BANKING SOCIALLY*

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Abstract

We examine whether and how borrowers' social preferences may produce non-monetary incentives for debt repayment (*social monitoring*). Using unique geo-located data on borrowing decisions at credit unions and similarly sized local commercial banks, we leverage the fact that credit unions are built around a common social bond among their owner-borrowers. These social ties may reduce default rates through altruism—avoiding imposing a loss on one's social group—or social pressure—avoiding the stigma derived from social peers' awareness of one's default. Three sets of findings support the social pressure channel. First, default rates are lower at credit unions, but only for loan types whose defaults lead to visible consequences (mortgages and vehicle loans), and not for others (credit card debt). Second, the effects are stronger when comparing repayment choices at credit unions and local commercial banks with few branches, suggesting that tighter social networks reinforce social monitoring. Third, the effects are stronger for credit unions whose common bonds have a lower scope for altruism (professional bonds) relative to others (religious, fraternal, and geographic bonds).

JEL classification: D14, G21, Z13.

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I. Introduction

Financial intermediation can only be profitable if institutions can effectively and efficiently monitor borrowers, who have an incentive not to repay their debts whenever the costs of repaying are higher than the expected costs of default. Implementing monitoring is costly and creates several agency issues, all of which can hinder financial institutions from optimizing their monitoring activities, which creates inefficiencies (Diamond, 1984; Gale and Hellwig, 1985; Townsend, 1979). An alternative to implementing costly contract mechanisms to monitor borrowers would be exploiting non-monetary related costs borrowers might face in the case of default, such as stigma from their social peers and/or disutility from behaving in ways that are deemed immoral based on ingrained cultural norms (Akerlof and Kranton, 2000; Bursztyn et al., 2019; Fay et al., 2002; Guiso et al., 2013). Agents whose preferences and utility include this social component would face a higher perceived cost of default and hence default less often than standard economic agents—a mechanism that substitutes for formal and costly monitoring.

In this paper, we study in the field whether financial institutions can exploit social preferences as an alternative to formal monitoring of borrowers and, if so, the mechanisms through which this form of *social monitoring* arises. To do so, we exploit novel data that allow us to compare banking practices and default behaviors within US locations and across two types of financial institutions—standard commercial banks and credit unions. Credit unions are financial institutions that, contrary to standard commercial banks, are founded around a shared common bond across depositor/borrowers, which is typically based on a social group to which members belong, such as a professional, geographic, or religious community. By focusing on small institutions of each type within the same US locations and at the same point in time, we thus compare the provision and performance of standard consumer debt products that have similar features, serve similar scopes, and have similar branch-based supply characteristics, but differ in the extent to which borrowers face social monitoring.

We start by considering the geography of credit unions. If credit unions' common bonds indeed provided a unique scope for social monitoring relative to standard commercial banks, ceteris paribus, a relatively higher credit union activity should arise endogenously in locations in which the average borrowers have weaker social preferences, for which the costs of formal monitoring activities by standard commercial banks are higher. To bring this prediction to the data, we consider several proxies proposed in earlier literature to measure the extent of social preferences and social capital

across US locations and assess whether the relative presence of credit unions is higher in locations that are endowed with lower levels of social capital, for which the social monitoring of credit unions provides a competitive advantage relative to standard commercial banks. Consistent with this hypothesis, and across a broad range of social capital proxies, we find that the share of credit unions over standard commercial banks is systematically higher in locations that display lower levels of social capital, and vice versa.

Having verified this baseline prediction in our setting, we move on to investigate the economic mechanisms through which credit unions can implement social monitoring. Specifically, we consider two alternative and, in principle, non-mutually-exclusive channels: altruism and social pressure.

On the one hand, social monitoring might be sustained by credit union borrowers' altruistic preferences. Because all credit union members are owners on a one-member-one-vote basis, defaulting on debt issued by a credit union automatically leads to the socialization of losses, whereby the defaulting borrower imposes a loss on fellow credit union members through their choice of default. If borrowers display altruistic preferences, imposing a cost on their social peers enters their own utility function and hence reduces their willingness to default, ceteris paribus. On the other hand, credit unions might sustain social monitoring through social pressure: if credit union borrowers' utility were affected by others' views about their self-image, when assessing the repayment vs. default choice, their perceived costs of defaulting would include not only standard pecuniary costs but also this social pressure component, or "stigma" of default, which, ceteris paribus, reduces borrowers' willingness to default (Bhutta et al., 2017; Fay et al., 2002; Guiso et al., 2013; Gross and Souleles, 2002).

The ideal test to disentangle these two mechanisms should exploit variation in the stigma of default, i.e., the costs associated with defaulting under social pressure, keeping constant the scope for altruism to sustain social monitoring. Under this setting, we could compare borrowers' defaulting behavior against credit unions vs. otherwise similar local commercial banks across borrowing instances in which the stigma of defaulting is higher or lower, but the scope for altruism does not change. Standard commercial banks always act as a control category in our tests. If we observed that borrowers are less likely to default against credit unions than against banks, and this difference was similar across instances in which the stigma of defaulting varies, we would conclude that the altruism mechanism prevails. In contrast, if we found that borrowers are less likely to default against credit unions relative to banks in instances in which stigma is high but not in instances in which

stigma is low, we would conclude that the social pressure mechanism prevails.

We exploit a set of unique features of our data and setting to propose analyses that mimic the ideal test discussed above. The main challenge is obtaining variation in the extent of stigma associated with different borrowing instances. To this aim, we exploit the fact that our data include information on default behavior across debt categories that are based on three different forms of collateral—mortgages, vehicle loans, and credit card debt. In fact, whereas houses are collateral for mortgages and vehicles for vehicle loans, credit card debt is uncollateralized. Note that, in terms of the altruism channel, defaulting on any of these loan types imposes a loss against credit union members, and hence altruistic borrowers would face a similar cost for defaulting on either loan type.

The feature that differentiates these three forms of debt, which is crucial for our aims, is the public visibility of their seizure in case of default, which provides a signal that the borrower defaulted to its social peers. Defaulting on mortgages leads to a set of procedures, ranging from formal and public eviction notices to actual eviction and foreclosures, as well as, in many cases, auctioning of the foreclosed property. This set of public signals makes default on mortgages highly visible and hence the most sensitive to stigma, given that a borrower's social peers would know very vividly that the borrower defaulted. Vehicles are a loan category in which the consequences of default in terms of visibility are ambiguous. On the one hand, vehicles can also be seized in the event of default. On the other hand, borrowers facing vehicle seizure can easily use cash to replace it, arguing that they intentionally changed it, or sold it. For these reasons, borrowers whose utility is affected by their perceived image by social peers can easily conceal the consequences of default and avoid its stigma. In the case of credit card debt, because no collateral exists, default is virtually invisible to social peers. Defaulting borrowers could face consequences such as income garnishment or seizure of other financial wealth, but none of those consequences would be visible to social peers either.

Our baseline empirical evidence is consistent with an important role for the social pressure mechanism in supporting social monitoring. This is because we find that the extent of defaults against credit unions and standard commercial banks flips around based on loan types ranked on the public visibility of the consequences of default. Indeed, as Panel A of Figure I, we find that, within locations, years, and comparing financial institutions that have the same number of branches, and hence similar size and scope of operations, local borrowers are economically and statistically less likely to default on mortgages against credit unions than against otherwise similar commercial banks. In contrast, we detect barely any economic or statistical difference in the likelihood of defaulting on

vehicle loans across bank types. Finally, we find that credit union borrowers default *more* on credit card debt, whose consequences are invisible socially, compared to local bank borrowers.

The last result dismisses a relevant role for the altruism mechanism of social monitoring, because credit union borrowers are not simply more likely to default on credit card debt than on mortgages and vehicle loans, but they also do it to a larger extent than commercial bank borrowers do and in commercial banks no scope for altruism arises given that the losses from default are not necessarily shared by a borrower's social peers.

To further corroborate and understand the social pressure mechanism of social monitoring, we propose two sets of heterogeneity analyses.

First, we augment our baseline empirical tests discussed above by assessing how the baseline differences across credit unions and otherwise similar commercial banks vary based on how tight the social connection among borrowers is likely to be, and hence how high the costs of default are for borrowers with social preferences. To capture this dimension, we split institutions into groups based on their number of branches. Intuitively, institutions with one or two branches, whether credit unions or commercial banks, are likely to serve very local social groups made up of depositors and borrowers who are likely to know each other and for whom the saliency of default instances, such as home foreclosures, is high. By contrast, institutions with dozens of branches are likely to serve pools of depositors and borrowers that are spread in space and have diverse social backgrounds, for whom the visibility of each other's defaults is reduced. If the social pressure mechanism of social monitoring is important, we would thus expect that the baseline effects we estimate are stronger when comparing defaults across loan types between credit unions and banks that have fewer branches relative to those that have more branches. And, indeed, as Panel B of Figure I, we find that the economic magnitudes of the effects in either direction are largest for few-branches institutions and decrease monotonically as the number of branches of both credit unions and banks we compare increases.

Second, we move on to consider another unique feature of our setting that we can measure in our data—the types of common bonds across the credit unions in our sample. So far, we treated credit unions similarly in terms of the sensitivity of their borrowers to defaulting based on social preferences. In fact, though, credit unions are organized around common bonds, which range across three broad categories: religious/fraternal, geographic, and professional common bonds. Credit unions based on a religious/fraternal common bond bring together members of a religious

