customers with prior relationships is not likely to be driven by aversion to new technology. PSBs seem more confident of their data for prior relationships.

D. Are Credit Scores Not Available?

One possible explanation for low bureau usage by PSBs is that fewer of their customers have bureau records. Anticipating this, especially of prior relationship clients, they may inquire less. We already reduce this possibility by eliminating priority sector and gold loans but test this point directly for the remaining loans 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 when inquiries or loans were made.

In Table 5, we classify filtered applications by whether credit scores are available. There is a small difference in the scorability of the applicant pool between PSBs and NPBs. 72,015 of the 183,952 filtered applicants, or 39.1%, at PSB applicants have credit scores compared to 91,290 out of 220,828, or 41.3%, for NPBs (Columns [1] and [9], Panel A). For clients with existing loan relationships, 42.8% of PSB applicants have scores versus 59.3% for NPBs (Column [1] and [9], Panel B). These figures still do not explain the difference in bureau usage rates between PSBs and NPBs. For example, even within the pool of prior relationship applicants with scores, PSBs and NPBs inquire for 58.20% and 96.88%, respectively (columns [6] and [14] in Panel B), nearly a 40 percentage point gap.

The asymmetry in inquiry rates between existing and new customers is shown in Panels B and C in Table 5. In contrast to the inquiry gap for prior relationships, the gap is insignificant for new customers, where PSBs inquire 98.4% of scored universe, close to the 99.5% for NPBs (columns [6] and [14], Panel C). PSBs do not cut much slack for new customers. Interestingly, PSBs also inquire far less of unscored existing clients – only 14.4% versus 64.4% for NPBs (columns [6] and [4], Panel B), versus 98.72% and 99.70%, respectively, for new clients.

E. Are Credit Scores Not Useful?

We next consider whether the reluctance of PSBs to inquire is because they believe that their internal information about clients subsumes the credit scores that bureaus can provide.

Credit scores are useful in markets such as the United States for predicting delinquency (e.g., Gross and Souleles, 2002; Agarwal and Hauswald, 2010) but this is less clear in India. Our task is then to assess whether credit scores are at all useful in India for predicting loan delinquency. After checking this, we ask whether PSBs have no need of the information contained in credit scores, especially for prior relationships.

E1. Bureau Usage By Credit Score Buckets

The bureau provides us the point-in-time credit score for both loans and inquiries in fiscal 2013 and 2014 if a client was scorable. The credit scores are what the banks who inquire see and for un-inquired loans they are what the banks would see had they inquired. 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.[17] We divide the loan and inquiry data into these three buckets.

For new borrowers, Panel C in Table 5 shows that bureau usage is almost complete across credit score buckets. Panel B in Table 5 shows that there is more variation across credit score buckets for customers with existing bank relationships, and this varies further between PSBs and NPBs. We see a pronounced "U"-shape in inquiry patterns for PSBs. The most inquired are the low quality credits (65.4 percent), the least inquired are the medium quality credits with scores between 650 and 750, for which the inquiry rate is 54.5 percent, after which inquiry rates climb once again to 62.8 percent for high quality credits. The inquiry patterns for NPBs are greater and flatter across credit score buckets (97.6%, 96.5%, and 97.1% respectively). Panels B and C show that the differences in bureau usage rates by PSBs across credit score buckets are largely driven by customers with prior relationships.

Figure 1 displays a kernel-smoothed plot of the fractions of loans inquired against credit scores. The NPB plot is relatively flat and nearly 100% across credit score buckets, so they appear to inquire all applicants, certainly in the years 2013 and 2014 when we have data on credit scores. The curve for PSBs shows a dip at the middle score levels and then a positive slope for high score applicants. Panel B shows the same relation in amounts. Here, curiously, PSBs appear to inquire more for higher quality credits than for lower quality credits. Assuming that the PSB loan officer's information about default risk correlates broadly with credit scores, we should expect more inquiries in lower score buckets but this is not what we see.

The asymmetry in bureau usage for PSBs and NPBs for their customers with and without prior relationships exists even within the universe of unscored customers. In this sample, Panel

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

C in Table 5 shows that both PSBs and NPBs have high inquiry rates of nearly 100% for customers with no prior relationships. Both types of banks appear to have some sense of whether their existing customers are scorable or not, as shown by the lower inquiry rates for prior relationship borrowers in Panel B. However, the decrease in inquiry rates for these borrowers between PSBs and NPBs is quite different. PSB inquire for only 14.39% of their prior relationship borrowers while NPBs inquire for 64.35% of these customers. Comparing columns [7] and [10] in Table 5, we find that PSBs are about as likely as NPBs to accept customers with medium or high credit scores but are relatively more inclined to accept low score customers. For example, for borrowers with prior relationships, a PSB (NPB) customer in the low score bucket has a 26.78% (21%) chance of getting a loan conditional on inquiry relative to about 39% (39%) for medium score customers, corresponding to odds ratios for 2:3 for PSB versus 1:2 for NPBs.

The bureau usage practices of PSBs relative to NPBs tilt their credit portfolios towards un-inquired credits and those with lower credit scores especially for those with prior relationships. Perhaps PSBs believe that credit scores are uninformative about delinquency relative to the internal information they hold or the soft institutional knowledge they may have from several decades of operation in India. We test this hypothesis by examining the relation between ex-ante credit scores and ex-post delinquency rates.

E2. Delinquency and Credit Scores: Data

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.[18] 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 that occur soon after the

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

loan is given, we minimize the extent to which exogenous unanticipated macroeconomic events subsequent to the granting of the loan affect delinquency rates.

We note a caveat in the analysis of delinquency rates using loans that have actually been made. 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 private information for screening out applicants with higher true delinquency risk for a given score, the measured rate of delinquency associated with any credit score should be lower than if loans were distributed at random. Put differently, a loan made using greater bank knowledge about the borrower should have lower delinquency rates, conditional on the publicly available credit score, than a loan made using no bank-specific information. The difference between the two is small when the amount of bank private information is lower.

E3. Delinquency and Credit Scores: Empirical Results

Table 6 reports delinquency rates by credit score buckets. Credit scores predict ex-post delinquency in our dataset. For instance, the delinquency rate in the low score bucket across all banks is 3.14% compared to 0.77% and 0.30% for the medium and high score buckets, respectively (Column [1], Panel A). The difference between the delinquency rates in different score buckets is significant. The *t*-statistic is 9.8 for the difference in delinquency rates between low and medium score, and 7.3 for the corresponding difference between medium and high score buckets. We see a similar downward sloped relation between scores and delinquency rates individually for both public sector and private banks.

Figure 2 depicts this relationship visually. LQ360 is greater when scores are low, i.e., delinquency is greater for loans made to those with low credit scores. Note that this is the delinquency rate for the loans made, not for the unconditional pool of applicants, and hence delinquency rates in any bucket are lowered by any private borrower-specific information the bank would use to make lending decisions. In Panel B of Figure 2, we find that PSBs do not seem to have lower delinquency rates conditional on credit scores compared to NPBs. The data in Panel A of Table 6 confirm this point. The overall delinquency rate for the low score, medium score, and high score buckets are 4.15%, 0.78%, and 0.34%, respectively, for PSBs, while it is 2.14%, 0.76%, and 0.25% for the corresponding buckets for NPBs. Regressions results reported later substantiate this finding.

Equally interesting is to look across rows in Table 6. The act of inquiring is associated with lower default rates, regardless of whether loans are scored or not. Default rates tend to be lower in scored inquired loans than in unscored inquired loans for both PSBs and NPBs. The

reduction in delinquencies for inquired loans holds for each score bucket regardless of bank type or the existence of prior relationship, which we can see by comparing each row of columns [2] and [3], columns [5] and [6], and columns [8] and [9]. For example, in Panel A, scored loans for all banks have delinquency rates of 1.41% when loans are made without inquiry compared to 0.60% when loans are made after inquiry.

The finding that inquiries are associated with lower defaults is interesting. It may suggest a strong complementarity between the bank's private borrower-specific information and the information obtained from the credit bureau upon inquiry, which allows for a better decision to be made than with either piece of information. Alternatively, it suggests un-inquired loans are especially risky because the act of not inquiring conveys information. The data on *unscored* loans speak to the latter point.

Inquiries are associate with lower delinquency rates even for unscored loans. For example, comparing Columns [2] and [3] in Panel A of Table 6, we find delinquency rate for unscored loans, where the credit bureau does not have much information, is 2.07% for un-inquired loans compared to 1.20% for inquired loans. There is more of interest in Table 6. For unscored loans where the bank (either PSB or NPB) has a prior relationship, delinquency rates are 0.99 percent, while for unscored loans with no prior relationship, delinquency rates are 1.94 percent (column [1] in Panels B and C respectively). Under the assumption that the credit bureau conveys little information for unscored credits, this finding does suggest that a prior bank relationship does convey information that allows banks to screen out bad credits for the unscored population. Columns [4] and [7] suggest that the result on the informational value of prior bank relationships holds for both PSBs and NPBs.

An additional finding of interest concerns scored loans. For this scored subsample and loans made by NPBs, the delinquency rate is lower for prior relationship borrowers compared to new borrowers. For instance, the NPB delinquency rates for the low, medium, and high score buckets when lending to prior relationships are 1.30%, 0.51%, and 0.22%, respectively and 3.76%, 1.76%, and 0.36%, respectively, for loans with no prior relationship (compare Column [7] of Panels B and C). So NPBs do seem to acquire some information from prior relationships that helps them discriminate better. On the other hand, for PSBs, delinquency rates are greater for prior relationships even conditional on credit scores. For example, comparing Column [4] in Panels B and C, the delinquency rates for the low, medium, and high score buckets for loans with prior relationships are 4.83%, 0.82%, and 0.38%, respectively, while the rates are 2.70%, 0.65%, and 0.27%, respectively, for loans with no prior relationship. This result provides

further evidence that the irrelevance of credit bureau data is unlikely to explain the inward orientation of PSBs, or their unwillingness to look at outside data for past borrowing relations.

In sum, it appears that it is not necessarily just the complementarity of borrower-related information held by the bank and borrower-related information with the bureaus that makes inquired loans significantly less risky. Rather, the act of not inquiring conveys information. This may either reflect active intent or passive incompetence. For instance, if the loan officer is friendly with a walk-in client (or the client is her nephew), she may not want to inquire if she believes the client will be particularly risky given observable risk characteristics. This sort of agency problem in selecting who is inquired could result in un-inquired loans being riskier, even conditional on underlying credit score, than inquired loans. Alternatively, it may be that loan officers who do not inquire also do not take into account other basic data that would allow them to screen out risky borrowers. The act of not inquiring may thus reflect the laziness, incompetence, or misplaced confidence in the personal screening judgment of the loan officer, and would be associated with higher delinquencies.

VI. Regression Analysis

We now substantiate Tables 5 and 6 with regression analysis, correcting for applicant characteristics, loan characteristics (where necessary), and including indicators for quarters to control for residual time trend and seasonality effects.

The applicant characteristics the specifications control for include applicant age and gender, two demographic variables made available to us. 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). If bureau inquiries are initiated to screen for credit risk, inquiries can be more likely for male borrowers. In addition, if banks anticipate that males are more included in the financial system and thus better covered by the bureau databases, they may inquire more for male borrowers. 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. We control for the type of loan (housing, auto, or consumer), as well as the log of the amount of the loan in rupees.

In Column 1 of Table 7, we report estimates of a regression where the left hand side is an indicator of whether the filtered application is inquired or not. The explanatory variables include applicant characteristics, quarter indicators, indicators for whether the bank is a PSB,

and whether the bank had a prior relationship with the borrower. In column 2, we further add an interaction between the PSB and a prior relationship indicator. In columns 3-7, we include data on credit scores and thus must restrict the sample to the subset of data after 2013, for which we have scores. In these specifications, we include indicators for whether an applicant is scored, and indicators for low, medium, or high scores, as well as interactions between these indicators and the existence of prior relationships and interactions between these indicators and the PSB indicator. In the rightmost column, we include triple interactions between score indicators, the PSB indicator, and the prior relationship indicator.

