Social Capital & Mortgages

Xudong An, Sadok El Ghoul, Omrane Guedhami, Ross Levine, Raluca Roman

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Motivation

Prior research suggests that access to mortgage credit shapes long-run wealth accumulation, where families raise their children, and other components of household welfare.

- E.g., Campbell, 2006; Karlan and Zinman, 2010; Servaes and Tamayo, 2017; Célérier and Matray, 2019; Bartlett, Morse, Stanton, and Wallace, 2022.

- This research naturally motivates questions about the factors determining access to mortgage credit, including determinants other than traditional measures of household income, wealth, and credit worthiness.

- RQ: Does the social capital of the community in which a family lives exert an independent impact on ***access to mortgage credit, the terms on approved mortgages, and subsequent performance on those mortgages***?

"In measurable and well-documented ways, social capital makes an enormous difference in our lives." *Robert D. Putnam, "Bowling Alone: Revised and Updated: The Collapse and Revival of American Community," 2020.*

Motivation

"In measurable and well-documented ways, social capital makes an enormous difference in our lives." *Robert D. Putnam, "Bowling Alone: Revised and Updated: The Collapse and Revival of American Community," 2020.*

- Outbreak of social capital research across social studies disciplines aimed at defining, measuring, and broadly understanding social capital and role in improving society.
  - E.g., Coleman, 1988, 1990, 1994; Putnam, 1993, 1997, 2000, 2001, 2020; Fukuyama, 1995; Portes, 1998.
- Consistent with an extensive literature, we define social capital as **the networks, shared norms, and trust** within groups that facilitate communication, cooperation, and coordination for mutual benefit.

Motivation (cont.)

- Extant research documents that social capital shapes:
- …aggregate economic performance
  - E.g., Fukuyama, 1995; Knack and Keefer, 1997; Putnam, 2000; Routledge and Von Amsberg, 2003; Karlan, 2005; Guiso, Sapienza, and Zingales, 2009.
- …firm performance
  - E.g., Lins, Servaes, and Tamayo, 2017; Jha and Chen, 2015; Pevzner, Xie, and Xin, 2015; Hasan, Hoi, Wu, and Zhang, 2017a, 2017b.
- …household financial decisions
  - E.g., Guiso, Sapienza, and Zingales, 2004; Hong, Kubik, and Stein, 2004.
- ***This paper investigates how social capital shapes consumer credit decisions, focusing on the mortgage market.***
  - Mortgages account for about 70% of total U.S. consumer debt.

Motivation (cont.)

- Theory offers **ambiguous** predictions about impact of social capital on consumer credit.
- On the one hand, greater social interconnectedness that spurs cooperation, trust, and communication can improve the effectiveness of lenders' decisions in at least two ways.
  - First, social capital that reduces informational asymmetries will tend to boost the efficiency of lenders' screening and monitoring of borrowers (Nooteboom, Berger, and Noorderhaven, 1997; Lewicki, McAllister, and Bies, 1998).
  - Second, social capital that fosters trust and strengthens social bonds will tend to increase the costs to borrowers from defaulting on their debts, especially to lenders within the community.
- On the other hand, social capital may impede efficient credit allocation if strong social connections induce loan officers to make lending decisions based on nepotism and cronyism rather than sound financial principles.
  - Such favoritism could generate a negative relationship between social capital and borrower performance.
- ***The effects of social capital on credit approval decisions, the terms on approved loans, and subsequent performance on those loans are thus open empirical questions.***