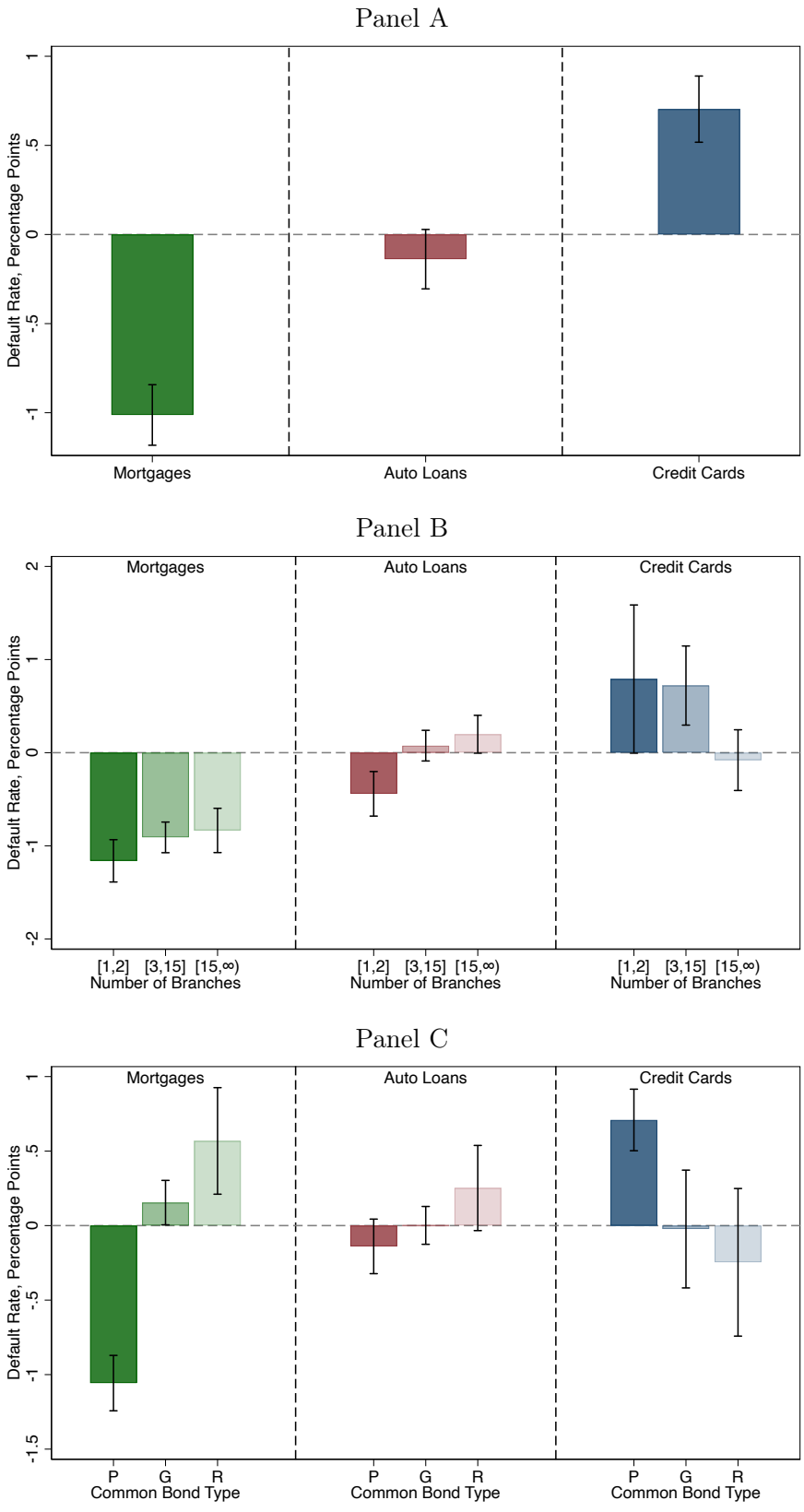


Figure I: **Loan Default Rates.** This figure compares loan default rates between credit unions. Panel A shows average differences, Panel B separates by branch size, and Panel C by common bond type. Vertical axes report percentage point differences, with bars as point estimates and lines as 95% confidence intervals.

community, which, by definition, displays a set of tight social and value-based shared connections and recurring in-person interactions among its members that allow information about each member's actions to flow across all community members easily. Geographic common bonds include groups of borrowers that are close geographically, and hence for which the visibility of default is moderate, but that do not necessarily share the tight bonds and repeated in-person meetings typical of religious communities. Finally, professional common bonds, which bring together borrowers who work in the same broad professional category or for the same public institution, intuitively provide the least close form of social connection across members, given that many of these members are likely to leave in different locations and do not necessarily share any common life activity with each other. Once again, consistent with the social pressure mechanism, we find that our results in either direction are stronger for the defaults of borrowers of religious/fraternal credit unions, intermediate for those of geographic credit unions, and smallest for the borrowers of professional credit unions, as illustrated in Panel C of Figure I.

Overall, our results provide evidence consistent with an economically relevant role for social monitoring in financial intermediation. In particular, they support a social pressure mechanism whereby borrowers face a higher cost of default and hence default less in instances in which the consequences of their default are more visible to their social peers, whereas they revert their behavior in cases in which the consequences of their default are invisible to their social peers.

Literature. Our work contributes to at least three strands of research in economics and finance. First, we add to the literature on the determinants and effects of monitoring by financial intermediaries. Foundational theories study the trade off between the costs and benefits of monitoring (Diamond, 1984; Gale and Hellwig, 1985; Townsend, 1979). We build on this literature by proposing an empirical setting to study social monitoring, whereby the standard utilitarian framework to assess borrowers' incentives to default is complemented by the effects of default choices on social peers for borrowers who hold social preferences, that is, whose utility also depends on the utility of others.

Second, we connect to work on the role of social norms in economic choices, and especially debt choices (Bursztyn et al., 2019; Guiso et al., 2013). Our results are, in particular, consistent with the impact of stigma associated with debt default on borrowers' choices (Skiba and Tobacman, 2008; Diep-Nguyen and Dang, 2022). More broadly, we contribute to the extensive applied microeconomics literature on the drivers and consequences of agents' social preferences. Foundational work in this area has studied two broad forms of social preferences: altruism, whereby agents' utility is determined by their own consumption as well as others' consumption (Andreoni, 1989, 1990; Becker, 1981; Becker and Barro, 1986; DellaVigna et al., 2022; Fehr and Schmidt, 1999; Charness and Rabin, 2002; Andreoni and Miller, 2002; Bénabou and Tirole, 2006), and social pressure, whereby agents' utility is affected by how they believe others perceive them (Ash, 1953; Milgram, 1963; Akerlof, 1991; Garicano et al., 2005; Falk and Ichino, 2006; Mas and Moretti, 2009; D'Acunto et al., 2024). Related work emphasizes social comparisons as a form of peer pressure, where agents adjust behavior toward their group's norm (Allcott, 2011; Allcott and Rogers, 2014; Blader et al., 2020). Inspired by research on charitable giving (DellaVigna et al., 2012), we test empirically predictions that aim to disentangle these two alternative microfoundations of social preferences in the context of debt choices. Our contribution is to document that credit union borrowers' lower default rates reflect stigma avoidance rather than altruism or social comparison.

Finally, we advance a small but growing literature on the economics of credit unions (Chatterji et al., 2021; Cororaton, 2019; Shahidinejad, 2025; Li and van Rijn, 2022). This work emphasizes organizational form, membership, and consumer outcomes; we provide a mechanism that links these features to repayment. Specifically, we show that common-bond membership and denser social ties amplify peer observability and the social incidence of losses, which lowers default through a social-monitoring channel. In this way, our setting clarifies how organizational design interacts with non-pecuniary enforcement.

II. Institutional Setting and Data Construction

A. Setting

A.1. Credit Unions

Credit unions are nonprofit, member-owned depository institutions that operate under a cooperative governance model. A central institutional feature is the requirement that members are depositors that must share a formal common bond, typically based on a shared employer, geographic location, or religious affiliation. This structure contrasts with the unrestricted and anonymous depositor base of commercial banks. The common bond requirement shapes both the composition of credit union membership and the nature of their governance. Credit unions allocate control on a one-member-one-vote basis, independent of deposit size, whereas banks do not assign control based on deposits and instead allocate voting rights in proportion to equity ownership. Despite this structural distinction, credit unions and banks offer similar financial products, including deposit accounts, mortgages, auto loans, and credit cards.

These differences, particularly the presence of a formal common bond among credit union members as opposed to the anonymous depositor base in commercial banks, provide a compelling setting to examine how organizational form and social capital influence borrower repayment behavior. We now discuss common bonds and its relationship with social capital in detail.

A.2. Common Bonds

The U.S. credit union model traces its origins to 19th-century European cooperative finance, particularly Germany's Raiffeisen system. Raiffeisen addressed farmers' limited incomes by extending credit on the basis of reputation rather than collateral, selecting members for their character and religiosity, and restricting membership to a single parish (Clark, 1943). The Federal Credit Union Act of 1934 codifies this principle, requiring members to be "united by a common bond of occupation or association, or [belong] to groups within a well-defined neighborhood, community, or rural district."

Economically, common bonds might reduce monitoring costs by tying membership to institutions—such as employers or churches—that already vet individuals, embedding saving and

lending relationships in these socially cohesive groups.[1] These bonds set the legal boundaries for who may join, and are typically classified as professional, geographic, and religious. Professional or occupational common bonds encompass employees of the same firm or related entities, as well as "trade, industry, or profession" bonds that group individuals by sector or occupation, such as health care workers or teachers. Geographic or community common bonds are defined by residence, schooling, employment, or worship within a specific geographic area. Religious or associational bonds extend membership through affiliation with a church, fraternal organization, or labor union.

Since the early 2000s, geographic bonds have expanded relative to professional and religious bonds. As shown in Appendix Figure A.1.1, professional bonds remain the largest but declined steadily, geographic bonds expanded to nearly one-third, and religious bonds contracted. The 2003 implementation of the Credit Union Membership Access Act facilitated some conversions to geographic bonds.

A.3. The Common Bond and Social Capital

Credit unions' "common bond" is a thread that unites the members of the credit unions as a subset of an existing community, be it a firm, a religious group, or a geographic area. In his seminal work, Putnam (2000) underscores the role that such associative ties play in building social capital, that is, "the norms and networks that facilitate collective action" (Woolcock, 1998). Namely, the credit union's common bond defines the network that shares a set of social norms among its members. These norms encompass an array of expected behavior (viz., colleagueship among members of a firm, fellowship among members of a church, citizenship among members of city or state, etc.), all aimed at promoting cooperation and limiting free-riding.

In the context of the credit union, the cooperative expectation deals with doing good on one's financial promise. Namely, credit union staff are expected to be good stewards of the bank's assets. Likewise, borrowers are expected to repay their loans. These expectations are stronger than in the case of a bank, precisely because credit union staff and depositors ("members") are bound by the common bond, the network from which the credit union arises.

In this paper, we focus on the expectation of borrowers to repay. Theoretically, credit unions

[1] Clark (1943) writes "The biggest cost involved in the issuance of consumer loans is... investigation. Credit unions have reduced this cost... by various forms of membership limitations... encompassed by the requirement that the members have a common bond. The significance of this common bond... is based on the assumption that the incentive to cheat one's peers is slight and that honesty and ability to repay... can more easily be ascertained in a group of colleagues than... strangers."

could serve as either complements or substitutes to the local social capital, as either a product of shared norms of cooperation and collective action, or a remedy against the pervasive lack of local social cooperation. We hypothesize that, relative to banks (without a common bond), credit union borrowers are less likely to default on loans. We propose two channels through which the networks' norms of cooperation might facilitate the fulfillment of this expectation. The first channel is that the credit union's members share a norm of altruism and care that their fellow credit union members do not suffer financial losses from potential default. The second channel we put forward is social pressure, where the network enforces social monitoring on its members.[2]

Of course, neither credit unions nor the networks from which their common bond is drawn are the only sources of social capital at the local level. Putnam (2000) emphasizes that the number and density of associations in a given area (e.g., county), as well as the extent to which participation in public good activities (philanthropy, voting, etc.) are all signs of strong social capital at the local level.

B. Data

We build a new institution-product-quarter panel starting from bank call reports (FFIEC 031/041) and credit-union call reports (NCUA 5300), augmented with an NCUA FOIA release of Type-of-Membership (TOM) codes and their official descriptions. The FOIA data allow us to classify credit unions into economically meaningful common-bond groups (religious/associational, geographic/community, professional/occupational). We then harmonize reporting across three dimensions—institutions, products, and time—to construct a consistent default rate at the depository-institution level, with one-to-one links between outstanding and delinquent amounts. To speak to mechanisms, we add four well-established measures of social capital: the so-called Putnam index, the share of Protestants in a locale, the negative value of Raz (2025)'s soil-heterogeneity index, and an income-adjusted measure of charitable contributions. Together, these sources connect organizational form, social monitoring, and default behavior in a way that is comparable across institutions and products.