The estimated coefficient on public sector banks is negative and significant at the 1% level in all specifications. Public sector banks are about 20-25% less likely to initiate inquiries for new loans than private banks, after controlling for borrower and loan characteristics, and time effects. In column [1], we also find that on average, borrowers with past relationships are less likely to be inquired. In Columns [3] and [4], we reestimate the specifications in columns [1] and [2] but for the restricted sample where scores are available. We obtain similar results. In column [5], we introduce dummies for high, medium, and low credit scores. All three have positive coefficients, indicating that scored populations are more likely to be inquired compared to the unscored population, more so by PSBs given the positive coefficient on the interaction between the score dummies and PSBs in column [6]. That is, all else equal, PSBs are more likely to inquire for scored borrowers compared to ones without scores, a relationship that holds even when we control for whether a borrower is one with a prior relationship (Column [7]). In Column [8], we find that while PSBs are more likely to inquire the scored for existing customers relative to the unscored (as indicated by the coefficient for the PSB-score dummy variables), even after controlling for the triple interaction that also includes prior relationship and score interacted with PSBs.

Several other interesting findings emerge from Table 7. The specifications control for age and gender, two demographic variables made available to us. Banks are more likely to initiate inquiries for male borrowers when credit scores are not controlled for (columns [1]-[4]). However, conditional on credit scores, males are not likely to be inquired more compared to females (columns [5]-[8]). We also control for age by including log borrower age as a control. We find that conditional on credit scores, banks inquire less for older borrowers.

We next explore the relationship between inquiry and delinquency rates to assess whether inquiries have informational value in explaining delinquency, or a loan being past due for at least 90 days. While an OLS estimator gives similar results, we report estimates of an IV specification in which the exclusion restriction is that the indicators for PSB and PSB interacted

with prior relationships affect delinquency rates only through inquiry. Table 8 reports the results. The first stage instruments are strong (columns 1 and 3 of Table 8).[19] Columns 2 and 4 in Table 8 indicate that delinquency rates are lower for loans inquired with the bureau in the IV specification even after controlling for borrower and loan characteristics and time effects.

Discussion We have seen thus far that PSBs are slower in using the new information available from credit bureaus, primarily for customers with whom they had a prior relationship. The reluctance to use credit bureau information may have been because they incorrectly did not think it was informative. Or perhaps it was because they thought the credit bureau data were likely to be too informative about the riskier clients with whom they had developed a relationship. At any rate, over time PSBs increase the frequency of inquiry, even for clients with prior relationships. It may well be that PSB managements make inquiries compulsory over time for all loan applications, thus removing loan officer discretion. It may be that loan officers themselves learn from past experience of higher default rates in un-inquired loans, and move to greater inquiry. Regardless of the reason, the slow pace of credit bureau adoption, or lending without inquiry, by PSBs certainly seems to result in greater delinquencies for PSB loans.

It may be that PSBs charge higher interest rates to compensate for the additional risk they take on, although higher interest rates cannot explain why they do not take the additional small step of inquiring. Unfortunately, we do not have interest rates charged on loans but we do not think this is the right explanation. For example, it does not explain the increase in inquiries over time. Moreover, bureau usage rates for new applicants are high from the outset. These factors do not suggest that avoiding inquiry is a strategy to exploit high spreads. In our view, inquiry avoidance probably reflects adjustment costs involved in moving from decisions made from inward looking legacy systems to those that look outward to external market data and greater automation in the lending process. The costs are likely more when legacy systems are well established, as may be the case for loans to past borrowers.

VII. Counterfactuals

By not inquiring enough, PSBs do not use credit score data that are available with bureaus. What would the credit outcomes be if they instead made loans informed by the unused data? We attempt to answer this question by examining the data available with the bureau but

[19] The F-statistic for the exclusion restriction exceeds 15. Furthermore, when we regress delinquency rates on an inquiry dummy variable and an indicator for PSB, the estimated coefficient on the PSB indicator is insignificant. The result indicates that lower inquiry rates are the channel through which the PSB indicator variable is related to delinquency, which is consistent with the assumption in our specification.

that PSBs do not use. For un-inquired loans, the bureau supplies us point-in-time credit scores that would be seen by the PSBs had they inquired instead of making the loans without inquiry. We simulate the counterfactual lending outcomes had the PSBs used the bureau data to inform lending. The differences between the counterfactual outcomes and realized ones give us an estimate of the information left on the table.

To describe the methods more precisely, we introduce some notation. Let c identify a borrower, X_c denote borrower characteristics, and S_c the borrower's credit score. Let I_C be the event of inquiry and NI_C the non-inquiry for a loan, L_c the event of granting the loan to customer c and NL_c the event of loan denial. $LQ_c(B)$ is ex-post loan quality made by bank type $B \in \{\text{PSB, NPB}\}$. We denote the policy function associated with bureau usage, the composite probability of inquiry and acceptance conditional on inquiry, as $p_c\ (B, X_c, S_c)$.

Possible policy functions if the PSBs expand bureau usage include the aggressive full inquiry policy, in which PSBs inquire about all loans regardless of borrowers and loan characteristics. Such a policy would mimic what PSBs do, for instance, for their new borrowers. At the other extreme, the PSBs could continue their current bureau usage practices, passively scaling what they do currently. This policy could, for instance, account for the mandates by the state that PSBs follow lending standards that are more accommodative of weaker borrowers. A more realistic policy choice, in between these two extremes, is how NPBs use bureaus. As this is a real-time approximation of entities that embrace bureau-intensive lending disciplines, using the NPB benchmark appears to be reasonable, and gives more conservative estimates of the benefits of bureau usage compared to full use.

We also note that we apply the policy shift at the *margin* and thus estimate effects of moving the currently un-inquired loans to the inquired status. One could argue that embracing bureaus fully would likely alter the quality of the entire loan supply, not just at the margin. It is perhaps the case that the estimates involving a shift of the entire supply are also economically interesting. However, our focus is on shifts at the margin, the loans currently un-inquired.

A second question counterfactual estimation is about how to model delinquency rates in the counterfactual scenario when the un-inquired loans are now inquired. We explore two possibilities. One is to leave delinquency rates as are currently realized. This choices produces counterfactual estimates from selection effects, or the better composition of the loan pools resulting from shifts in bureau usage. A second candidate for counterfactual delinquency rates is the current *NPB* rate for similar loans, or LQ_C (B = NPB). The economic estimates now pick up a potential effect of better delinquency management protocols potentially used by NPBs, or

for example those arising from greater human capital, management attention or culture, or commitments to ex-post monitoring when adopting the bureau-driven lending processes.

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 $Q_{NI\rightarrow I}(PSB) \leq Q_{NI}(PSB)$.[20]

A second output of the counterfactual exercise is loan quality. If the delinquency rates are held at the current PSB rates, the loan quality would be

$$LQ360_{NI\rightarrow I}(PSB) = \sum p_c(NPB, X_c, S_c) \times L_C \times \delta_{c,NI} \times LQ360_c(PSB,.), \quad (2)$$

while the quality if the delinquency rates migrates to those of NPBs, we have

$$LQ360_{NI\rightarrow I}(PSB) = \sum p_c(NPB, X_c, S_c) \times L_C \times \delta_{c,NI} \times LQ360_c(NPB,.), \quad (3)$$

Table 9 reports the counterfactual estimates for both the models discussed above. We report three estimates, one for no prior relationship borrowers, the second for borrowers with prior relationships, and the third for all borrowers. The raw delinquency rate for the portfolio is the column titled LQ360 for each of the three pools. Counterfactual (A) is the delinquency rate using the current PSB rate counterfactual (B) uses the predicted rates for NPB borrowers. All regressions supporting the results are reported in Appendix A3.

Table 9 shows that both counterfactual delinquency rates are lower than the actual delinquency rates. The baseline compositional shifts lower 1-year delinquencies by between 39 and 63 basis points. In proportionate terms, these estimates represent gains of between 25% and 100% relative to baseline delinquencies. The gains are greater for borrowers with no prior relationships, indicating that internal data partially but not fully offsets the advantages of

[20] The dummy variable $\delta_{c,NI}$ ensures that we focus on currently un-inquired, i.e., the shift in inquiry patterns at the margin.

bureau inquiries. The gains from a shift to NPB delinquency rates add a further 13 to 40 basis points, an additional gain of between 20% to 40%.

We conduct a third analysis that is more accommodative of state mandates to lend to borrowers with weaker credit. The results are reported in Panel B of Table 9. Here, we model the bureau usage and acceptance functions in the counterfactual at the current PSB levels. This analysis takes as given the rigidities that PSBs face and simply asks what would happen if their disciplined their lending through greater adoption of credit bureaus. We still find gains from inquiring. Not surprisingly, these gains are lower than if PSBs shift to NPB practices.

VIII. Old Private Banks

What might explain the lag in adoption of credit bureaus by public sector banks for clients with whom they have prior relationships? Note that it is not that public sector banks do not understand this new source of information. PSBs seem perfectly capable of using it for new loan applicants. Instead, it seems they are reluctant to subject old relationships to the discipline of market data. Furthermore, it does not seem they are avoiding inquiry because of laziness. After all, they do inquire nearly all new applications. Instead, it may be they want to exercise discretion vis-a-vis their prior customers. It is clear that this discretion on bureau usage comes at a cost of higher delinquencies. Over time, PSBs seem to be moving to eliminate the discretion about whether to inquire, perhaps as their managements learn from technology adoption that the bureau technology is useful and has less compensating benefits than anticipated, for example, in strengthening client relationships.

Perhaps the issue with PSBs is their initial aversion to transactional relationships where every transaction is evaluated on its intrinsic merits, and there is no room for relationships or sentimentality. PSBs may be reluctant to lose control of the old customer to the new credit information technology. If the credit bureau returns a low score, it is harder for a loan officer to justify overriding the score without arousing suspicion, so better not to inquire in the first place if it is not mandated. If this is the explanation, the immediate question is whether PSBs do this because of their “public sector" nature. Is there something associated with the state ownership of these banks that allows them to place less emphasis on the profit motive?

Public sector ownership is a discrete variable and does not vary across banks in India. However, another set of organizations, old private banks or OPBs, shed light on whether it is ownership alone that drives the bureau adoption patterns of PSBs. Like PSBs, OPBs are old organizations. The 14 OPBs in our sample have a median age of 89 years, which is similar to the median and mean of 87 years for PSBs. The OPBs escaped nationalization in1969 and 1980

because they were regarded as being too small. However, they share similar formative experiences as the PSBs through the earlier, less-competitive era, where the Indian economy grew slowly and there were significant areas of oligopolistic rents the banks could exploit. To the extent that culture is a product of these experiences, it may explain the inward relationship orientation of banks. If so, we should find OPBs resembling PSBs, with whom they share common formative periods and not NPBs, whom they resemble on ownership but not formative experiences.

An additional point concerns size. OPBs, perhaps scarred by the nationalization of private banks that grew too big, 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. If OPBs behave like PSBs, it would appear that size alone *cannot* explain the technology adoption behavior of PSBs.

In Table 10, we presents data on inquiry intensities for OPBs for the 1% random sample. As before, we exclude agricultural, priority sector, and gold loans. Table 10A shows that the inquiry behavior of OPBs differs sharply from NPBs and that it is close to PSBs. In fact, the rates of usage of credit bureaus are even lower than those for PSBs. For instance, comparing Table 10A to Table 4, we find that OPBs inquire for about 53.9% of their applicant pool, close to 51.8% rate for PSBs and considerably lower than the 82.1% inquiry rate for NPBs. Just like PSBs, OPBs exhibit within-variation in the usage of bureaus. They appear reluctant to use bureaus for old customers but are not averse to using bureaus for new customers. Table 10B shows that for OPBs, bureau usage rates for existing clients is only 14%. This is even lower than 20% for PSBs in Table 4B. However, for customers with no prior relationship with the inquiring bank, OPBs report almost complete bureau usage. Therefore, like PSBs, OPBs are also slow in adopting new technology, however, again only for existing clients. In Figure 3, we plot the fraction of loans made after inquiry against the log of bank age. While there are two distinct clusters, reflecting the PSBs and OPBs at the older end and NPBs at the younger end, the banks with intermediate age align along the straight line. It would appear that bank age or culture is an important determinant of practice, even though the environment has changed substantially.