[2]These two channels reflect North (1990)'s view that institutions offer both positive and enforcement mechanisms that help overcome transaction costs in economic transactions.

B.1. Common Bond Data

Common Bond Types. We obtained *Type of Membership* (TOM) codes and their official descriptions from the National Credit Union Administration (NCUA) via a Freedom of Information Act request covering 2003-2024. Starting from the strongest bonds, we map TOM codes into three mutually exclusive categories:

1. **Religious or associational** (TOM 01, 02, 03).
    - 01: Associational-religious (other than those designated LI).
    - 02: Associational-fraternal (other than those designated LI).
    - 03: Associational-other than religious or fraternal (or LI).
2. **Geographic or community** (TOM 00, 06, 36, 66, 77).
    - 00: Community credit unions-urban or rural (other than those designated LI).
    - 06: Federal, state, and local government.
    - 36: Multiple group-primarily federal, state, local government.
    - 66: Community-Rural District.
    - 77: Community-CBSA(+) Adjacent.

    We classify TOM 06 and 36 as *geographic* rather than *professional* because these institutions primarily organize membership around a shared public-sector employer tied to a common locality (state, county, city, or district) while spanning heterogeneous occupations (e.g., janitors, clerical staff, first responders, attorneys). Treating them as professional would aggregate disparate industries and dilute the notion of occupational cohesion; grouping them with geographic bonds preserves the locus of shared community.[3]
3. **Professional or occupational** (all remaining TOM codes). Residual TOM codes capture employer-, trade-, industry-, and profession-based fields of membership (e.g., teachers, healthcare workers). Detailed code-level definitions are provided in Appendix Table A.2.1.

We link these three common bond categories to credit union-level data containing each credit union's TOM code from call reports, which we construct next.

[3]Where possible, we would separate federal-only memberships; however, the NCUA TOM definitions pool federal, state, and local government under 06/36. Our choice minimizes misclassification and maintains consistency over time.

Credit Union TOM codes. From quarterly NCUA 5300 call reports, we construct a panel that records each credit union's charter number, name, reporting quarter, and associated TOM code. The panel begins in 1994q4 and extends through 2024q4, providing a consistent credit union-by-quarter record of TOM codes. This dataset forms the basis for tracking how the composition of credit unions evolves by bond category. Appendix Figure A.1.1 illustrates these trends by reporting the share and number of institutions by bond type.

B.2. Default Data

Loan Default Measures. In the absence of borrower-level information with lender identifiers, we use call reports to construct measures of default at the depository-institution level.[4] They record, for each institution and year-quarter, the dollar amount of loans outstanding and the dollar amount of loans in default, both at the institution level and disaggregated by major financial product categories. Let i index institutions, s denote the headquarters state of institution i, and t year-quarters. Our product-level default rate is defined as:

$$Default\ Rate\ -\ Product_{i,s,t}\ =\ \frac{Defaulted\ Amount - Product_{i,s,t}}{Loan\ Amount - Product_{i,s,t}},$$

where $Defaulted\ Amount$ is the dollar amount of defaulted loans and $Loan\ Amount$ is the corresponding loan amount. We express default rates in percentage terms by multiplying the ratio above by 100, so that $Default\ Rate \in [0, 100]$, and use them consistently throughout the paper.

Our construction ensures that default measures are internally consistent within credit unions and within banks over time, comparable across the two depository types by product category, and matched one-to-one between loan amounts and delinquent amounts. These institution-level measures allow consistent comparisons across credit unions and banks and constitute the primary outcome in our analysis. Achieving consistency requires harmonizing distinct reporting frameworks: credit unions report defaults in different days-past-due categories over time—prior to 2022: 30-59, 60-179, 180-359, and ≥360 days; beginning in 2022: 30-59, 60-89, 90-179, 180-359, and ≥360 days—whereas banks classify defaults into 30-89 days past due, 90+ days past due, and nonaccrual. To ensure comparability, we standardize $Defaulted\ Amount$ to loans 30+ days past due, which can be constructed consistently for both credit unions and banks throughout the sample. Because

[4]The NCUA 5300 reports for credit unions and the FFIEC 031/041 reports for banks.

product-level reporting also evolves over time, we discuss, for each product category, the relevant reporting changes and the final sample window used below.

Mortgages. Bank mortgage loans include revolving, open-end loans secured by 1-4 family residential properties and extended under lines of credit, and closed-end loans secured by 1-4 family residential properties, secured by first liens. Credit union mortgage loans are loans/lines of credit secured by a first lien on a single 1- to 4-family residential property. Loans in the credit union data are equivalent to close-end loans in the bank data, while lines of credit in the credit union data match revolving, open-end loans in the bank data. The final data covering both credit unions and banks are available from 2003q1 to 2024q4.

Vehicle Loans. Bank vehicle loans are called automobile loans in call reports. Credit union vehicle loans are the sum of (1) new vehicle loans and (2) used vehicle loans. New plus used vehicle loans in the credit union data match automobile loans in the bank data. The final data covering both credit unions and banks are available from 2011q1 to 2024q4.

Credit Cards. Bank and credit union credit card loans are simply called credit card loans. The final data covering both credit unions and banks are available from 2011q1 to 2024q4.

B.3. Social Capital Data

We use several measures of local (county-level) social capital in this study. We begin the the 2014 Social capital Index based on the methodology from Rupasingha et al. (2006). This index is the first principal component of county level measures of per capita socio-cultural associations and nonprofit organizations, as well as the participation rate to the previous Census and Federal elections, which itself inspired by Putnam (2000)'s describes as determinants of social capital.[5]

The second measure stems from Putnam (1993), who argues that the structure and values of Protestant churches promote social capital for their members. Therefore, this measure of social capital is the share of Protestants in each U.S. county from the Association of Religious Data Archives' 2010 Religious Membership and Congregations Survey (ARDA, 2010).

Our third measure comes from Raz (2025)'s work on soil heterogeneity and community-building.

[5]Admittedly, some of the underlying data to construct this measure (e.g., local nonprofits) might include credit unions (e.g., those who file an IRS form I-990). Based on the data sources for the social capital index, this possibility appears limited relative to the universe of credit unions idiosyncratic with respect to the geographic cross section. Moreover, our three other measures of social capital offer qualitatively similar results to those from the Social Capital Index. Moreover, the R-squared are comparable in magnitude across proxies. These results offer evidence against the risk of a mechanical relation between our social capital proxies and the presence of credit unions in the county.

More heterogeneous soil is harder to cultivate, which hinders social learning among land workers and thus negatively impacts community-building. Therefore, we use the negative value of the paper's county-level soil heterogeneity index (*SHI25*) as a measure of local social capital. We use the 1940 value of soil heterogeneity since it is the most recent period available in the data.

Fourth following Putnam (2000)'s description of the importance of philanthropy as a consequence of social capital, use data on income tax returns' itemized deductions from the IRS' Statistics on Income (SOI) data in the years 2013, 2014 and 2015. These data are available at the zip code level, and we collapse them at the county level. We posit that a higher share of filings with itemized deductions is positively correlated with local social capital.[6] To account for the fact that the likelihood of itemizing one's deductions is highly correlated to income, we use the residual of the regression of the share of filings with itemized deductions on the average (logged) adjusted gross income in the county as our measure of social capital.

B.4. Other Data

Alongside the common bond, default, and social capital data, we assemble four institution-level variables for our tests: (i) number of employees, (ii) total assets, (iii) headquarters state, and (iv) number of branches. Employees, assets, headquarters state, and branch data come from the bank and credit union call reports. Credit union branch counts are also available from the NCUA Credit Union Branch Information files (since 2013), and bank branch counts from the FDIC Summary of Deposits. We use these variables to capture size, organizational scale, and geographic footprint, and to define heterogeneity cuts in the empirical analysis.

The number of employees provides a measure of organizational scale and labor intensity, while total assets capture balance-sheet size and financial capacity. Headquarters state identifies the geographic location of each institution and enables us to align credit unions and banks to state-level economic conditions. Branch counts measure the physical footprint of each institution and allow us to distinguish between high- and low-touch organizational models.

[6] Admittedly, itemized deductions are not exclusively charitable donations. However, recent data from the Urban Institute and Brookings Institution's Tax Policy Center shows that, on average 85% ($\frac{(253{,}000{,}000/18331}{16196}$) of itemized deductions are related to charitable deductions –see: https://taxpolicycenter.org/briefing-book/how-large-are-individual-income-tax-incentives-charitable-giving

B.5. Merges, Screens, and Summary Statistics

Credit Unions. We begin with the loan default measures, which we merge to the common bond data using credit union charter numbers. We then merge this dataset to the additional variables collected from call reports and the NCUA Credit Union Branch Information files. This process yields matches for 99.9% of credit unions in our initial sample. We drop credit unions without valid identifiers across datasets, those with missing default information, and those that report zero total loans throughout their history.

Banks. For banks, we merge the loan default measures to the additional variables collected from call reports using Research, Statistics, Supervision, and Regulation (RSSD) IDs, and to branch counts from the FDIC Summary of Deposits. This yields matches for 99.8% of banks. We drop banks with missing loan or default data and those that report zero lending activity across all quarters.

Social Capital. We use the bank and credit union branch data from 2013-2015 and collapse these data at the county-year level: for each county-year, we count the number of credit union branches and the number of bank branches in a county. We then construct the variable:

$$Credit\ Union\ Share_{c,t} = \frac{Number\ of\ Credit\ Union\ Branches_{c,t}}{Number\ of\ Credit\ Union\ Branches_{c,t} + Number\ of\ Bank\ Branches_{c,t}}$$

for county c in year t. We use the Putnam Index data and merge it by county with the Protestant membership data and Soil Heterogeneity data, which are already at the county level. Based on the HUD-USPS (2024) zip-code county crosswalk, we collapse the IRS SOI data at the county level and merge them by county-year with the county-year level bank and credit union branch data.

Final Sample. After implementing these merges and screens, our analysis focuses on the 99.9% of credit unions and banks for which we observe consistent default measures, common bond classifications (for credit unions), and additional institution-level variables. To provide context on the institutions in our final sample, Figures IV and III report descriptive plots. Figure IV maps average mortgage default rates across U.S. counties, separately for credit unions (Panel A) and banks (Panel B). The maps highlight the more limited geographic footprint of credit unions, but also reveal that in places where both lender types operate, default rates differ systematically despite borrowers facing the same local conditions. Figure III overlays the unconditional distributions of

assets and employees for banks and credit unions with one to two branches. These plots do not aim to establish equivalence, but rather to demonstrate that, within the subset of small, local institutions that we focus on, the two groups are broadly comparable. Remaining differences in scale are accounted for in our regression analyses.

We present summary statistics in I. Default rates are right-skewed, with medians near zero but 90th percentiles between 4-6 percent across loan types. Credit unions account for roughly half the institutions in our sample and, consistent with their cooperative structure, are smaller on average, but the interquartile ranges overlap considerably. Importantly, unconditional default rates are lower at credit unions than at banks—1.4 versus 2.6 percent for mortgages, 1.1 versus 1.8 percent for vehicle loans, and 1.7 versus 1.8 percent for credit cards—providing suggestive evidence that the organizational form is correlated with repayment outcomes.

III. Social Monitoring: Scope and Economic Mechanisms

To assess the potential role of credit unions in fostering social monitoring, we start by assessing the relationship between a measure of the prevalence of social preferences in local communities—social capital—and the prevalence of credit unions in the same communities. This test allows us to detect if credit unions' common bond is a substitute or a complement to social capital. If credit unions are relatively more likely to be present in locations with low levels of social capital, we would conclude that common bonds endogenously arise in communities in which social monitoring is hard to sustain otherwise, and hence common bonds substitute for social capital. If, instead, credit unions are relatively more likely to be present in locations with high levels of social capital, we would conclude that common bonds arise endogenously in communities in which borrowers are more likely to hold social preferences, and hence common bonds and social capital are complements. To assess the sign of this relationship empirically, we estimate the following linear specification by OLS:

$$Credit\ Union\ Share_{c,t} = \mu + \zeta_s + \zeta_t + \delta Social\ Capital_{c,t} + \varepsilon_{c,t} \tag{1}$$

for county c in year t with both state and year fixed effects (ζ_s and ζ_t, respectively), for each of the three social capital proxies described in section B.3. In each regression, standard errors are clustered at the state level. Figure II presents the results for the δ coefficient of each of the social

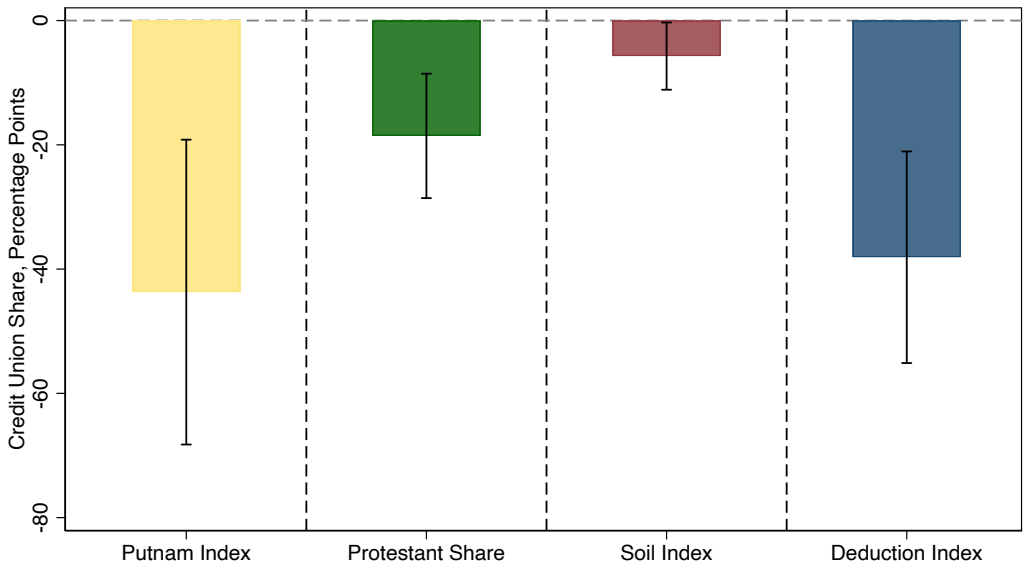


Figure II: **Relationship between Social Capital and Local Credit Union Presence** This figure presents the coefficients of the coefficient on the social capital proxies in equation (1), with 95% confidence intervals. In all regressions, standard errors are clustered at the state level.

capital proxies in these regressions. In each case, social capital is negatively related to the local share of credit unions. These results offer evidence that credit unions' common bond acts as a compensatory measure of (substitute to) social bonding in areas where such social ties are generally low. In the context of financial intermediation, the credit unions' common bond offers a social monitoring mechanism in areas where social bonds do not provide this form of monitoring.

A. Altruism and Social Pressure: Predictions

As discussed in the introduction, we then move on to consider the economic channels through which social monitoring might be sustained in the field by considering two non-mutually-exclusive mechanisms: altruism and social pressure.

Under altruistic preferences, social monitoring is sustained by the fact that others' outcomes enter directly into borrowers' utility. Since all members of a credit union hold fractional ownership, a default on credit union-issued debt effectively imposes a financial burden on fellow members, thus resulting in a socialized loss. If borrowers exhibit altruistic preferences, the utility loss from harming peers would be internalized, leading to a decreased propensity to default, all else equal.

Social pressure, instead, arises when borrowers' utility is influenced by how others perceive their

self-image. In this case, the decision to default would account not only for the consumption costs but also for the reputational costs borrowers face from others' obtaining information about their default, which would reduce borrowers' utility by lowering others' perception of their self-image. In this case, heightened visibility of default to social peers increases the reputational costs associated with default, thereby discouraging default behavior above and beyond an otherwise standard cost/benefit analysis, ceteris paribus.

To disentangle these two channels, one needs variation in either the size of the loss others face when the borrower defaults keeping constant the reputational costs or, conversely, variation in the reputational costs keeping constant the size of the loss others face. Our setting allows us to design a test that exploits the second direction, that is, using variation in the social stigma associated with default, while holding constant the extent to which altruism might affect borrower behavior. This design aims to compare default rates on credit union loans versus loans issued by same-sized local commercial banks, across contexts where the degree of stigma varies but the size of the loss imposed on the financial institution under default can be controlled for. In this design, commercial banks serve as a benchmark group. Should we observe consistently lower default rates at credit unions relative to banks, regardless of stigma intensity, we would conclude that the social pressure mechanism is empirically negligible in explaining social monitoring. Conversely, if differential default choices appear in high-stigma settings and vanish in low-stigma ones, the evidence would suggest that social pressure is an empirically important mechanism to implement social monitoring.

A key challenge in implementing this test lies in capturing meaningful variation in the degree of social stigma attached to default choices. To address this, we leverage data that encompass borrower default behavior across three loan types, each secured by distinct forms of collateral: mortgages, vehicle loans, and credit card debt. Importantly, while defaulting on any of these obligations generates a comparable financial externality for the credit union, i.e., keeping the altruistic incentive barely changed, the degree of public visibility of default outcomes across these types of loans differs dramatically across categories.

This variation in visibility, and consequently in the social stigma associated with default, is central to our empirical strategy. We argue that mortgage defaults generate the most conspicuous public signals among the three loan types: formal eviction notices, property foreclosures, and public auctions, all of which make the borrower's default widely observable among their social network. As a result, mortgage default carries a high stigma a substantial scope for social pressure affecting

the decision to default, ceteris paribus. In turn, vehicle loan defaults present ambiguous visibility. Although vehicles may be repossessed, borrowers often have the option to replace the vehicle with cash or claim to have sold it voluntarily, thereby masking the default event. Finally, credit card debt defaults entail barely any repossession or visible public consequence, given that this form of debt is unsecured. While financial penalties such as wage garnishment or credit-score drops may follow, these are largely hidden from public view and do not generate observable stigma.

B. Altruism and Social Pressure: Evidence

To implement our main test to disentangle the potential economic mechanisms that sustain social monitoring, we estimate a linear specification of the following form by OLS:

$$Default\ Rate_{i,s,t} = \alpha + \beta Credit\ Union_{i,s,t} + \gamma X_{i,s,t} + \phi_{s,t} + \varepsilon_{i,s,t}, \tag{2}$$

where $Default\ Rate_{i,s,t}$ is the rate of issued loans that is more than 30 days delinquent for institution i in state s and quarter t; $Credit\ Union_{i,s,t}$ is an indicator for whether institution i is a credit union; $X_{i,s,t}$ is the vector of institution-quarter level characteristics we observe, which include the logarithm of employees and total assets as proxies for size, and the total number of branches of the institution across any locations in which it operates to proxy for the size of the potential pool of borrowers the institution serves; $\phi_{s,t}$ are a full set of state-by-quarter fixed effects, which aim to capture local business cycle fluctuations that might drive the demand and supply of credit, as well as affect default behavior. In all specifications, for the purpose of statistical inference, we cluster standard errors at the state level to account for spatial correlation of unkown form across the outcomes of financial institutions operating in the same states as well as autocorrelation in within-institution outcomes.

We estimate the specification in equation (2) separately across the three types of consumer credit loans that vary by the visibility of their default to others, that is, mortgages, vehicle loans, and credit card debt:

$$Default\ Rate - Mortgages_{i,s,t} = \alpha + \beta_M Credit\ Union_{i,s,t} + \gamma X_{i,s,t} + \phi_{s,t} + \varepsilon_{i,s,t}$$

$$Default\ Rate - Vehicle\ Loans_{i,s,t} = \alpha + \beta_V Credit\ Union_{i,s,t} + \gamma X_{i,s,t} + \phi_{s,t} + \varepsilon_{i,s,t}$$

$$Default\ Rate - Credit\ Cards_{i,s,t} = \alpha + \beta_C Credit\ Union_{i,s,t} + \gamma X_{i,s,t} + \phi_{s,t} + \varepsilon_{i,s,t}$$

Based on whether altruism or social pressure are empirically more relevant mechanisms to sustain social monitoring, we would expect different signs attached to the three main coefficients of interest, that is, β_M, β_V, and β_C.

If altruism is an empirically more relevant mechanism to sustain social monitoring, we would expect negative estimated coefficients across all three loan types, that is, $\beta_M < 0$, $\beta_V < 0$, and $\beta_C < 0$. The intuition is that defaulting on either loan type produces a loss for social peers who are also members of the credit union for credit-union borrowers, whereas it would produce a loss for the unknown shareholders of commercial banks for commercial-bank borrowers. The social monitoring channel would therefore be stronger in credit unions and similarly so across loan types because of both credit unions potentially attracting more altruistic borrowers among their customers as well as the fact that credit union member-owners are part of borrowers' social network through the shared common bond but commercial-bank shareholders generally are not.

By contrast if social pressure is an empirically more important mechanism, the predictions about the signs and relative sizes of the estimates differ across loan types. Indeed, credit-union borrowers should be less likely to default, ceteris paribus, on mortgages relative to borrowers of commercial banks of the same size, number of branches, and operating in the same locations and at the same time ($\beta_M < 0$); for vehicle loans, given the ambiguity of their visibility, we do not have clearcut predictions regarding the sign of the coefficient, but we have a clearcut prediction regarding the order of magnitudes across the three types of mortgages, that is, we expect that $\beta_M < \beta_V < \beta_C$. Finally, under social pressure, we expect that $\beta_C \geq 0$, that is, there is no mechanism lowering borrowers willingness to default on credit card debt when banking with credit unions relative to otherwise similar standard commercial bank. If anything, if altruism had no role, credit union borrowers could be more likely to default on credit card debt in order to recoup the additional costs faced by sobering their default choices on mortgages relative to commercial-bank borrowers, because they would not care about imposing a loss on the institution's owners through defaulting but only about the stigma costs arising to them from visible defaults.

Table II report the results for estimating the specifications implied by variations of equation (2), whereby Panel A reports coefficients estimates for mortgages (β_M), Panel B for vehicle loans (β_V), and Panel C for credit cards (β_C). For each loan type, we assess the robustness of our estimates

by proposing specifications that compare the outcomes of credit unions and commercial banks that have similar size in terms of employees (column (1)), account for time-varing local business cycle fluctuations (column (2)), additional restrictions to compare similar-sized banks by assets (column (3)), and, finally, our most restrictive specification that restricts the variation within institutions with the same number of branches.