The bottom line of this section is that we observe two types of organizations, PSBs and OPBs, that are of similar vintage and that have similar legacy systems and cultures but are of very different sizes and ownership. Given their similar behavior, it would appear that neither size nor ownership solely explain their organizational practices related to the adoption of credit

bureau technologies. Shared formative experiences are perhaps an important factor in explaining the organizational responses to this new technology.

IX. Conclusions

We study data from 472 million records held by a major credit bureau in India that records virtually all consumer loans granted during the last decade by credit institutions operating in India. The main focus of our study is the adoption of credit scoring by the banking sector in retail consumer lending, specifically the differences in adoption between state-owned or public sector banks (PSBs) and new private banks (NPBs).

We show that there is a significant gap in adoption of credit scoring technology between the two several years after the introduction of the technology. For borrowers with prior relationships, PSB inquiry rates are lower than those for their private peers, NPBs, who subject virtually all loans to credit bureau check. The gap does *not* exist for new clients, so the inquiry gap for customers with prior relationships does not appear to reflect a general aversion towards new technology adoption by PSBs. Moving to a score-drive, transaction orientation in lending requires organizations to remove discretion from the loan officer and cede it to the scoring technology. This shift is disruptive of status quo, particularly for borrowers with whom the banks have prior relationships, where internal data is more abundant and legacy processes and human capital are adapted to its use. The stickiness appears to generates a reluctance to look outward, creating a version of the innovator's dilemma in technology adoption for past lending relationships of a bank.

We test and rule out a variety of explanations for slow adoption. We also examine the possibility that the credit bureau information is redundant for PSBs but do not find evidence to support this viewpoint. Several descriptive tests rich in detail, regressions with controls for heterogeneity, and instrumental variables regressions that instrument for bureau usage, suggest that by lending without inquiry, PSBs leave information on the table. These tests suggests that relationships do not necessarily substitute for bureau inquiries or the act of inquiring with credit bureaus. We conduct further tests on loans made without inquiry. For these loans, we obtain data on the real-time credit scores that PSBs would have seen if they had inquired instead of lending without inquiry. Under plausible assumptions about how the data would be used in lending, we estimate counterfactual outcomes if the un-inquired loans were instead inquired, and quantify the real-time improvements in credit quality generated from greater adoption of the credit scoring technology.

We explore explanations for the differential adoption rates that leads PSBs to leave

information on the table. The differences cannot be explained by observable characteristics such as size, profitability, and capitalization.

A potential explanation for the differences may lie in the distinctive cultures of the two types of organizations. Is culture a product of state ownership? 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. Neither ownership nor size alone suffice to explain the differences in adoption between PSBs and NPBs. Shared formative experiences are perhaps an important organization trait in explaining the responses to new technology. Over time, the behavior of state-owned banks shows convergence towards that of their newer private bank counterparts. Competition appears to drive out the status quo bias created by relationships and replaces it with an arms-length transactional behavior typical of modern retail lending practices in banks around the world.

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TABLES AND FIGURES

Table 1
Inquiries and Loans: All Loan Types

The sample includes all bank-types excluding credit card companies, all account types excluding credit cards, all inquiries except risk-management inquiries, and all years between 2006 and 2015. Filtered Applications are the sum of the number of inquiries and loans without inquiry. Bureau Usage refers to the ratio of the number of inquiries to filtered applications. Amounts are in INR Billion.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Year	# Filtered Application	# Inquiries	# Loans No Inq	# Loans Inq	Amount Total	Amount No Inq	Amount Inq	Bureau Usage	% Loans Inq	% Amt Inq
2006	190,264	17,382	172,882	5,150	38.87	35.92	2.95	9.14%	2.89%	7.60%
2007	262,929	89,557	173,372	21,403	43.07	33.24	9.83	34.06%	10.99%	22.81%
2008	351,470	210,844	140,626	44,127	49.19	30.83	18.36	59.99%	23.88%	37.32%
2009	292,356	168,980	123,376	32,673	43.82	29.04	14.78	57.80%	20.94%	33.72%
2010	273,642	122,321	151,321	33,250	61.54	36.35	25.19	44.70%	18.01%	40.93%
2011	345,195	157,033	188,162	51,403	94.67	55.39	39.28	45.49%	21.46%	41.49%
2012	457,643	203,545	254,098	80,227	105.12	51.03	54.09	44.48%	24.00%	51.45%
2013	593,863	271,330	322,533	101,746	133.27	59.43	73.84	45.69%	23.98%	55.41%
2014	712,092	351,892	360,200	131,576	148.70	60.84	87.86	49.42%	26.76%	59.08%
2015	850,010	448,434	401,576	177,439	177.73	63.08	114.64	52.76%	30.64%	64.51%
Total	4,329,464	2,041,318	2,288,146	678,994	895.97	455.16	440.82	47.15%	22.88%	49.20%

Table 2

Inquiries and Loans for PSBs and NPBs: All Loan Types

The sample includes all public sector and new private banks excluding credit card companies, all account types excluding credit cards, all inquiries except risk-management inquiries, and all years between 2006 and 2015. Filtered Applications are the sum of the number of inquiries and loans without inquiry. Bureau Usage refers to the ratio of the number of inquiries and filtered applications.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Panel A: Public Sector Banks										
Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	81,077	736	80,341	194	15.87	15.72	0.15	0.91%	0.24%	0.93%
2007	72,035	3,380	68,655	1,116	12.98	12.18	0.80	4.69%	1.60%	6.13%
2008	66,986	4,931	62,055	1,700	13.44	11.83	1.61	7.36%	2.67%	11.97%
2009	86,096	9,079	77,017	3,010	17.06	14.40	2.65	10.55%	3.76%	15.56%
2010	115,214	17,766	97,448	6,394	25.09	18.38	6.71	15.42%	6.16%	26.74%
2011	143,361	25,664	117,697	8,425	28.32	20.16	8.16	17.90%	6.68%	28.83%
2012	193,316	34,216	159,100	11,222	34.46	24.84	9.61	17.70%	6.59%	27.90%
2013	255,363	50,902	204,461	17,080	43.51	29.68	13.83	19.93%	7.71%	31.79%
2014	311,288	72,068	239,220	24,485	54.19	34.15	20.04	23.15%	9.28%	36.98%
2015	351,405	95,311	256,094	33,838	58.42	34.24	24.17	27.12%	11.67%	41.38%
Total	1,676,141	314,053	1,362,088	107,464	303.35	215.60	87.74	18.74%	7.31%	28.93%
Panel B: New Pvt Banks										
Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	48,136	4,334	43,802	908	11.28	10.72	0.56	9.00%	2.03%	4.96%
2007	78,862	32,310	46,552	10,118	13.88	9.38	4.50	40.97%	17.85%	32.43%
2008	105,448	82,774	22,674	25,941	12.55	4.81	7.74	78.50%	53.36%	61.65%
2009	70,286	61,834	8,452	16,379	6.09	1.54	4.55	87.97%	65.96%	74.75%
2010	48,485	41,423	7,062	13,321	7.19	1.54	5.64	85.43%	65.35%	78.52%
2011	61,263	52,640	8,623	19,517	13.31	2.13	11.18	85.92%	69.36%	84.00%
2012	82,802	67,478	15,324	27,453	19.01	2.88	16.13	81.49%	64.18%	84.86%
2013	110,792	90,671	20,121	33,897	25.66	4.27	21.39	81.84%	62.75%	83.36%
2014	136,302	115,875	20,427	41,293	27.02	4.32	22.69	85.01%	66.90%	83.99%
2015	173,313	148,058	25,255	52,011	36.62	5.42	31.20	85.43%	67.31%	85.19%
Total	915,689	697,397	218,292	240,838	172.61	47.02	125.59	76.16%	52.46%	72.76%

Table 3A
Final 1% Consumer Loan Sample: Aggregates

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: PSB+NPB						
Year	# Loans			Amount (INR million)		
	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	29816	12068	33804	4491	9620	4591
2007	34162	10248	37660	4944	10308	5071
2008	28081	7317	33941	4762	8863	5460
2009	17448	6292	25831	3421	6398	5155
2010	18905	9328	26205	4438	12014	5056
2011	25294	9147	28846	7113	14475	6725
2012	31784	9073	33673	9660	16226	7720
2013	36773	10252	33624	11616	21656	8342
2014	38642	11974	41916	11791	25980	11894
2015	41891	12634	48239	13867	30526	13943
Total	302796	98333	343739	76104	156065	73957
Panel B: Public Sector bank						
Year	# Loans			Amount (INR million)		
	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	1959	7911	22903	343	4590	3246
2007	2301	6576	18791	511	4261	2712
2008	2189	5207	16218	533	4303	2849
2009	3096	5609	19694	833	5133	3798
2010	5224	8340	22916	1495	9709	4135
2011	5466	7694	25044	1802	9522	5300
2012	5533	7259	28186	1950	9398	5781
2013	6901	7884	26725	2941	11147	5686
2014	7425	9278	33489	3232	14699	8428
2015	7587	9228	36901	3397	15000	9251
Total	47,681	74,986	250,867	17036	87761	51186
Panel C: New Private Bank						
Year	# Loans			Amount (INR million)		
	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	27,857	4,157	10,901	4,148	5,029	1,345
2007	31,861	3,672	18,869	4,433	6,047	2,358
2008	25,892	2,110	17,723	4,229	4,559	2,610
2009	14,352	683	6,137	2,589	1,266	1,357
2010	13,681	988	3,289	2,943	2,305	921
2011	19,828	1,453	3,802	5,312	4,953	1,425
2012	26,251	1,814	5,487	7,710	6,828	1,939
2013	29,872	2,368	6,899	8,675	10,510	2,656
2014	31,217	2,696	8,427	8,558	11,281	3,466
2015	34,304	3,406	11,338	10,471	15,526	4,692
Total	255,115	23,347	92,872	59,067	68,304	22,771

Table 3B
Final 1% Consumer Loan Sample: Proportions

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: PSB+NPB						
Year	# Loans			Amount		
	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	39.39%	15.94%	44.66%	24.01%	51.44%	24.55%
2007	41.63%	12.49%	45.89%	24.33%	50.72%	24.95%
2008	40.50%	10.55%	48.95%	24.95%	46.44%	28.61%
2009	35.20%	12.69%	52.11%	22.85%	42.73%	34.43%
2010	34.73%	17.14%	48.14%	20.64%	55.86%	23.51%
2011	39.97%	14.45%	45.58%	25.12%	51.12%	23.75%
2012	42.65%	12.17%	45.18%	28.74%	48.28%	22.97%
2013	45.60%	12.71%	41.69%	27.91%	52.04%	20.05%
2014	41.76%	12.94%	45.30%	23.74%	52.31%	23.95%
2015	40.76%	12.29%	46.94%	23.77%	52.33%	23.90%
Total	40.65%	13.20%	46.15%	24.86%	50.98%	24.16%
Panel B: Public Sector bank						
Year	# Loans			Amount		
	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	5.98%	24.14%	69.88%	4.20%	56.12%	39.68%
2007	8.32%	23.77%	67.92%	6.83%	56.93%	36.24%
2008	9.27%	22.05%	68.68%	6.93%	55.99%	37.07%
2009	10.90%	19.75%	69.35%	8.53%	52.57%	38.90%
2010	14.32%	22.86%	62.82%	9.75%	63.30%	26.96%
2011	14.31%	20.14%	65.55%	10.84%	57.28%	31.88%
2012	13.50%	17.71%	68.78%	11.38%	54.87%	33.75%
2013	16.62%	18.99%	64.38%	14.87%	56.37%	28.75%
2014	14.79%	18.49%	66.72%	12.26%	55.76%	31.97%
2015	14.12%	17.18%	68.70%	12.29%	54.25%	33.46%
Total	12.76%	20.07%	67.16%	10.92%	56.26%	32.82%
Panel C: New Private Bank						
Year	# Loans			Amount		
	Auto	Housing	Consumer	Auto	Housing	Consumer
2006	64.91%	9.69%	25.40%	39.42%	47.80%	12.78%
2007	58.57%	6.75%	34.68%	34.53%	47.10%	18.37%
2008	56.63%	4.61%	38.76%	37.10%	40.00%	22.90%
2009	67.79%	3.23%	28.99%	49.67%	24.29%	26.04%
2010	76.18%	5.50%	18.31%	47.70%	37.37%	14.93%
2011	79.05%	5.79%	15.16%	45.44%	42.37%	12.19%
2012	78.24%	5.41%	16.35%	46.79%	41.44%	11.77%
2013	76.32%	6.05%	17.63%	39.72%	48.12%	12.16%
2014	73.73%	6.37%	19.90%	36.72%	48.40%	14.87%
2015	69.94%	6.94%	23.12%	34.12%	50.59%	15.29%
Total	68.70%	6.29%	25.01%	39.34%	45.49%	15.17%

Table 4A

Inquiries and Loans for PSBs and NPBs: 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, all inquiries except risk-management inquiries, and all years between 2006 and 2015. Filtered Applications are the sum of the number of inquiries and loans without inquiry. Bureau Usage refers to the ratio of the number of inquiries and filtered applications.