Across all specifications, our estimates are consistent with the social monitoring channel's predictions, but not with what we would predict if altruism was a relevant channel. Specifically, across all specifications, in Panel A, we find that credit-union borrowers are systematically less likely to default on mortgages relative to borrowers that bank with otherwise similar commercial banks in the same locations and at the same point in time. In stark contrast, Panel C shows that the same credit-union borrowers are, on average, more likely to default on credit card debt relative to similar commercial-bank borrowers. And, again consistent with the predictions of the social monitoring channel, we find that the estimated sizes of the coefficients attached to credit-union borrowers for default rates on vehicle loans lie consistently within those we estimate for mortgages and credit card debt: $\hat{\beta_M} < \hat{\beta_V} < \hat{\beta_C}$. While being consistent with social pressure, these estimates are not consistent with altruism playing a relevant role, which would imply that $\hat{\beta_C} > 0$, which is the opposite of what we find.

C. Intensive Margin: Variation in the Scope for Social Monitoring

‘ After having provided evidence according to which, on average, the social pressure channel of social monitoring prevails over the altruism channel, we move on to further assess the relevance of the main channel by considering cross-sectional variation in the scope for social monitoring.

Using the banking outcomes of commercial banks with similar characteristics as the control group, we exploit variation in the scope for each potential channel sustaining social monitoring across credit unions, so that we keep constant the overall incentives credit-union borrowers might have to implement social monitoring, which are likely systematically different from commercial-bank borrowers due to the selection into credit-union banking we discussed above, but we vary the intensive margin of the scope for social monitoring across different groups of credit-union borrowers.

To capture the scope for social monitoring, we use the size of borrower pools served by each financial institution, which captures the tightness of the social peer groups to which borrowers belong. Intuitively, the smaller is the size of the social group, the higher is the likelihood that each

member knows a higher fraction of the other members, and hence knows that more social peers would be aware of their default outcomes, when visible. We proxy for the variation in the size of social groups that bank with the same institution with the number of branches of each institution. The rationale is that institutions with fewer branches serve smaller and hence, presumably, tighter communities..

For instance, consider a single-branch institution. Such institution would serve members that are presumably all located in geographic proximity. The scope for social monitoring in this setting is at its highest, because the default outcomes of each borrower can easily be observed and known quickly by social peers. And, due to credit unions' common bonds, credit-union borrowers are further connected to each other based on a similar associational, religious, or professional purpose. In contrast, the higher is the number of branches, the broader are the communities the institutions serves, and hence the weaker is the average tightness of the connections among any two borrowers within the served community. The scope for social monitoring should thus be lower in such communities.

Based on these arguments, we estimate versions of equation (2), in which we add a full set of interactions between the credit union dummies and dummies capturing two groups by number of branches—between 3 and 15 branches and more than 15 branches. We report the results for estimating these specifications in Table III, where each column uses our most restrictive specification for each of the three loan types in the baseline analysis—mortgages, vehicle loans, and credit cards. In these specifications, the omitted category is the group of credit unions that only have one or two branches, that is, the ones for which the scope for social monitoring should be highest relative to otherwise similar commercial banks. Therefore, the coefficient estimate attached to the *Credit Union* dummy captures the differential default shares by borrowers of one/two-branch credit unions relative to similar commercial banks, whereas the two interactions capture the differential between this group and the borrowers at credit unions with a higher number of branches.

For each loan type, we find results that are consistent with our conjecture regarding the scope for social monitoring. Starting with mortgages, we can see that, indeed, the baseline lower likelihood of default on mortgages by credit union borrowers is lowest at one/two-branch credit unions. Although the default rates stay lower than those at otherwise similar commercial banks, they are relatively higher for borrowers at credit unions with more branches. Specifically, the effect is about 22% smaller for borrowers at mid-sized credit unions (between 3 and 15 branches) and about 28% lower

for borrowers at larger credit unions (more than 15 branches). The results for credit-card debt are fully symmetric: the baseline higher default rates among credit-union borrowers are highest in one/two-branch credit unions, which is consistent with the notion that, once default outcomes are not conspicuous, credit union borrowers, if anything, try to recoup the costs of suboptimal defaulting on visible loan collateral, such as mortgages. Instead, this effect declines for borrowers at credit unions with more branches—so much so that the effect is completely reversed for borrowers of the credit unions with most branches.

The results for vehicle loans (column (2)) are also consistent with our conjecture. In this case, we also note a switch in the sign of the effects: default rates of vehicle loans are systematically lower for borrowers of one/two-branch credit unions, relative to borrowers of one/two-branch commercial banks. This difference disappears for mid-sized financial institutions, and reverts for larger financial institutions, to the extent that, on average, credit union borrowers are more likely to default on vehicle loans than commercial bank borrowers for institutions with more than 15 branches. This switch in sign is not inconsistent with our interpretation of the baseline effects, given that, as discussed above, the expected sign of the effects is ambiguous for vehicle loans. This test highlights that the variation we document aligns with the intuition we discussed above: for tighter communities in which borrowers are more likely to know and interact with each other, borrowers are less likely to default on vehicle loans, for which asset repossession is likely to be more visible. As, instead, we move to larger credit unions that serve different communities, the default of each individual vehicle loan borrower is less visible to the average other credit union member, and such borrower is more likely to default on vehicle loans.

Moving to credit card debt (column (3)), we see that, once again consistent with our interpretation, credit-union borrowers' higher likelihood to default is strongest in tighter communities in which the scope for social monitoring is higher. In contrast, the effect declines as the scope for social monitoring is reduced in larger communities—so much so that the effect disappears when we compare credit-union and commercial-bank borrowers at large institutions.

Overall, our empirical results are consistent with the possibility that credit unions are better able than otherwise similar commercial banks to sustain social monitoring, but also that the most relevant channel is social pressure. Because of this channel, social monitoring does not lead credit unions to face unconditionally lower default rates on all forms of consumer debt they issue, but rather to have a performance advantage in forms of debt whose defaults lead to visible consequences for

borrowers' social peers, and a performance disadvantage in forms of debt whose defaults are not visible to social peers.

D. Variation in the Scope for Altruism: Types of Common Bond

The last cross-sectional test we implement aims at better characterizing the relative roles of the two channels that might sustain social monitoring. So far, we found that, on average, social pressure is the prevalent channel. At the same time, our results so far cannot exclude that altruism might still be an existing channel of social monitoring, albeit less economically relevant than social pressure.

Testing for the existence of an altruism channel above and beyond the prevalent social pressure channel requires cross-sectional variation in the scope for altruism across the credit unions we observe. If we could exploit such cross-sectional variation, we would be able to compare the default rates of credit-union borrowers within loan types keeping constant the scope for social pressure, but across credit unions whose borrowers should be more or less exposed to altruistic motives towards their social peers. If we observe no differences in default rates between credit-union and commercial-bank borrowers by loan types as the scope for altruism changes, we would conclude that the altruism channel is not just less economically relevant than the social pressure channel, but economically irrelevant whatsoever. If, instead, we detect variation in default rates within loan types across credit unions with a higher or lower scope for altruism, we would conclude that, despite being less economically important, the altruism channel also contributes to sustaining social monitoring.

The main challenge in implementing this test is obtaining a viable empirical source of variation in the extent to which borrowers of different credit unions might face different scopes of altruistic motives toward other borrowers, but which, at the same time, does not capture variation in the scope for social pressure. To tackle this challenge, we take advantage of a unique institutional feature of credit unions, which we can observe in our data: the types of common bonds around which credit unions are established, which capture the nature of the connection among borrowers who decide to bank with different credit unions.

Specifically, common bonds can be categorized into three types: religious/fraternal, geographic, and professional common bonds. Religious/fraternal common bonds relate to social groups that are defined by their sharing of a common religious and associational motive, which goes beyond

simple social interactions, and involves sharing a life purpose, moral and ethical values, and/or life objectives. Because of the deep sharing of life perspectives and values within religious/fraternal communities, we argue that this category of common bonds might provide the highest scope for altruistic motives among its members, who are deeply and intimately connected to each other. Geographic common bonds bring together individuals whose commonality is defined by residing in the same location. Relative to religious/fraternal bonds, geographic bonds are likely to provide a slimmer scope for altruistic motives among borrowers given the lack of such a deep and intense moral connection among the members. At the same time, because members of the same local community are likely to interact with each other relatively frequently and are exposed to the same common local shocks, the scope for altruistic motives might be moderate. Of the three types of common bonds, we interpret professional bonds as the ones that involve the weakest altruistic motives. Professional common bonds pool together individuals who work in the same sector or industry, such as teachers, engineers, or automotive workers. Although this is also a legitimate source of commonality that results in a shared bond among borrowers, in this case, borrowers might not even know each other, they might live in different locations, and they might not share any deeper trait, belief, or moral conviction.

Based on these arguments, in Table IV, we report the estimates of specifications that augment equation (2) with interactions between the credit union dummy and the types of common bonds. The omitted category is professional common bonds, which, as discussed above, should be the one with a low scope for altruistic motives among borrowers. Note that common bonds are only defined for credit unions and hence, in these tests, the full set of commercial banks acts as the control group for each of the types of credit unions, while at the same time, the types of common bonds allow for heterogeneous effects within credit unions.

Overall, our evidence is not consistent with a significant role for the altruism channel in social monitoring. In column (1), we can see that the baseline lower willingness to face (visible) mortgage defaults by credit union borrowers is, in fact, stronger for professional credit unions—the common bond for which the scope for altruism among members is lower. In contrast, the lower tendency to default on mortgages by credit union borrowers is most muted for religious/fraternal common bonds, whose scope for altruism is higher. A similar pattern arises for vehicle loans. For credit cards, also inconsistent with altruism, we detect the opposite pattern, even though, statistically, we cannot reject the null of no differences between the higher likelihoods of defaulting across all three

types of common bonds.

IV. Conclusion

To test whether and how financial institutions can support monitoring by leveraging borrowers' social preferences (*social monitoring* instead of standard contracts based on pecuniary incentives, we compare the debt choices of similar borrowers in the same locations who bank with commercial banks or credit unions. The scope for social monitoring is higher in credit unions. Intuitively, two channels might be at work: an altruism channel—a borrower's default imposes a loss on all other credit union members, who jointly own the institution—and a social pressure channel—the stigma attached to a borrower's default is higher for defaults whose consequences are more visible to one's social peers, who coincide with the credit union's owners.

We find evidence consistent with an economically and statistically significant effect of social monitoring on borrowers' debt repayment decisions. Moreover, tests that exploit the visibility of the consequences of default choices support the social pressure channel. Instead, we find no evidence that the altruism channel is relevant empirically in our setting, because credit union borrowers are more likely to default on credit card debt relative to commercial bank borrowers, and our baseline effects are not stronger for credit union types that bring together communities in which the scope for altruism is higher.

Our results inspire advances in financial intermediation theory, and especially on how social monitoring can be incorporated through borrowers' non-standard preferences . Moreover, our results beget follow-up empirical work to understand how social monitoring could be extended to financial institutions that do not have a formal common bond and shared ownership among their members. The results also have implications for regulators and policy-makers, such as providing an economic justification for the differential regulatory treatment of credit unions and commercial banks.

References

Akerlof, G. A. (1991). Procrastination and obedience. *The american economic review*, 81(2):1–19.

Akerlof, G. A. and Kranton, R. E. (2000). Economics and identity. *The Quarterly Journal of Economics*, 115(3):715–753.

Allcott, H. (2011). Social norms and energy conservation. *Journal of Public Economics*, 95(9-10):1082–1095.

Allcott, H. and Rogers, T. (2014). The short-run and long-run effects of behavioral interventions: Experimental evidence from energy conservation. *American Economic Review*, 104(10):3003–3037.

Andreoni, J. (1989). Giving with impure altruism: Applications to charity and ricardian equivalence. *Journal of political Economy*, 97(6):1447–1458.

Andreoni, J. (1990). Impure altruism and donations to public goods: A theory of warm-glow giving. *The economic journal*, 100(401):464–477.

Andreoni, J. and Miller, J. (2002). Giving according to garp: An experimental test of the consistency of preferences for altruism. *Econometrica*, 70(2):737–753.

ARDA (2010). Religious congregations and membership study (counties file).

Ash, S. E. (1953). Effects of group pressure upon the modification and distortion of judgements. *Group dynamics*.

Becker, G. S. (1981). Altruism in the family and selfishness in the market place. *Economica*, 48(189):1–15.

Becker, G. S. and Barro, R. J. (1986). Altruism and the economic theory of fertility. *Population and Development Review*, 12:69–76.

Bénabou, R. and Tirole, J. (2006). Incentives and prosocial behavior. *American economic review*, 96(5):1652–1678.

Bhutta, N., Dokko, J., and Shan, H. (2017). Consumer ruthlessness and mortgage default during the 2007 to 2009 housing bust. *The Journal of Finance*, 72(6):2433–2466.

Blader, S., Gartenberg, C., and Prat, A. (2020). The contingent effect of management practices. *The Review of Economic Studies*, 87(2):721–749.

Bursztyn, L., Fiorin, S., Gottlieb, D., and Kanz, M. (2019). Moral incentives in credit card debt repayment: Evidence from a field experiment. *Journal of Political Economy*, 127(4):1641–1683.

Charness, G. and Rabin, M. (2002). Understanding social preferences with simple tests. *The quarterly journal of economics*, 117(3):817–869.

Chatterji, A. K., Luo, J., and Seamans, R. C. (2021). Categorical competition in the wake of crisis: Banks vs. credit unions. *Organization Science*, 32:568–586.

Clark, L. (1943). Credit unions in the united states. *The Journal of Business*, 16(4):235–246.

Cororaton, A. (2019). Banking on the firm objective. Technical report, Working Paper.

D'Acunto, F., Rossi, A. G., and Weber, M. (2024). Crowdsourcing peer information to change spending behavior. *Journal of Financial Economics*, 157:103858.

DellaVigna, S., List, J. A., and Malmendier, U. (2012). Testing for altruism and social pressure in charitable giving. *The Quarterly Journal of Economics*, 127(1):1–56.

DellaVigna, S., List, J. A., Malmendier, U., and Rao, G. (2022). Estimating social preferences and gift exchange at work. *American Economic Review*, 112(3):1038–1074.

Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *The Review of Economic Studies*, 51(3):393–414.

Diep-Nguyen, H. and Dang, H. (2022). Social collateral.

Falk, A. and Ichino, A. (2006). Clean evidence on peer effects. *Journal of labor economics*, 24(1):39–57.

Fay, S., Hurst, E., and White, M. J. (2002). The household bankruptcy decision. *American Economic Review*, 92(3):706–718.

Fehr, E. and Schmidt, K. M. (1999). A theory of fairness, competition, and cooperation. *The quarterly journal of economics*, 114(3):817–868.

Gale, D. and Hellwig, M. (1985). Incentive-compatible debt contracts: The one-period problem. *The Review of Economic Studies*, 52(4):647–663.

Garicano, L., Palacios-Huerta, I., and Prendergast, C. (2005). Favoritism under social pressure. *Review of Economics and Statistics*, 87(2):208–216.

Gross, D. B. and Souleles, N. S. (2002). An empirical analysis of personal bankruptcy and delinquency. *The Review of Financial Studies*, 15(1):319–347.

Guiso, L., Sapienza, P., and Zingales, L. (2013). The determinants of attitudes toward strategic default on mortgages. *The Journal of Finance*, 68(4):1473–1515.

Li, K. and van Rijn, J. (2022). Credit union and bank subprime lending in the great recession. *The Review of Corporate Finance Studies*.

Mas, A. and Moretti, E. (2009). Peers at work. *American Economic Review*, 99(1):112–145.

Milgram, S. (1963). Behavioral study of obedience. *The Journal of abnormal and social psychology*, 67(4):371.

North, D. C. D. C. (1990). *Institutions, institutional change, and economic performance*. Cambridge University Press.

Putnam, R. D. (1993). *Making Democracy Work*. Princeton University Press.

Putnam, R. D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. Simon & Schuster.

Raz, I. T. (2025). Soil heterogeneity, social learning, and the formation of close-knit communities. *Journal of Political Economy*, 133:2643–2691.

Rupasingha, A., Goetz, S. J., and Freshwater, D. (2006). The production of social capital in us counties. *The Journal of Socio-Economics*, 35:83–101.

Shahidinejad, A. (2025). Consumer finance outcomes of banking with credit unions. Technical report, Working Paper.

Skiba, P. M. and Tobacman, J. (2008). Payday loans, uncertainty and discounting: Explaining patterns of borrowing, repayment, and default. *Vanderbilt Law and Economics Research Paper*, (08-33).

Townsend, R. M. (1979). Optimal contracts and competitive markets with costly state verification. *Journal of Economic Theory*, 21(2):265–293.

Woolcock, M. (1998). Social capital and economic development: Toward a theoretical synthesis and policy framework. *Theory and Society*, 27:151–208.

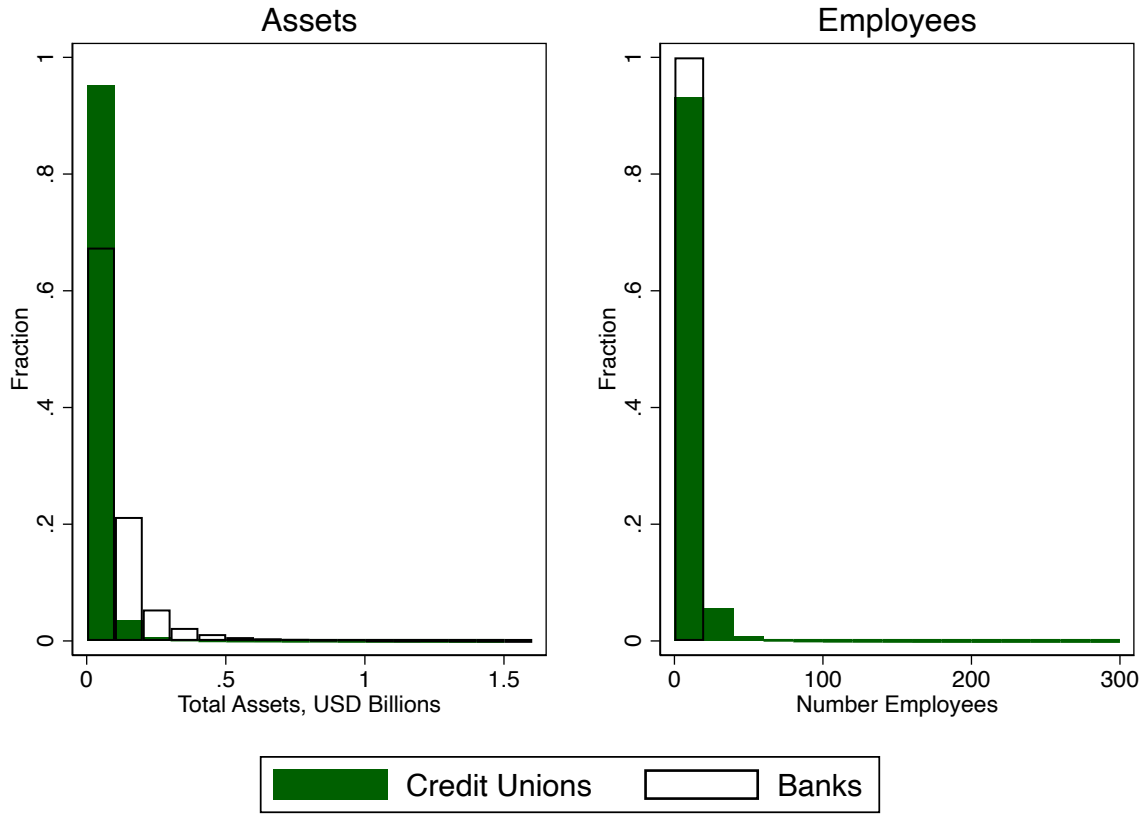
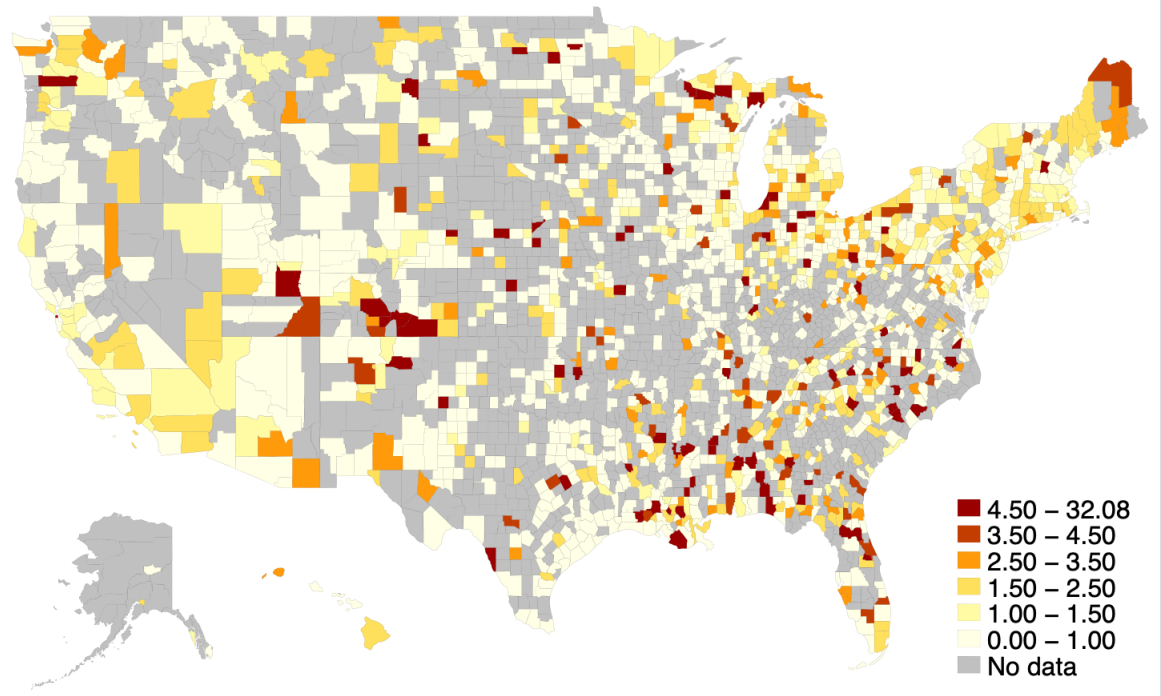


Figure III: **Asset and Employee Distributions.** This figure compares the distributions of total assets (left) and number of employees (right) across banks and credit unions from 2003q1-2024q4. Each panel overlays the distributions for institutions with one to two branches. The vertical axis shows the fraction of institutions in each bin. All distributions are trimmed at the 5th and 95th percentiles.