Panel A: PSB + NPB

Year	# Filtered Application	# Inq	# Loans w/o Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	79,882	5,070	74,812	876	18.70	18.18	0.53	6.35%	1.16%	2.82%
2007	107,074	35,690	71,384	10,686	20.32	15.48	4.84	33.33%	13.02%	23.82%
2008	130,532	87,705	42,827	26,512	19.08	10.42	8.66	67.19%	38.24%	45.38%
2009	102,266	70,913	31,353	18,218	14.97	8.53	6.45	69.34%	36.75%	43.06%
2010	95,244	59,189	36,055	18,383	21.51	10.33	11.18	62.14%	33.77%	51.97%
2011	115,811	78,304	37,507	25,780	28.31	11.29	17.02	67.61%	40.74%	60.12%
2012	141,404	101,694	39,710	34,820	33.61	11.20	22.41	71.92%	46.72%	66.69%
2013	177,929	141,573	36,356	44,293	41.61	10.87	30.74	79.57%	54.92%	73.87%
2014	226,851	187,943	38,908	53,624	49.66	12.37	37.30	82.85%	57.95%	75.10%
2015	279,220	243,369	35,851	66,913	58.34	10.92	47.42	87.16%	65.11%	81.29%
Total	1,456,213	1,011,450	444,763	300,105	306.13	119.58	186.55	69.46%	40.29%	60.94%

Panel B: Public Sector Banks (PSB)

Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	33,338	736	32,602	171	8.18	8.05	0.13	2.21%	0.52%	1.62%
2007	30,083	3,380	26,703	965	7.48	6.78	0.70	11.24%	3.49%	9.40%
2008	27,095	4,931	22,164	1,450	7.69	6.28	1.41	18.20%	6.14%	18.30%
2009	34,811	9,079	25,732	2,667	9.76	7.41	2.36	26.08%	9.39%	24.12%
2010	48,607	17,766	30,841	5,639	15.34	9.22	6.12	36.55%	15.46%	39.88%
2011	56,862	25,664	31,198	7,006	16.62	9.54	7.09	45.13%	18.34%	42.63%
2012	66,369	34,216	32,153	8,825	17.13	9.25	7.88	51.55%	21.54%	45.99%
2013	79,634	50,902	28,732	12,778	19.77	8.27	11.50	63.92%	30.78%	58.16%
2014	104,318	72,068	32,250	17,942	26.36	9.82	16.54	69.08%	35.75%	62.74%
2015	125,335	95,311	30,024	23,692	27.65	8.20	19.44	76.05%	44.11%	70.33%
Total	606,452	314,053	292,399	81,135	155.98	82.82	73.16	51.79%	21.72%	46.90%

Panel C: New Private Banks (NPB)

Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	46,544	4,334	42,210	705	10.52	10.13	0.39	9.31%	1.64%	3.74%
2007	76,991	32,310	44,681	9,721	12.84	8.70	4.14	41.97%	17.87%	32.22%
2008	103,437	82,774	20,663	25,062	11.40	4.14	7.25	80.02%	54.81%	63.64%
2009	67,455	61,834	5,621	15,551	5.21	1.12	4.09	91.67%	73.45%	78.56%
2010	46,637	41,423	5,214	12,744	6.17	1.11	5.06	88.82%	70.97%	82.01%
2011	58,949	52,640	6,309	18,774	11.69	1.76	9.93	89.30%	74.85%	84.98%
2012	75,035	67,478	7,557	25,995	16.48	1.94	14.53	89.93%	77.48%	88.20%
2013	98,295	90,671	7,624	31,515	21.84	2.60	19.24	92.24%	80.52%	88.10%
2014	122,533	115,875	6,658	35,682	23.31	2.55	20.76	94.57%	84.27%	89.08%
2015	153,885	148,058	5,827	43,221	30.69	2.71	27.98	96.21%	88.12%	91.17%
Total	849,761	697,397	152,364	218,970	150.14	36.76	113.38	82.07%	58.97%	75.52%

Table 4B

Inquiries and Loans for PSBs and NPBs: Final 1% Consumer Loan Sample With Prior Relationships

The sample includes all public sector and new private banks excluding credit card companies, all account types excluding credit cards, all inquiries except risk-management inquiries, and all years between 2006 and 2015. Filtered Applications are the sum of the number of inquiries and loans without inquiry. Bureau Usage refers to the ratio of the number of inquiries and filtered applications.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Panel A: PSB + NPB										
Year	# Filtered Application	# Inq	# Loans w/o Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	75,726	929	74,797	134	18.21	18.17	0.04	1.23%	0.18%	0.21%
2007	81,733	10,587	71,146	3,738	17.03	15.38	1.65	12.95%	4.99%	9.71%
2008	71,575	29,234	42,341	8,160	13.57	10.23	3.34	40.84%	16.16%	24.60%
2009	54,234	23,100	31,134	5,280	10.38	8.41	1.96	42.59%	14.50%	18.93%
2010	52,271	16,521	35,750	4,608	12.77	10.15	2.62	31.61%	11.42%	20.55%
2011	59,025	21,953	37,072	7,216	16.27	10.94	5.33	37.19%	16.29%	32.75%
2012	68,091	28,999	39,092	10,379	18.88	10.77	8.11	42.59%	20.98%	42.95%
2013	77,444	41,867	35,577	13,441	21.73	10.37	11.37	54.06%	27.42%	52.29%
2014	96,056	58,200	37,856	16,730	24.59	11.21	13.37	60.59%	30.65%	54.39%
2015	113,508	78,939	34,569	23,116	28.88	10.01	18.88	69.54%	40.07%	65.36%
Total	749,663	310,329	439,334	92,802	182.31	115.64	66.67	41.40%	17.44%	36.57%
Panel B: Public Sector Banks (PSB)										
Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	32,636	35	32,601	8	8.05	8.04	0.00	0.11%	0.02%	0.03%
2007	26,975	286	26,689	94	6.86	6.77	0.09	1.06%	0.35%	1.32%
2008	22,623	527	22,096	152	6.37	6.24	0.13	2.33%	0.68%	2.00%
2009	26,629	1,032	25,597	365	7.61	7.33	0.28	3.88%	1.41%	3.69%
2010	33,009	2,368	30,641	856	9.91	9.09	0.81	7.17%	2.72%	8.22%
2011	35,296	4,412	30,884	1,376	10.44	9.29	1.16	12.50%	4.27%	11.08%
2012	38,631	6,929	31,702	2,215	10.57	8.94	1.63	17.94%	6.53%	15.42%
2013	39,617	11,446	28,171	3,563	10.79	7.89	2.90	28.89%	11.23%	26.91%
2014	49,605	18,127	31,478	5,721	13.33	8.98	4.36	36.54%	15.38%	32.67%
2015	56,084	27,081	29,003	8,868	13.67	7.49	6.18	48.29%	23.42%	45.20%
Total	361,105	72,243	288,862	23,218	97.61	80.07	17.54	20.01%	7.44%	17.97%
Panel C: New Private Banks (NPB)										
Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	43,090	894	42,196	126	10.16	10.12	0.04	2.07%	0.30%	0.36%
2007	54,758	10,301	44,457	3,644	10.17	8.61	1.56	18.81%	7.58%	15.36%
2008	48,952	28,707	20,245	8,008	7.20	3.99	3.21	58.64%	28.34%	44.58%
2009	27,605	22,068	5,537	4,915	2.76	1.08	1.68	79.94%	47.02%	60.89%
2010	19,262	14,153	5,109	3,752	2.86	1.05	1.81	73.48%	42.34%	63.21%
2011	23,729	17,541	6,188	5,840	5.82	1.65	4.17	73.92%	48.55%	71.59%
2012	29,460	22,070	7,390	8,164	8.31	1.83	6.48	74.92%	52.49%	77.96%
2013	37,827	30,421	7,406	9,878	10.94	2.48	8.46	80.42%	57.15%	77.34%
2014	46,451	40,073	6,378	11,009	11.25	2.24	9.02	86.27%	63.32%	80.12%
2015	57,424	51,858	5,566	14,248	15.21	2.51	12.70	90.31%	71.91%	83.48%
Total	388,558	238,086	150,472	69,584	84.70	35.57	49.13	61.27%	31.62%	58.00%

Table 4C
Inquiries and Loans for PSBs and NPBs: Final 1% Consumer Loan Sample Without Prior Relationships

The sample includes all public sector and new private banks excluding credit card companies, all account types excluding credit cards, all inquiries except risk-management inquiries, and all years between 2006 and 2015. Filtered Applications are the sum of the number of inquiries and loans without inquiry. Bureau Usage refers to the ratio of the number of inquiries and filtered applications.