Panel A: Credit Unions



Panel B: Banks

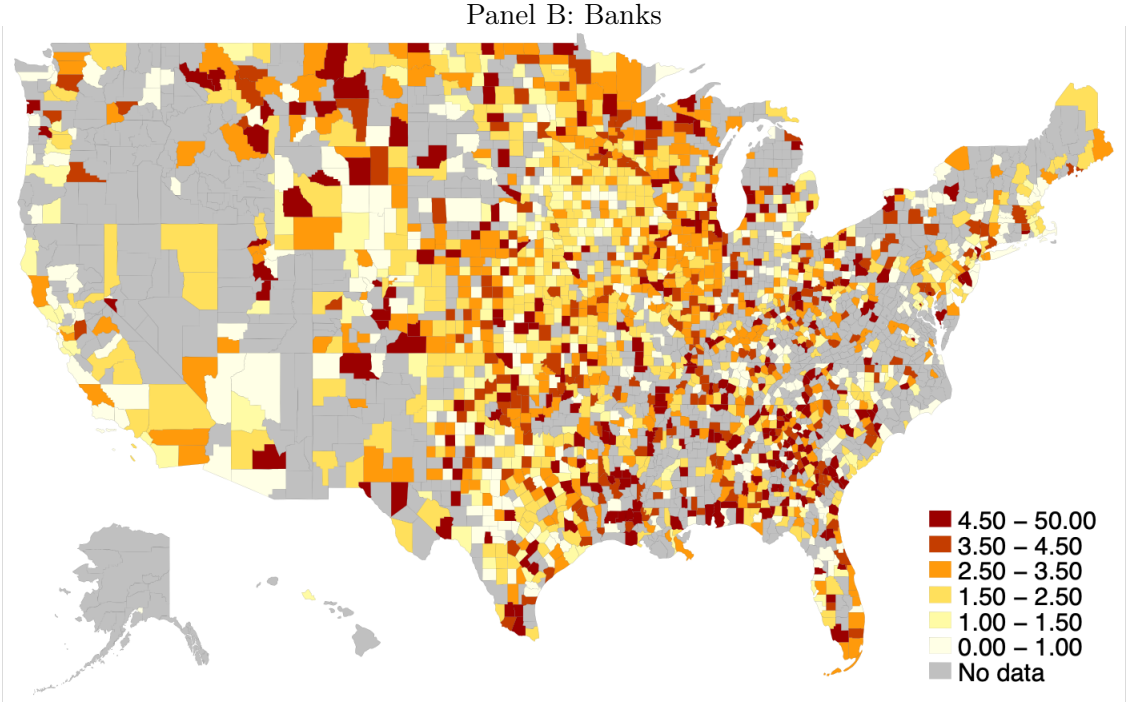


Figure IV: **County-Level Mortgage Default Rates..** This figure maps average mortgage default rates across U.S. counties in 2024q4, separately for credit unions (Panel A) and banks (Panel B). Counties shaded gray indicate no data for that institution type.

Table I: **Summary Statistics**

This table reports summary statistics at the institution-product-quarter level for all depository institutions (Panel A), for credit unions (Panel B), and for banks (Panel C). Section II.B provides details on data construction.

	Mean	P10	P50	P90	Observations
Panel A. All Depository Institutions					
Outcome Variables					
Default Rate - Mortgages (%)	2.02	0.00	0.74	5.24	1,204,340
Default Rate - Vehicle Loans (%)	1.39	0.00	0.25	3.73	663,189
Default Rate - Credit Cards (%)	1.75	0.00	0.81	4.40	328,598
Explanatory Variables					
Credit Union Dummy	0.48				1,237,351
Low Num. Branches Dummy	0.56				1,237,351
Medium Num. Branches Dummy	0.37				1,237,351
High Num. Branches Dummy	0.06				1,237,351
Control Variables					
Num. Employees	172.24	1.00	21.00	153.00	1,203,887
Asset Size (Millions)	1,270.27	3.96	78.49	716.50	1,205,458
Num. Branches	8.01	1.00	2.00	10.00	1,231,724
Panel B. Credit Unions					
Outcome Variables					
Default Rate - Mortgages (%)	1.43	0.00	0.00	3.79	598,878
Default Rate - Vehicle Loans (%)	1.10	0.00	0.04	3.08	362,209
Default Rate - Credit Cards (%)	1.74	0.00	0.91	4.42	263,285
Explanatory Variables					
Credit Union Dummy	1.00				598,878
Low Num. Branches Dummy	0.72				598,878
Medium Num. Branches Dummy	0.25				598,878
High Num. Branches Dummy	0.03				598,878
Professional Common Bond Dummy	0.70				598,878
Geographic Common Bond Dummy	0.25				598,878
Religious Common Bond Dummy	0.05				598,878
Control Variables					
Number Employees	37.54	0.00	6.00	82.00	598,878
Asset Size (Millions)	184.43	1.48	20.85	312.95	598,878
Number Branches	2.98	1.00	1.00	6.00	598,878

Table I: **Summary Statistics (Cont.)**

This table reports summary statistics at the institution-product-quarter level for all depository institutions (Panel A), for credit unions (Panel B), and for banks (Panel C). Section II.B provides details on data construction.

	Mean	P10	P50	P90	Observations
Panel C. Banks					
Outcome Variables					
Default Rate - Mortgages (%)	2.61	0.00	1.47	6.24	605,462
Default Rate - Vehicle Loans (%)	1.75	0.00	0.40	4.62	300,980
Default Rate - Credit Cards (%)	1.80	0.00	0.30	4.30	65,313
Explanatory Variables					
Low Num. Branches Dummy	0.42				638,473
Medium Num. Branches Dummy	0.49				638,473
High Num. Branches Dummy	0.09				638,473
Control Variables					
Num. Employees	305.57	10.00	40.00	218.00	605,009
Asset Size (Millions)	2,342.33	38.13	166.27	1,111.11	606,580
Num. Branches	12.77	1.00	3.00	14.00	632,846

Table II: **Altruism vs. Social Pressure: Default Rates by Collateral Types**
This table reports results at the bank-quarter level for regressing 30-day default rates on mortgages (Panel A), vehicle loans (Panel B), and credit card debt (Panel C) on an indicator capturing credit unions and the set of controls and fixed effects indicated at the bottom of the table. Standard errors are clustered at the state level: *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1)	(2)	(3)	(4)
		Panel A: Mortgages		
Credit Union	-1.04***	-1.02***	-1.02***	-1.01***
	(0.11)	(0.10)	(0.09)	(0.08)
Constant	2.29***	2.25***	1.92***	1.79***
	(0.13)	(0.07)	(0.14)	(0.20)
Observations	1,203,887	1,203,767	1,203,767	1,202,984
		Panel B: Vehicle Loans		
Credit Union	-0.23**	-0.17*	-0.13	-0.14
	(0.09)	(0.10)	(0.08)	(0.08)
Constant	1.46***	1.39***	0.81***	0.74***
	(0.11)	(0.08)	(0.20)	(0.23)
Observations	571,858	571,802	571,802	571,181
		Panel C: Credit Cards		
Credit Union	0.84***	1.07***	0.72***	0.70***
	(0.19)	(0.17)	(0.10)	(0.09)
Constant	0.29	-0.10	0.75***	1.11***
	(0.22)	(0.24)	(0.28)	(0.25)
Observations	609,427	609,408	609,408	608,615
Control: Log(Employees)	Yes	Yes	Yes	Yes
State-by-YearQuarter FE	No	Yes	Yes	Yes
Asset Size Pct FE	No	No	Yes	Yes
Num. Branches FE	No	No	No	Yes

Table III: **Altruism vs. Social Pressure: Heterogeneity by Tightness of Social Groups**
This table reports results at the bank-quarter level for regressing 30-day default rates on mortgages (column (1)), vehicle loans (column (2)), and credit card debt (column (3)) on an indicator capturing credit unions, interactions of the indicator with dummy variables capturing groups of banks by their number of branches, and the set of controls and fixed effects indicated at the bottom of the table. Standard errors are clustered at the state level: *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1) Mortgages	(2) Vehicle Loans	(3) Credit Cards
Credit Union	-1.16***	-0.47***	0.79*
	(0.11)	(0.12)	(0.40)
Credit Union×	0.25**	0.54***	-0.07
Medium Num. Branches (3-15)	(0.10)	(0.10)	(0.58)
Credit Union×	0.33***	0.68***	-0.87*
High Num. Branches (>15)	(0.10)	(0.13)	(0.45)
Medium Num. Branches (3-15)	-0.14*	-0.19***	0.74**
	(0.08)	(0.07)	(0.30)
High Num. Branches (>15)	-0.36**	-0.33**	1.32***
	(0.16)	(0.13)	(0.38)
Log(Employees)	0.22***	0.26***	0.22**
	(0.05)	(0.07)	(0.09)
Constant	1.97***	1.04***	0.73**
	(0.15)	(0.20)	(0.35)
State-by-YearQuarter FE	Yes	Yes	Yes
Asset Size Pct FE	Yes	Yes	Yes
Num. Branches FE	Yes	Yes	Yes
Observations	1,202,984	571,802	609,408

Table IV: **Altruism vs. Social Pressure: Heterogeneity by Strength of Common Bond**
This table reports results at the bank-quarter level for regressing 30-day default rates on mortgages (column (1)), vehicle loans (column (2)), and credit card debt (column (3)) on an indicator capturing credit unions, interactions of the indicator with dummy variables capturing groups of credit unions by their common bond type, and the set of controls and fixed effects indicated at the bottom of the table. Standard errors are clustered at the state level: *, **, and *** indicate statistical significance at the 10%, 5%, and 1%, respectively.

	(1) Mortgages	(2) Vehicle Loans	(3) Credit Cards
Credit Union	-1.06***	-0.14	0.71***
	(0.09)	(0.09)	(0.10)
Credit Union×	0.15**	0.00	-0.02
Geographic Common Bond	(0.07)	(0.06)	(0.20)
Credit Union×	0.57***	0.25*	-0.25
Religious/Fraternal Common Bond	(0.18)	(0.14)	(0.25)
Log(Employees)	0.24***	0.30***	0.21**
	(0.06)	(0.07)	(0.08)
Constant	1.77***	0.73***	1.12***
	(0.19)	(0.23)	(0.24)
State-by-YearQuarter FE	Yes	Yes	Yes
Asset Size Pct FE	Yes	Yes	Yes
Num. Branches FE	Yes	Yes	Yes
Observations	1,202,984	571,181	608,615

Online Appendix to

BANKING SOCIALLY*

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September 16, 2025

*We thank seminar participants at CUHK and the Opportunity & Inclusive Growth Institute for comments and suggestions. Antonio Shi provided excellent research assistance. All errors and omissions are our own.