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]
Panel A: PSB + NPB										
Year	# Filtered Application	# Inq	# Loans w/o Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	4,156	4,141	15	742	0.50	0.01	0.49	99.64%	98.02%	98.41%
2007	25,341	25,103	238	6,948	3.29	0.10	3.19	99.06%	96.69%	96.87%
2008	58,957	58,471	486	18,352	5.51	0.19	5.32	99.18%	97.42%	96.56%
2009	48,032	47,813	219	12,938	4.60	0.11	4.48	99.54%	98.34%	97.56%
2010	42,973	42,668	305	13,775	8.73	0.18	8.55	99.29%	97.83%	97.91%
2011	56,786	56,351	435	18,564	12.05	0.35	11.69	99.23%	97.71%	97.07%
2012	73,313	72,695	618	24,441	14.73	0.42	14.30	99.16%	97.53%	97.12%
2013	100,485	99,706	779	30,852	19.88	0.50	19.38	99.22%	97.54%	97.47%
2014	130,795	129,743	1,052	36,894	25.08	1.15	23.93	99.20%	97.23%	95.41%
2015	165,712	164,430	1,282	43,797	29.45	0.91	28.54	99.23%	97.16%	96.91%
Total	706,550	701,121	5,429	207,303	123.81	3.94	119.88	99.23%	97.45%	96.82%
Panel B: Public Sector Banks (PSBs)										
Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	702	701	1	163	0.13	0.00	0.13	99.86%	99.39%	98.49%
2007	3,108	3,094	14	871	0.63	0.01	0.61	99.55%	98.42%	98.08%
2008	4,472	4,404	68	1,298	1.31	0.04	1.28	98.48%	95.02%	97.28%
2009	8,182	8,047	135	2,302	2.15	0.08	2.07	98.35%	94.46%	96.47%
2010	15,598	15,398	200	4,783	5.43	0.13	5.30	98.72%	95.99%	97.67%
2011	21,566	21,252	314	5,630	6.18	0.25	5.93	98.54%	94.72%	95.93%
2012	27,738	27,287	451	6,610	6.56	0.31	6.25	98.37%	93.61%	95.26%
2013	40,017	39,456	561	9,215	8.98	0.38	8.59	98.60%	94.26%	95.73%
2014	54,713	53,941	772	12,221	13.03	0.84	12.18	98.59%	94.06%	93.52%
2015	69,251	68,230	1,021	14,824	13.98	0.71	13.26	98.53%	93.56%	94.91%
Total	245,347	241,810	3,537	57,917	58.37	2.75	55.62	98.56%	94.24%	95.28%
Panel C: New Private Banks (NPBs)										
Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	3,454	3,440	14	579	0.36	0.01	0.36	99.59%	97.64%	98.38%
2007	22,233	22,009	224	6,077	2.66	0.09	2.57	98.99%	96.45%	96.58%
2008	54,485	54,067	418	17,054	4.20	0.15	4.04	99.23%	97.61%	96.33%
2009	39,850	39,766	84	10,636	2.45	0.04	2.41	99.79%	99.22%	98.52%
2010	27,375	27,270	105	8,992	3.31	0.06	3.25	99.62%	98.85%	98.30%
2011	35,220	35,099	121	12,934	5.87	0.10	5.76	99.66%	99.07%	98.27%
2012	45,575	45,408	167	17,831	8.17	0.11	8.05	99.63%	99.07%	98.62%
2013	60,468	60,250	218	21,637	10.90	0.12	10.78	99.64%	99.00%	98.90%
2014	76,082	75,802	280	24,673	12.05	0.31	11.75	99.63%	98.88%	97.44%
2015	96,461	96,200	261	28,973	15.48	0.20	15.28	99.73%	99.11%	98.72%
Total	461,203	459,311	1,892	149,386	65.44	1.18	64.26	99.59%	98.75%	98.19%

Table 5
Bureau Usage by Application Credit Score Bucket

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]	[10]	[11]	[12]	[13]	[14]	[15]	[16]
Panel A: Universe																
	Public Sector Banks								*New Private Banks*							
core Bucket	FA	# Inq	#Inq Accepted	L|I	L|NI	Bureau Usage	AR	%Inquired	FA	# Inq	#Inq Accepted	L|I	L|NI	Bureau Usage	AR	%Inquire
= 650	10,350	8,628	1,647	890	1,722	83.36%	19.09%	34.07%	18,597	18,328	2,919	2,555	269	98.55%	15.93%	90.47%
50-750	37,961	27,370	8,829	5,254	10,591	72.10%	32.26%	33.16%	48,589	47,512	16,336	15,735	1,077	97.78%	34.38%	93.59%
=750	23,704	19,499	6,316	3,708	4,205	82.26%	32.39%	46.86%	24,104	23,672	8,084	7,769	432	98.21%	34.15%	94.73%
ll Scores	72,015	55,497	16,792	9,852	16,518	77.06%	30.26%	37.36%	91,290	89,512	27,339	26,059	1,778	98.05%	30.54%	93.61%
lo score	111,937	67,473	17,767	20,868	44,464	60.28%	26.33%	31.94%	1,29,538	1,17,034	43,000	41,138	12,504	90.35%	36.74%	76.69%
otal	183,952	122,970	34,559	30,720	60,982	66.85%	28.10%	33.50%	220,828	206,546	70,339	67,197	14,282	93.53%	34.05%	82.47%
Panel B: Universe with prior relation																
	Public Sector Banks								*New Private Banks*							
core Bucket	FA	# Inq	#Inq Accepted	L|I	L|NI	Bureau Usage	AR	%Inquired	FA	# Inq	#Inq Accepted	L|I	L|NI	Bureau Usage	AR	%Inquire
= 650	4,784	3,129	838	482	1,655	65.41%	26.78%	22.55%	9,849	9,614	1,975	1,711	235	97.61%	20.54%	87.92%
50-750	22,704	12,382	4,807	2,915	10,322	54.54%	38.82%	22.02%	26,878	25,939	10,101	9,601	939	96.51%	38.94%	91.09%
=750	10,706	6,718	2,602	1,578	3,988	62.75%	38.73%	28.35%	13,262	12,875	4,805	4,741	387	97.08%	37.32%	92.45%
ll Scores	38,194	22,229	8,247	4,975	15,965	58.20%	37.10%	23.76%	49,989	48,428	16,881	16,053	1,561	96.88%	34.86%	91.14%
lo Score	51,028	7,344	1,988	4,309	43,684	14.39%	27.07%	8.98%	34,289	22,066	5,605	4,834	12,223	64.35%	25.40%	28.34%
otal	89,222	29,573	10,235	9,284	59,649	33.15%	34.61%	13.47%	84,278	70,494	22,486	20,887	13,784	83.64%	31.90%	60.24%
Panel C: Universe with no prior relation																
	Public Sector Banks								*New Private Banks*							
core Bucket	FA	# Inq	#Inq Accepted	L|I	L|NI	Bureau Usage	AR	%Inquired	FA	# Inq	#Inq Accepted	L|I	L|NI	Bureau Usage	AR	%Inquire
= 650	5,566	5,499	809	408	67	98.80%	14.71%	85.89%	8,748	8,714	944	844	34	99.61%	10.83%	96.13%
50-750	15,257	14,988	4,022	2,339	269	98.24%	26.83%	89.69%	21,711	21,573	6,235	6,134	138	99.36%	28.90%	97.80%
=750	12,998	12,781	3,714	2,130	217	98.33%	29.06%	90.75%	10,842	10,797	3,279	3,028	45	99.58%	30.37%	98.54%
ll Scores	33,821	33,268	8,545	4,877	553	98.36%	25.69%	89.82%	41,301	41,084	10,458	10,006	217	99.47%	25.46%	97.88%
lo Score	60,909	60,129	15,779	16,559	780	98.72%	26.24%	95.50%	95,249	94,968	37,395	36,304	281	99.70%	39.38%	99.23%
otal	94,730	93,397	24,324	21,436	1,333	98.59%	26.04%	94.15%	136,550	136,052	47,853	46,310	498	99.64%	35.17%	98.94%

Table 6
LQ 360: By Credit Score Delinquency Rates LQ 360 By Bank Type, Prior Relationships and Credit Score Bucket

	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]	[9]
Panel A: All loans									
	PSB+NPB			*Public Sector Banks*			*New Private Banks*		
	All	No Inq	Inq	All	No Inq	Inq	All	No Inq	Inq
<=650	3.14%	5.43%	1.93%	4.15%	5.45%	2.00%	2.14%	5.26%	1.90%
650-750	0.77%	1.09%	0.62%	0.78%	0.97%	0.48%	0.76%	2.62%	0.68%
>=750	0.30%	0.58%	0.19%	0.34%	0.46%	0.23%	0.25%	2.19%	0.17%
Scored	0.85%	1.41%	0.60%	0.96%	1.29%	0.51%	0.74%	2.90%	0.64%
Unscored	1.56%	2.07%	1.20%	1.52%	1.95%	0.78%	1.61%	2.89%	1.43%
All Loans	1.31%	1.88%	0.97%	1.34%	1.75%	0.68%	1.27%	2.89%	1.11%
Panel B: Loans with prior relation									
	PSB+NPB			*Public Sector Banks*			*New Private Banks*		
	All	No Inq	Inq	All	No Inq	Inq	All	No Inq	Inq
<=650	3.08%	5.94%	1.40%	4.83%	5.98%	2.28%	1.30%	5.26%	1.11%
650-750	0.68%	0.94%	0.51%	0.82%	0.95%	0.51%	0.51%	0.62%	0.51%
>=750	0.29%	0.53%	0.16%	0.38%	0.48%	0.22%	0.19%	1.47%	0.14%
Scored	0.80%	1.29%	0.49%	1.06%	1.29%	0.58%	0.49%	1.36%	0.45%
Unscored	0.99%	1.22%	0.85%	1.12%	1.19%	1.03%	0.81%	1.99%	0.64%
All Loans	0.80%	1.26%	0.58%	1.03%	1.24%	0.77%	0.61%	1.62%	0.49%
Panel C: Loans with no prior relation									
	PSB+NPB			*Public Sector Banks*			*New Private Banks*		
	All	No Inq	Inq	All	No Inq	Inq	All	No Inq	Inq
<=650	3.25%	4.14%	2.88%	2.70%	3.85%	1.63%	3.76%	5.26%	3.56%
650-750	0.96%	1.92%	0.79%	0.65%	1.08%	0.43%	1.16%	5.61%	0.94%
>=750	0.31%	0.83%	0.23%	0.27%	0.39%	0.23%	0.36%	3.26%	0.23%
Scored	0.96%	1.99%	0.76%	0.71%	1.33%	0.44%	1.14%	4.97%	0.93%
Unscored	1.94%	2.42%	1.26%	1.85%	2.31%	0.71%	1.69%	2.99%	1.52%
All Loans	1.71%	2.38%	1.14%	1.75%	2.22%	0.64%	1.49%	3.19%	1.39%

Table 7
Probability of inquiry

Sample includes all loans (except PSL) of PSB and NPB member banks between fiscal 2006 and 2015 for column 1 and 2, and 2013 and 2014 for columns 3-8. The dependent variable if 1 for inquiry and 0 for loans without inquiry. The sample excludes all risk management inquiries. PSB takes a value of 1 if the observation is associated with a state owned bank. Past relationship takes a value of 1 if the borrower has taken at least one loan between 2006 and the date of the observation. Only borrowers between 18-20 years are included in the sample. Standard errors in parentheses clustered at borrower level. *** p<0.01, ** p<0.05, * p<0.1

	(1) 2006-15	(2) 2006-15	(3) 2013-14	(4) 2013-14	(5) 2013-14	(6) 2013-14	(7) 2013-14	(8) 2013-14
PSB (=1)	-0.2319***	-0.1449***	-0.2536***	-0.1593***	-0.1411***	-0.1914***	-0.1418***	-0.1869***
	(0.001)	(0.001)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
Past Relationship (=1)	-0.0829***	0.0449***	-0.0807***	0.0663***	-0.0332***	0.0039***	-0.0518***	0.0207***
	(0.002)	(0.001)	(0.002)	(0.001)	(0.002)	(0.001)	(0.004)	(0.005)
Past relationship*PSB		-0.2659***		-0.2965***	-0.2701***	-0.3310***	-0.2648***	-0.3632***
		(0.003)		(0.004)	(0.003)	(0.003)	(0.004)	(0.006)
Low Score (=1)					0.2265***	0.1419***	0.2041***	0.1438***
					(0.002)	(0.002)	(0.002)	(0.002)
Medium Score (=1)					0.1982***	0.1319***	0.1972***	0.1380***
					(0.002)	(0.002)	(0.002)	(0.002)
High Score (=1)					0.2346***	0.1390***	0.2279***	0.1443***
					(0.002)	(0.002)	(0.002)	(0.002)
PSB*Low Score						0.1811***		0.1347***
						(0.005)		(0.004)
PSB*Medium Score						0.1228***		0.1265***
						(0.003)		(0.003)
PSB*High Score						0.1735***		0.1511***
						(0.004)		(0.003)
Past Relationship*Low Score							0.0576***	-0.0169***
							(0.005)	(0.005)
Past Relationship*Medium Score							0.0138***	-0.0244***
							(0.004)	(0.005)
Past Relationship*High Score							0.0253***	-0.0233***
							(0.005)	(0.005)
Past Relationship*PSB*Low Score								0.1298***
								(0.012)
Past Relationship*PSB*Medium Score								0.0180**
								(0.008)
Past Relationship*PSB*High Score								0.0719***
								(0.009)
Male(=1)	0.0314***	0.0285***	0.0260***	0.0222***	-0.0007	-0.0023	-0.0003	-0.0024
	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)	(0.002)
LN(Age)	0.0112***	0.0215***	-0.0026	0.0113***	-0.0142***	-0.0105***	-0.0142***	-0.0100***
	(0.003)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
Qtr-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Acct Type FE	NA	NA	NA	NA	NA	NA	NA	NA
Observations	613,098	613,098	348,158	348,158	348,158	348,158	348,158	348,158
R-squared	0.116	0.143	0.111	0.139	0.195	0.202	0.196	0.203

Table 8: Delinquency and Inquiry: Two-Stage Least Squares Estimates

The table reports the 2SLS IV estimation results. The first stage estimates the probability of inquiry between 2013 and 2014 using the filtered application dataset. The predicted value of the probability of inquiry goes as an independent variable in stage two. The dependent variable in the second stage is LQ 360. Standard errors are reported in parentheses and clustered at FID level.