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A.1. Figures

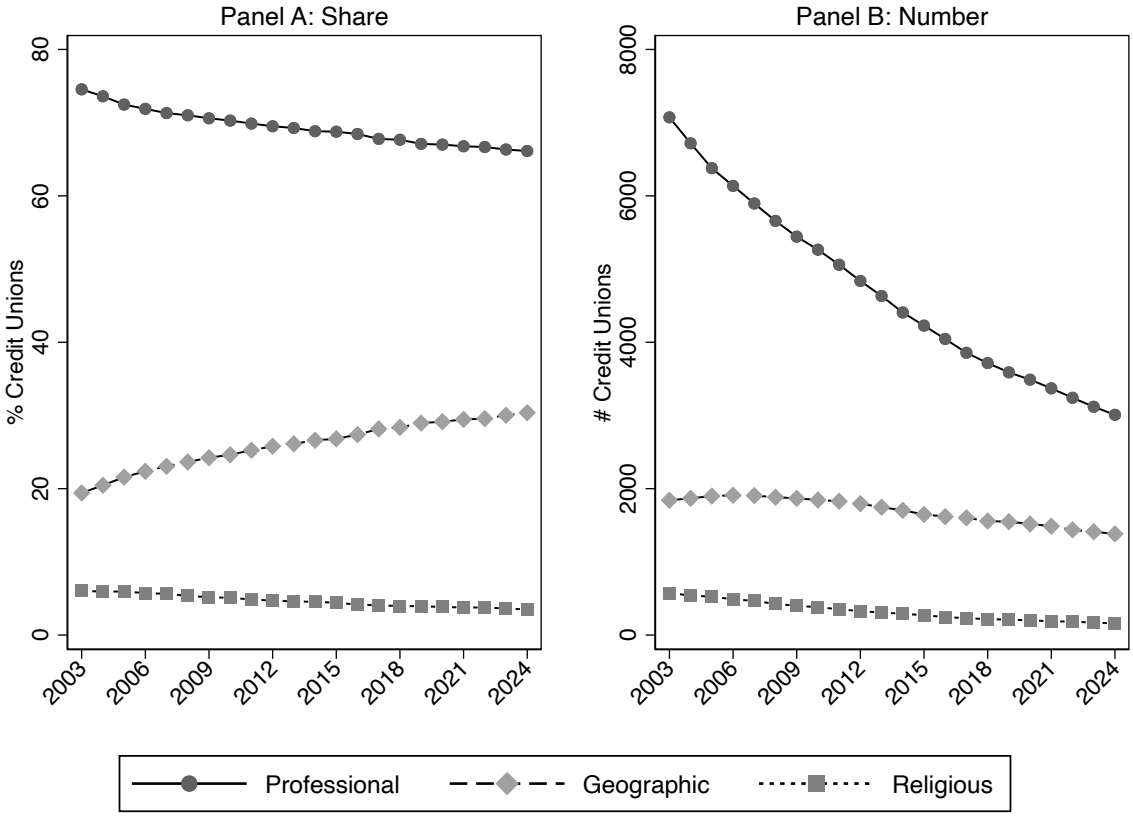


Figure A.1.1: **Credit Union Share and Number by Common Bond Type.** This figure reports the share (Panel A) and number (Panel B) of credit unions across different common bond types. Professional bonds encompass employees of the same firm or related entities, as well as "trade, industry, or profession" bonds that group individuals by sector or occupation, such as health care workers or teachers. Geographic common bonds are defined by residence, schooling, employment, or worship within a specific geographic area. Religious bonds extend membership through affiliation with a church, fraternal organization, or labor union. Vertical axes show the share of credit unions (Panel A) and the number of credit unions (Panel B) for each common bond type. Both panels are based on call report and common bond data obtained through a FOIA request covering the period 2003-2024.

A.2. Tables

Code	Description
04	Educational
05	Military
10	Manufacturing - chemicals
11	Manufacturing - petroleum refining
12	Manufacturing - primary and fabricated metals
13	Manufacturing - machinery
14	Manufacturing - transportation equipment
15	Manufacturing - all other
20	Service - finance, insurance, real estate, trade
21	Service - health care
22	Service - transportation
23	Service - communications and utilities
24	Single common bond - other
34	Multiple group - primarily educational
35	Multiple group - primarily military
40	Multiple group - primarily chemical
41	Multiple group - primarily petroleum refining
42	Multiple group - primarily primary and fabricated metals
43	Multiple group - primarily machinery
44	Multiple group - primarily transportation equipment
49	Multiple group - primarily other manufacturing
50	Multiple group - primarily finance, insurance, real estate, trade
51	Multiple group - primarily health care
52	Multiple group - primarily transportation
53	Multiple group - primarily communications and utilities
54	Multiple common bond - other
98	Multiple group - other
99	Non-Federal Credit Union

Table A.2.1: **TOM Codes and Descriptions for Professional Common Bonds.** This table lists Type of Membership (TOM) codes and descriptions used to classify professional common bond credit unions. The data are obtained from NCUA common bond classifications through a FOIA request covering 2003-2024.

References

Akerlof, G. A. (1991). Procrastination and obedience. *The american economic review*, 81(2):1–19.

Akerlof, G. A. and Kranton, R. E. (2000). Economics and identity. *The Quarterly Journal of Economics*, 115(3):715–753.

Allcott, H. (2011). Social norms and energy conservation. *Journal of Public Economics*, 95(9-10):1082–1095.

Allcott, H. and Rogers, T. (2014). The short-run and long-run effects of behavioral interventions: Experimental evidence from energy conservation. *American Economic Review*, 104(10):3003–3037.

Andreoni, J. (1989). Giving with impure altruism: Applications to charity and ricardian equivalence. *Journal of political Economy*, 97(6):1447–1458.

Andreoni, J. (1990). Impure altruism and donations to public goods: A theory of warm-glow giving. *The economic journal*, 100(401):464–477.

Andreoni, J. and Miller, J. (2002). Giving according to garp: An experimental test of the consistency of preferences for altruism. *Econometrica*, 70(2):737–753.

ARDA (2010). Religious congregations and membership study (counties file).

Ash, S. E. (1953). Effects of group pressure upon the modification and distortion of judgements. *Group dynamics*.

Becker, G. S. (1981). Altruism in the family and selfishness in the market place. *Economica*, 48(189):1–15.

Becker, G. S. and Barro, R. J. (1986). Altruism and the economic theory of fertility. *Population and Development Review*, 12:69–76.

Bénabou, R. and Tirole, J. (2006). Incentives and prosocial behavior. *American economic review*, 96(5):1652–1678.

Bhutta, N., Dokko, J., and Shan, H. (2017). Consumer ruthlessness and mortgage default during the 2007 to 2009 housing bust. *The Journal of Finance*, 72(6):2433–2466.

Blader, S., Gartenberg, C., and Prat, A. (2020). The contingent effect of management practices. *The Review of Economic Studies*, 87(2):721–749.

Bursztyn, L., Fiorin, S., Gottlieb, D., and Kanz, M. (2019). Moral incentives in credit card debt repayment: Evidence from a field experiment. *Journal of Political Economy*, 127(4):1641–1683.

Charness, G. and Rabin, M. (2002). Understanding social preferences with simple tests. *The quarterly journal of economics*, 117(3):817–869.

Chatterji, A. K., Luo, J., and Seamans, R. C. (2021). Categorical competition in the wake of crisis: Banks vs. credit unions. *Organization Science*, 32:568–586.

Clark, L. (1943). Credit unions in the united states. *The Journal of Business*, 16(4):235–246.

Cororaton, A. (2019). Banking on the firm objective. Technical report, Working Paper.

D'Acunto, F., Rossi, A. G., and Weber, M. (2024). Crowdsourcing peer information to change spending behavior. *Journal of Financial Economics*, 157:103858.

DellaVigna, S., List, J. A., and Malmendier, U. (2012). Testing for altruism and social pressure in charitable giving. *The Quarterly Journal of Economics*, 127(1):1–56.

DellaVigna, S., List, J. A., Malmendier, U., and Rao, G. (2022). Estimating social preferences and gift exchange at work. *American Economic Review*, 112(3):1038–1074.

Diamond, D. W. (1984). Financial intermediation and delegated monitoring. *The Review of Economic Studies*, 51(3):393–414.

Diep-Nguyen, H. and Dang, H. (2022). Social collateral.

Falk, A. and Ichino, A. (2006). Clean evidence on peer effects. *Journal of labor economics*, 24(1):39–57.

Fay, S., Hurst, E., and White, M. J. (2002). The household bankruptcy decision. *American Economic Review*, 92(3):706–718.

Fehr, E. and Schmidt, K. M. (1999). A theory of fairness, competition, and cooperation. *The quarterly journal of economics*, 114(3):817–868.

Gale, D. and Hellwig, M. (1985). Incentive-compatible debt contracts: The one-period problem. *The Review of Economic Studies*, 52(4):647–663.

Garicano, L., Palacios-Huerta, I., and Prendergast, C. (2005). Favoritism under social pressure. *Review of Economics and Statistics*, 87(2):208–216.

Gross, D. B. and Souleles, N. S. (2002). An empirical analysis of personal bankruptcy and delinquency. *The Review of Financial Studies*, 15(1):319–347.

Guiso, L., Sapienza, P., and Zingales, L. (2013). The determinants of attitudes toward strategic default on mortgages. *The Journal of Finance*, 68(4):1473–1515.

Li, K. and van Rijn, J. (2022). Credit union and bank subprime lending in the great recession. *The Review of Corporate Finance Studies*.

Mas, A. and Moretti, E. (2009). Peers at work. *American Economic Review*, 99(1):112–145.

Milgram, S. (1963). Behavioral study of obedience. *The Journal of abnormal and social psychology*, 67(4):371.

North, D. C. D. C. (1990). *Institutions, institutional change, and economic performance*. Cambridge University Press.

Putnam, R. D. (1993). *Making Democracy Work*. Princeton University Press.

Putnam, R. D. (2000). *Bowling Alone: The Collapse and Revival of American Community*. Simon & Schuster.

Raz, I. T. (2025). Soil heterogeneity, social learning, and the formation of close-knit communities. *Journal of Political Economy*, 133:2643–2691.

Rupasingha, A., Goetz, S. J., and Freshwater, D. (2006). The production of social capital in us counties. *The Journal of Socio-Economics*, 35:83–101.

Shahidinejad, A. (2025). Consumer finance outcomes of banking with credit unions. Technical report, Working Paper.

Skiba, P. M. and Tobacman, J. (2008). Payday loans, uncertainty and discounting: Explaining patterns of borrowing, repayment, and default. *Vanderbilt Law and Economics Research Paper*, (08-33).

Townsend, R. M. (1979). Optimal contracts and competitive markets with costly state verification. *Journal of Economic Theory*, 21(2):265–293.

Woolcock, M. (1998). Social capital and economic development: Toward a theoretical synthesis and policy framework. *Theory and Society*, 27:151–208.