	(1) First Stage	(2) Second Stage	(3) First Stage	(4) Second Stage
TWE 180		-0.0115***		-0.0104***
		(0.003)		(0.003)
PSB (=1)	-0.2229***		-0.1474***	
	(0.002)		(0.002)	
Past Relationship (=1)	-0.1412***	-0.0060***	-0.0228***	-0.0061***
	(0.002)	(0.001)	(0.001)	(0.001)
PSB*Past Relationship			-0.2427***	
			(0.003)	
Low Score	0.1773***	0.0224***	0.1635***	0.0222***
	(0.002)	(0.003)	(0.002)	(0.003)
Medium Score	0.1398***	-0.0027***	0.1347***	-0.0028***
	(0.002)	(0.001)	(0.002)	(0.001)
High Score	0.1778***	-0.0057***	0.1671***	-0.0059***
	(0.002)	(0.001)	(0.002)	(0.001)
Male (=1)	0.0101***	0.0019**	0.0087***	0.0019**
	(0.002)	(0.001)	(0.002)	(0.001)
LN(Age)	-0.0259***	-0.0074***	-0.0152***	-0.0074***
	(0.003)	(0.001)	(0.003)	(0.001)
LN(1+Amt)		-0.0037***		-0.0036***
		(0.000)		(0.000)
Constant	1.0367***	0.0986***	0.9610***	0.0966***
	(0.010)	(0.008)	(0.010)	(0.007)
Acct Type FE	N	Y	N	Y
Qtr-Year FE	Y	Y	Y	Y
Observations	331,961	107,284	331,961	107,284
R-squared	0.149	0.005	0.170	0.005

Robust standard errors in parentheses clustered at FID level

*** p<0.01, ** p<0.05, * p<0.1

Table 9
Counterfactuals For PSB Loans Made Without Inquiry

The data comprise loans made by PSBs without inquiry in 2013 and 2014. For each loan, we estimate the probability of inquiry and probability of acceptance given inquiry using econometric models for NPBs reported in the Online Appendix Table A1 and using the data on point-in-time credit scores that were available at the bureau at the loan date but not used by the PSBs. We compute the loan supply as the product of the loan amount and the two probabilities. For each loan, we use two delinquency measures, one is the actual delinquency for the loan and the other is the delinquency projected if the lender were an NPB instead of an OPB, based on loan delinquency model estimates in Table 8B. Sample includes all loans (except PSL) between 2013 and 2014.

Past Relationship (Yes/No)	Prob(I)*Prob (T|I)*Loan Amt	(1)*LQ 360	(1)*Prob (LQ 360)	LQ 360	Predicted Loan Amt*LQ 360	Predicted Loan Amt*Prob (LQ 360)
			Panel A: PSB (L|NI) through NPB (L|I) machinery			
	(1)	(2)	(3)		=(2)/(1)	=(3)/1)
No	281,603,448	1,970,682	1,603,423	1.33%	0.70%	0.57%
Yes	719,841,267	6,997,097	4,135,895	1.29%	0.97%	0.57%
All	1,001,444,714	8,967,779	5,739,319	1.29%	0.90%	0.57%
			Panel B: PSB (L|NI) through PSB (L|I) machinery			
	(1)	(2)	(3)		=(2)/(1)	=(3)/1)
No	153,104,749	1,160,141	1,505,444	1.33%	0.76%	0.98%
Yes	382,826,537	4,104,599	3,298,018	1.29%	1.07%	0.86%
All	535,931,286	5,264,740	4,803,462	1.29%	0.98%	0.90%

Table 10A

Inquiries and Loans for OPBs and NPBs: 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, all inquiries except risk-management inquiries, and all years between 2006 and 2015. Filtered Applications are the sum of the number of inquiries and loans without inquiry. Bureau Usage refers to the ratio of the number of inquiries and filtered applications.

Panel A: NPBs + OPBs

Year	# Filtered Application	# Inq	# Loans w/o Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	52,193	5,092	47,101	867	11.47	11.07	0.41	9.76%	1.81%	3.53%
2007	88,220	39,820	48,400	10,781	15.57	11.27	4.30	45.14%	18.22%	27.62%
2008	110,689	88,022	22,667	25,375	14.88	7.41	7.47	79.52%	52.82%	50.20%
2009	70,738	63,144	7,594	15,612	7.02	2.84	4.18	89.26%	67.28%	59.50%
2010	50,282	42,683	7,599	12,917	7.56	2.28	5.28	84.89%	62.96%	69.88%
2011	63,504	54,595	8,909	19,188	13.40	2.93	10.47	85.97%	68.29%	78.15%
2012	80,982	70,148	10,834	26,702	19.03	3.24	15.79	86.62%	71.14%	82.97%
2013	104,643	93,848	10,795	32,264	25.68	4.33	21.35	89.68%	74.93%	83.15%
2014	129,789	120,205	9,584	36,687	26.50	3.90	22.60	92.62%	79.29%	85.29%
2015	163,761	154,897	8,864	44,432	34.74	4.24	30.50	94.59%	83.37%	87.78%
Total	914,801	732,454	182,347	224,825	175.85	53.50	122.34	80.07%	55.22%	69.57%

Panel B: Old Private Bank (OPBs)

Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	5,649	758	4,891	162	0.95	0.94	0.01	13.42%	3.21%	1.18%
2007	11,229	7,510	3,719	1,060	2.73	2.57	0.16	66.88%	22.18%	6.01%
2008	7,252	5,248	2,004	313	3.48	3.27	0.22	72.37%	13.51%	6.24%
2009	3,283	1,310	1,973	61	1.81	1.72	0.08	39.90%	3.00%	4.51%
2010	3,645	1,260	2,385	173	1.39	1.17	0.22	34.57%	6.76%	16.06%
2011	4,555	1,955	2,600	414	1.71	1.17	0.54	42.92%	13.74%	31.41%
2012	5,947	2,670	3,277	707	2.55	1.30	1.25	44.90%	17.75%	49.19%
2013	6,348	3,177	3,171	749	3.84	1.73	2.11	50.05%	19.11%	54.98%
2014	7,256	4,330	2,926	1,005	3.19	1.35	1.84	59.67%	25.57%	57.63%
2015	9,876	6,839	3,037	1,211	4.05	1.53	2.52	69.25%	28.51%	62.18%
Total	65,040	35,057	29,983	5,855	25.71	16.75	8.96	53.90%	16.34%	34.85%

Panel C: New Private Banks (NPBs)

Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	46,544	4,334	42,210	705	10.52	10.13	0.39	9.31%	1.64%	3.74%
2007	76,991	32,310	44,681	9,721	12.84	8.70	4.14	41.97%	17.87%	32.22%
2008	103,437	82,774	20,663	25,062	11.40	4.14	7.25	80.02%	54.81%	63.64%
2009	67,455	61,834	5,621	15,551	5.21	1.12	4.09	91.67%	73.45%	78.56%
2010	46,637	41,423	5,214	12,744	6.17	1.11	5.06	88.82%	70.97%	82.01%
2011	58,949	52,640	6,309	18,774	11.69	1.76	9.93	89.30%	74.85%	84.98%
2012	75,035	67,478	7,557	25,995	16.48	1.94	14.53	89.93%	77.48%	88.20%
2013	98,295	90,671	7,624	31,515	21.84	2.60	19.24	92.24%	80.52%	88.10%
2014	122,533	115,875	6,658	35,682	23.31	2.55	20.76	94.57%	84.27%	89.08%
2015	153,885	148,058	5,827	43,221	30.69	2.71	27.98	96.21%	88.12%	91.17%
Total	849,761	697,397	152,364	218,970	150.14	36.76	113.38	82.07%	58.97%	75.52%

Table 10B: OPBs vs NPBs

Inquiries and Loans for PSBs and NPBs: Final 1% Consumer Loan Sample And Past Relationship Borrowers

The sample includes all public sector and new private banks excluding credit card companies, all account types excluding credit cards, all inquiries except risk-management inquiries, and all years between 2006 and 2015. Filtered Applications are the sum of the number of inquiries and loans without inquiry. Bureau Usage refers to the ratio of the number of inquiries and filtered applications.

Panel A: OPBs + NPBs

Year	# Filtered Application	# Inq	# Loans w/o Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	48,001	914	47,087	136	11.10	11.06	0.04	1.90%	0.29%	0.33%
2007	58,686	10,521	48,165	3,701	12.75	11.18	1.57	17.93%	7.14%	12.33%
2008	51,215	28,988	22,227	8,047	10.49	7.25	3.23	56.60%	26.58%	30.83%
2009	29,662	22,154	7,508	4,920	4.49	2.80	1.69	74.69%	39.59%	37.57%
2010	21,826	14,339	7,487	3,775	4.08	2.22	1.86	65.70%	33.52%	45.64%
2011	26,658	17,877	8,781	5,954	7.15	2.82	4.33	67.06%	40.41%	60.52%
2012	33,272	22,627	10,645	8,403	10.40	3.12	7.28	68.01%	44.11%	70.03%
2013	41,736	31,213	10,523	10,179	14.04	4.17	9.87	74.79%	49.17%	70.31%
2014	50,383	41,143	9,240	11,380	13.38	3.51	9.87	81.66%	55.19%	73.78%
2015	61,844	53,323	8,521	14,767	17.91	4.00	13.91	86.22%	63.41%	77.65%
Total	423,283	243,099	180,184	71,262	105.79	52.13	53.65	57.43%	28.34%	50.72%

Panel B: Old Private Banks (OPBs)

Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	4,911	20	4,891	10	0.94	0.94	0.00	0.41%	0.20%	0.04%
2007	3,928	220	3,708	57	2.58	2.57	0.01	5.60%	1.51%	0.36%
2008	2,263	281	1,982	39	3.29	3.26	0.02	12.42%	1.93%	0.73%
2009	2,057	86	1,971	5	1.72	1.72	0.00	4.18%	0.25%	0.11%
2010	2,564	186	2,378	23	1.22	1.16	0.05	7.25%	0.96%	4.24%
2011	2,929	336	2,593	114	1.33	1.17	0.16	11.47%	4.21%	11.97%
2012	3,812	557	3,255	239	2.08	1.28	0.80	14.61%	6.84%	38.45%
2013	3,909	792	3,117	301	3.10	1.69	1.41	20.26%	8.81%	45.52%
2014	3,932	1,070	2,862	371	2.13	1.27	0.86	27.21%	11.48%	40.30%
2015	4,420	1,465	2,955	519	2.70	1.49	1.21	33.14%	14.94%	44.80%
Total	34,725	5,013	29,712	1,678	21.09	16.56	4.53	14.44%	5.35%	21.47%

Panel C: New Private Banks (NPBs)

Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	43,090	894	42,196	126	10.16	10.12	0.04	2.07%	0.30%	0.36%
2007	54,758	10,301	44,457	3,644	10.17	8.61	1.56	18.81%	7.58%	15.36%
2008	48,952	28,707	20,245	8,008	7.20	3.99	3.21	58.64%	28.34%	44.58%
2009	27,605	22,068	5,537	4,915	2.76	1.08	1.68	79.94%	47.02%	60.89%
2010	19,262	14,153	5,109	3,752	2.86	1.05	1.81	73.48%	42.34%	63.21%
2011	23,729	17,541	6,188	5,840	5.82	1.65	4.17	73.92%	48.55%	71.59%
2012	29,460	22,070	7,390	8,164	8.31	1.83	6.48	74.92%	52.49%	77.96%
2013	37,827	30,421	7,406	9,878	10.94	2.48	8.46	80.42%	57.15%	77.34%
2014	46,451	40,073	6,378	11,009	11.25	2.24	9.02	86.27%	63.32%	80.12%
2015	57,424	51,858	5,566	14,248	15.21	2.51	12.70	90.31%	71.91%	83.48%
Total	388,558	238,086	150,472	69,584	84.70	35.57	49.13	61.27%	31.62%	58.00%

Table 10C: OPBs vs NPBs

Inquiries and Loans for PSBs and NPBs: Final 1% Consumer Loan Sample And Borrowers without Past Relationships

The sample includes all public sector and new private banks excluding credit card companies, all account types excluding credit cards, all inquiries except risk-management inquiries, and all years between 2006 and 2015. Filtered Applications are the sum of the number of inquiries and loans without inquiry. Bureau Usage refers to the ratio of the number of inquiries and filtered applications.

Panel A: OPBs and NPBs

Year	# Filtered Application	# Inq	# Loans w/o Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	4,192	4,178	14	731	0.37	0.01	0.37	99.67%	98.12%	98.42%
2007	29,534	29,299	235	7,080	2.82	0.09	2.73	99.20%	96.79%	96.76%
2008	59,474	59,034	440	17,328	4.39	0.16	4.24	99.26%	97.52%	96.45%
2009	41,076	40,990	86	10,692	2.53	0.04	2.49	99.79%	99.20%	98.37%
2010	28,456	28,344	112	9,142	3.48	0.06	3.42	99.61%	98.79%	98.30%
2011	36,846	36,718	128	13,234	6.25	0.10	6.14	99.65%	99.04%	98.34%
2012	47,710	47,521	189	18,299	8.63	0.12	8.51	99.60%	98.98%	98.55%
2013	62,907	62,635	272	22,085	11.64	0.16	11.48	99.57%	98.78%	98.64%
2014	79,406	79,062	344	25,307	13.12	0.39	12.73	99.57%	98.66%	97.03%
2015	101,917	101,574	343	29,665	16.83	0.24	16.59	99.66%	98.86%	98.56%
Total	491,518	489,355	2,163	153,563	70.06	1.37	68.69	99.56%	98.61%	98.04%

Panel B: Old Private Banks (OPBs)

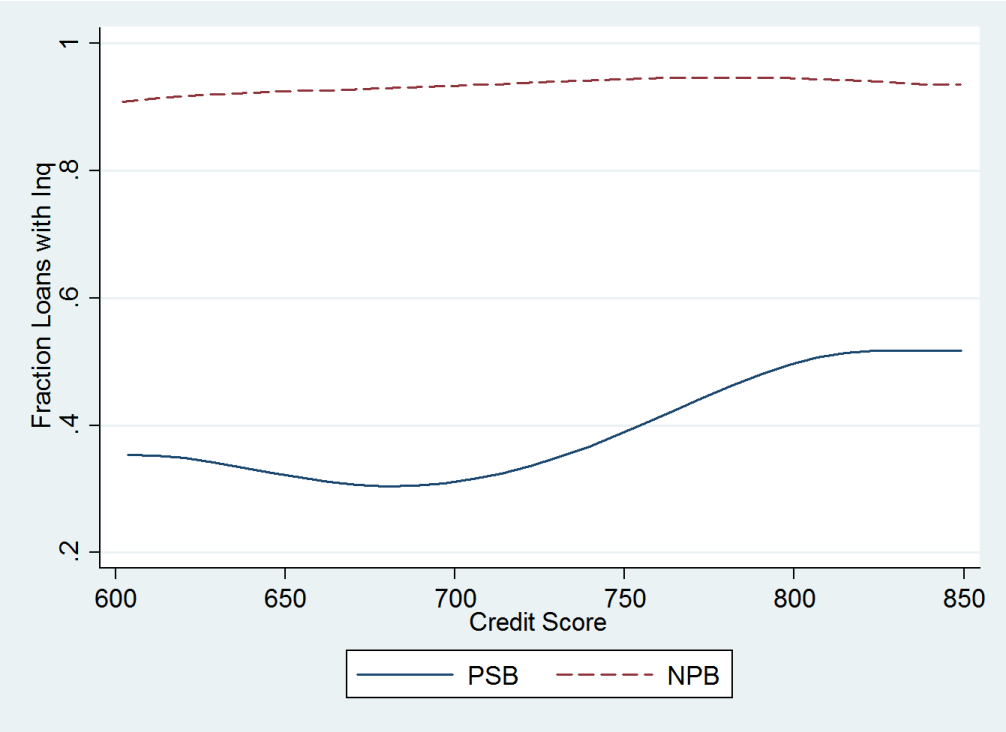
Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	738	738	-	152	0.01	-	0.01	100.00%	100.00%	100.00%
2007	7,301	7,290	11	1,003	0.16	0.00	0.15	99.85%	98.92%	99.85%
2008	4,989	4,967	22	274	0.20	0.00	0.19	99.56%	92.57%	99.07%
2009	1,226	1,224	2	56	0.08	0.00	0.08	99.84%	96.55%	94.08%
2010	1,081	1,074	7	150	0.17	0.00	0.17	99.35%	95.54%	98.26%
2011	1,626	1,619	7	300	0.38	0.00	0.38	99.57%	97.72%	99.35%
2012	2,135	2,113	22	468	0.46	0.01	0.45	98.97%	95.51%	97.33%
2013	2,439	2,385	54	448	0.74	0.04	0.70	97.79%	89.24%	94.71%
2014	3,324	3,260	64	634	1.06	0.08	0.98	98.07%	90.83%	92.37%
2015	5,456	5,374	82	692	1.36	0.04	1.31	98.50%	89.41%	96.78%
Total	30,315	30,044	271	4,177	4.62	0.19	4.43	99.11%	93.91%	95.92%

Panel C: New Private Banks (NPBs)

Year	# Filtered Application	# Inq	# Loans w/0 Inq	# Loans with Inq	Amt (INR bn)	Amt w/o Inq (INR bn)	Amt with Inq (INR bn)	Bureau Usage	% Loans with Inq	%Amt with Inq
2006	3,454	3,440	14	579	0.36	0.01	0.36	99.59%	97.64%	98.38%
2007	22,233	22,009	224	6,077	2.66	0.09	2.57	98.99%	96.45%	96.58%
2008	54,485	54,067	418	17,054	4.20	0.15	4.04	99.23%	97.61%	96.33%
2009	39,850	39,766	84	10,636	2.45	0.04	2.41	99.79%	99.22%	98.52%
2010	27,375	27,270	105	8,992	3.31	0.06	3.25	99.62%	98.85%	98.30%
2011	35,220	35,099	121	12,934	5.87	0.10	5.76	99.66%	99.07%	98.27%
2012	45,575	45,408	167	17,831	8.17	0.11	8.05	99.63%	99.07%	98.62%
2013	60,468	60,250	218	21,637	10.90	0.12	10.78	99.64%	99.00%	98.90%
2014	76,082	75,802	280	24,673	12.05	0.31	11.75	99.63%	98.88%	97.44%
2015	96,461	96,200	261	28,973	15.48	0.20	15.28	99.73%	99.11%	98.72%
Total	461,203	459,311	1,892	149,386	65.44	1.18	64.26	99.59%	98.75%	98.19%

Figure 1

Panel A: Fraction of Loans with Inquiry



Panel B: Fraction of Loan Amount with Inquiry

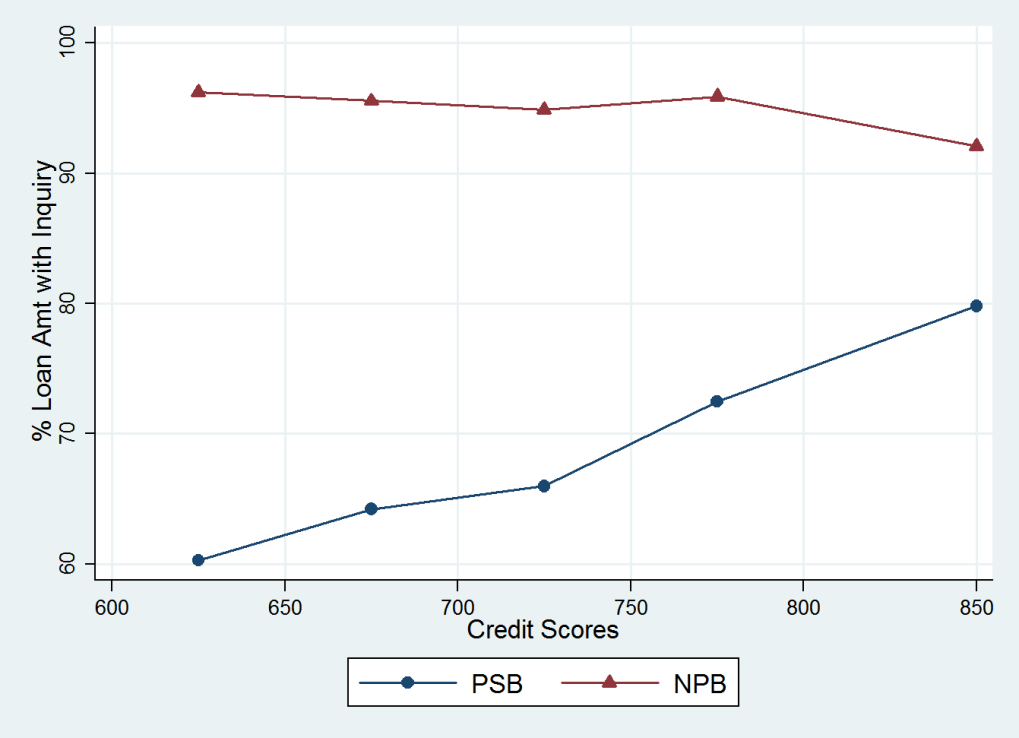
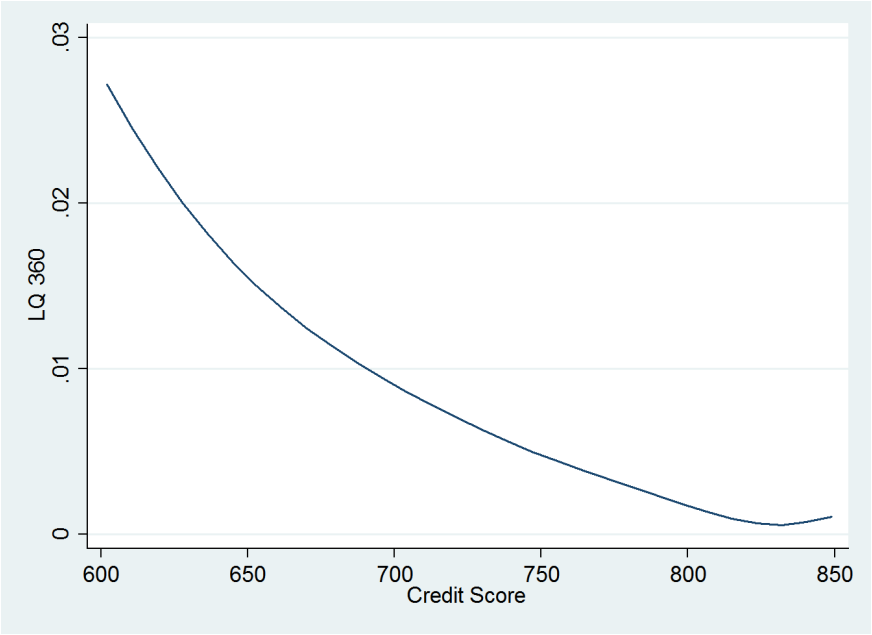


Figure 2

Panel A: LQ 360 versus Credit Score (PSB+NPB)



Panel B: LQ 360 versus Credit Score (PSB and NPB)

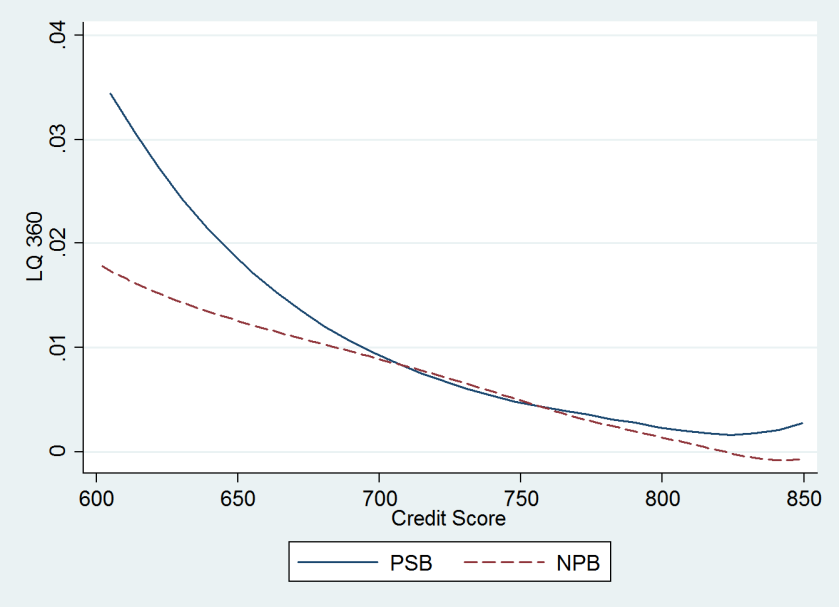
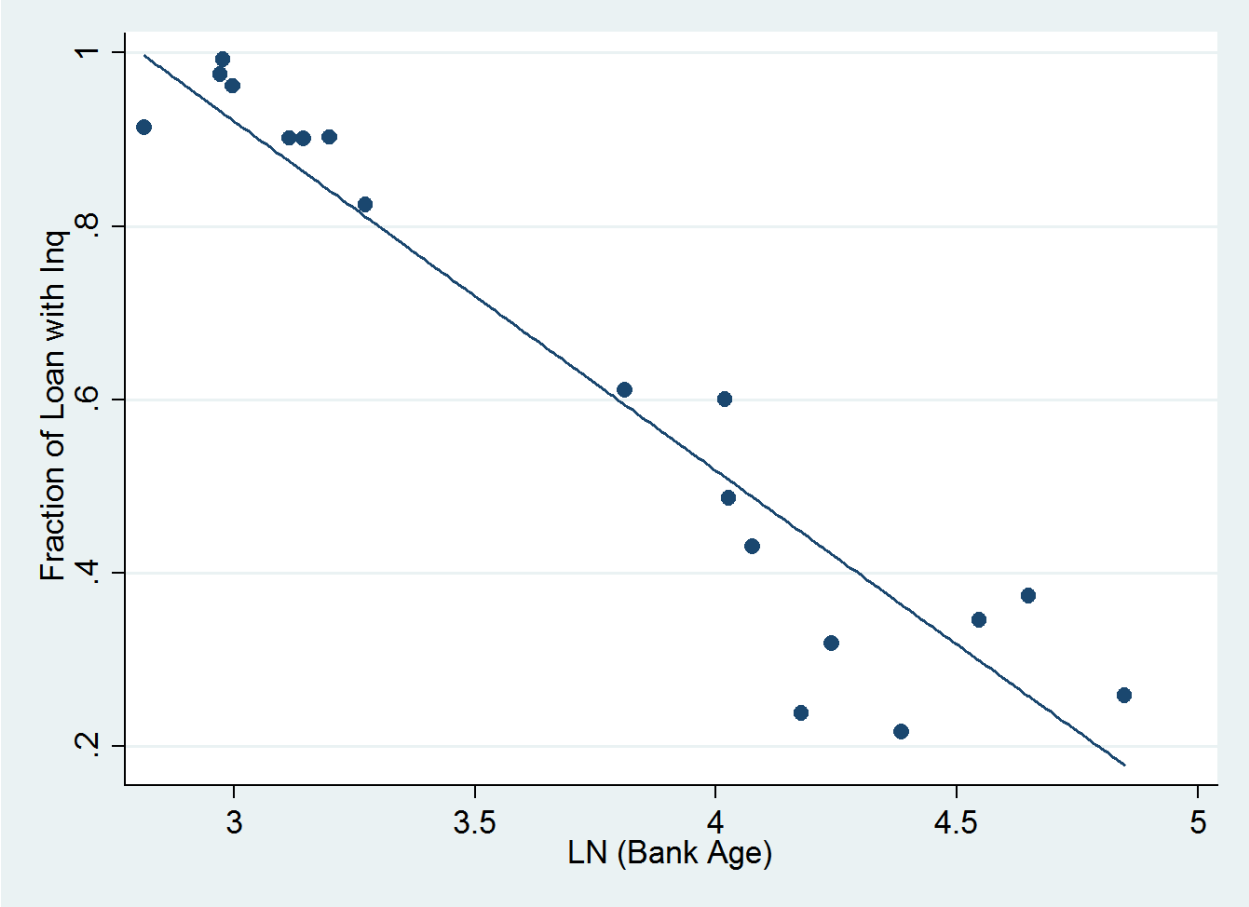


Figure 3

Loans with Inquiry by Bank Age



Appendix A1
Probability of Loan being preceded by inquiry

Sample includes all loans (except PSL) of PSB and NPB member banks between fiscal 2006 and 2015 for column 1 and 2, and 2013 and 2014 for columns 3-8. The dependent variable is 1 if the loan was preceded by an inquiry (within 180 days prior to the loan), and 0 for loans without inquiry. PSB takes a value of 1 if the observation is associated with a state owned bank. Past relationship takes a value of 1 if the borrower has taken at least one loan between 2006 and the date of the observation. Only borrowers between 18-20 years are included in the sample. Standard errors in parentheses clustered at borrower level. *** p<0.01, ** p<0.05, * p<0.1

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	2006-15	2006-15	2013-14	2013-14	2013-14	2013-14	2013-14	2013-14
Past relationship*PSB		-0.2071***		-0.2229***	-0.2016***	-0.1673***	-0.2229***	-0.1161***
		(0.004)		(0.005)	(0.005)	(0.005)	(0.005)	(0.008)
Low Score (=1)					0.0902***	0.1243***	0.0986***	0.0931***
					(0.006)	(0.007)	(0.010)	(0.012)
Medium Score (=1)					0.1246***	0.1749***	0.2009***	0.1876***
					(0.003)	(0.004)	(0.004)	(0.004)
High Score (=1)					0.1617***	0.1744***	0.2503***	0.1895***
					(0.004)	(0.004)	(0.005)	(0.005)
PSB*Low Score						-0.0638***		0.0112
						(0.013)		(0.021)
PSB*Medium Score						-0.0983***		0.0328***
						(0.006)		(0.009)
PSB*High Score						-0.0198***		0.1290***
						(0.008)		(0.010)
Past Relationship*Low Score							-0.0570***	0.0341**
							(0.013)	(0.015)
Past Relationship*Medium Score							-0.1551***	-0.0358***
							(0.006)	(0.008)
Past Relationship*High Score							-0.1822***	-0.0380***
							(0.007)	(0.009)
Past Relationship*PSB*Low Score								-0.1376***
								(0.026)
Past Relationship*PSB*Medium Score								-0.1950***
								(0.013)
Past Relationship*PSB*High Score								-0.2510***
								(0.015)
PSB (=1)	-0.4074***	-0.3281***	-0.4334***	-0.3517***	-0.3397***	-0.3265***	-0.3347***	-0.3461***
	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.004)	(0.003)	(0.004)
Past Relationship (=1)	0.0005	0.1162***	0.0127***	0.1384***	0.0682***	0.0486***	0.1406***	0.0641***
	(0.002)	(0.002)	(0.002)	(0.003)	(0.003)	(0.004)	(0.005)	(0.007)
Male(=1)	0.0731***	0.0701***	0.0630***	0.0606***	0.0566***	0.0559***	0.0539***	0.0524***
	(0.002)	(0.002)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)	(0.003)
LN(Age)	-0.0613***	-0.0498***	-0.0820***	-0.0697***	-0.0786***	-0.0792***	-0.0824***	-0.0810***
	(0.003)	(0.003)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)	(0.004)
Qtr-Year FE	Y	Y	Y	Y	Y	Y	Y	Y
Acct Type FE	Y	Y	Y	Y	Y	Y	Y	Y
Observations	273,898	273,898	171,688	171,688	171,688	171,688	171,688	171,688
R-squared	0.277	0.286	0.286	0.297	0.309	0.310	0.314	0.316

Appendix A2

*The table reports the results of 2SLS IV estimation. The sample comprises of all consumer, auto, and housing loans given between 2013 and 2014 by PSB and NPB. The dependent variable in the first stage is a dummy variable taking a value of 1 if the loan was inquired or 0 otherwise. The dependent variable in the second stage is the LQ 360. Standard errors are clustered at FID level. *** p<0.01, ** p<0.05, * p<0.1*

	(1)	(2)	(3)	(4)
	First Stage	Second Stage	First Stage	Second Stage
TWE 180		-0.0060***		-0.0063***
		(0.002)		(0.002)
PSB (=1)	-0.4000***		-0.3568***	
	(0.003)		(0.004)	
Past Relationship (=1)	-0.0671***	-0.0049***	0.0028	-0.0049***
	(0.003)	(0.001)	(0.004)	(0.001)
PSB*Past Relationship			-0.1189***	
			(0.005)	
Low Score	0.0607***	0.0205***	0.0532***	0.0205***
	(0.006)	(0.003)	(0.006)	(0.003)
Medium Score	0.1031***	-0.0038***	0.0990***	-0.0038***
	(0.003)	(0.001)	(0.003)	(0.001)
High Score	0.1219***	-0.0072***	0.1165***	-0.0072***
	(0.004)	(0.001)	(0.004)	(0.001)
Male (=1)	0.0674***	0.0021**	0.0664***	0.0022**
	(0.003)	(0.001)	(0.003)	(0.001)
LN(Age)	-0.1363***	-0.0079***	-0.1272***	-0.0079***
	(0.004)	(0.001)	(0.004)	(0.001)
LN(1+Amt)	0.0864***	-0.0032***	0.0829***	-0.0031***
	(0.001)	(0.000)	(0.001)	(0.000)
Constant	0.2589***	0.0885***	0.2503***	0.0886***
	(0.018)	(0.007)	(0.018)	(0.007)
Acct Type FE	Y	Y	Y	Y
Qtr-Year FE	Y	Y	Y	Y
Observations	139,527	107,284	139,527	107,284
R-squared	0.353	0.006	0.356	0.006

Appendix A3
Logit Regression for Counterfactual Study

The dependent variables in models (1)-(3) are the probability that a loan application will be inquired (Prob I), the probability of acceptance given inquiry (Prob T | I) and an indicator for loan delinquency within 360 days from loan (LQ360). The explanatory variables are credit score scaled by 1000 and quarter-year fixed effects. Panel A is for borrowers of new private banks and Panel B is for borrowers of public sector banks.

Panel A: NPB

	(1) Prob I	(2) Prob T|I	(3) LQ 360
Score/1000	-1.3519***	5.0032***	-10.4482***
	(0.334)	(0.112)	(1.199)
Qtr-Year FE	Y	Y	Y
Observations	91,290	89,512	18,728

Panel B: PSB

	(1) Prob I	(2) Prob T|I	(3) LQ 360
Score/1000	-0.0010	3.2188***	-13.2157***
	(0.162)	(0.140)	(1.023)
Qtr-Year FE	Y	Y	Y
Observations	72,015	72,015	19,519

Standard errors in parentheses clustered at borrower level
*** p<0.01, ** p<0.05, * p<0.1