Preview of Key Findings

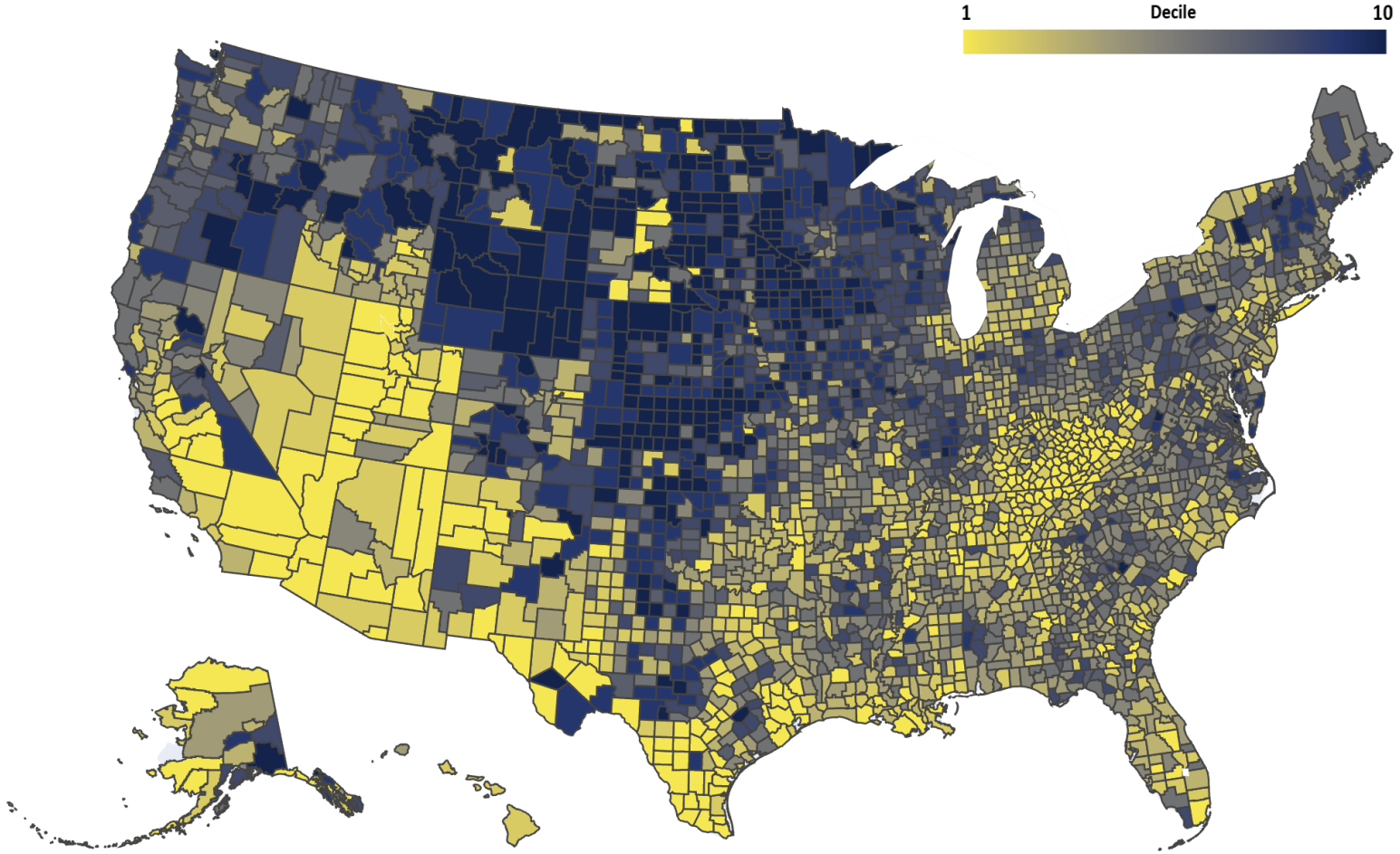
Using anonymized confidential loan-level data on mortgages, we discover that:

- Social capital is associated with higher mortgage approval rates, shorter screening times, longer maturities, lower interest rates, and reduced loan delinquency rates.
  - E.g., social capital increases mortgage approval rates by about 4 percentage points when moved from the 10th to the 90th percentile of the distribution, or 33,467 additional new approved loans and almost $6.6 billion additional value of loans originated per year.
- The results hold when conditioning on extensive consumer and market characteristics, a battery of fixed effects, including individual fixed effects data permitting, and using instrumental variables and propensity score matching.
- Consistent with social capital shaping mortgage credit by enhancing interpersonal connections, falsification tests show that (a) social capital does not affect credit decisions by automated systems, and (b) the social capital effect weakens when examining Fintech and other lenders with minimal direct interactions with borrowers.

Social Capital

- To measure social capital, we use data from the Northeast Regional Center for Rural Development (NRCRD) at Pennsylvania State University.
  - Data outline dimensions of social capital across U.S. counties for 1997, 2005, 2009, and 2014.
- Data has information on four different dimensions of social capital across US counties.
  - PVOTE, the percentage of voters who voted in the presidential election; RESPN, the response rate to the Census Bureau's decennial census; ASSN, the total number of ten different types of social organizations in the local community divided by population per 1,000; and NCCS, the number of tax-exempt non-profit organizations divided by population per 10,000.
- We follow prior research and construct a social capital variable, SK = the county-level social capital index obtained from a principal component analysis of PVOTE, RESPN, ASSN, and NCCS.
  - Because the variables are available only in 1997, 2005, and 2014, we follow prior research and backfill data for missing years. We use estimates for the preceding year in which data are available.
  - We also address data reporting inconsistencies across years.

Social Capital across US Counties in 2014



Data & Sample

- We obtain loan-level data from the anonymized confidential Federal Reserve System's HMDA Loan Application Registry (CHMDA).
  - 90% of all mortgage loan applications in the U.S. and the majority of public and private lenders. Rich set of consumer characteristics, loan attributes, and property location.
  - The confidential version of the HMDA includes the exact date the consumer submitted the application and the exact date of the loan officer's decision (approved or denied); the publicly available version of the data only reports the year of mortgage origination.
  - Use the link file developed by Robert Avery to merge the HMDA data with Call Reports financial data for banks. Baseline analyses focus on mortgage applications submitted to banks.
- To analyze the performance of originated mortgage loans, we use the anonymized HMDA-McDash dataset merged by the Federal Reserve up to 2015.
  - The raw McDash data come from the Black Knight Data & Analytics, LLC, which aggregates mortgage-servicing information from loan servicers. It covers about two-thirds of the total market.
  - The data include consumer risk (e.g., FICO score) and loan characteristics (loan amount, interest rate, maturity, property location, and type, and LTV ratio).
- 20% random sample of mortgage applications in CHMDA and 20% random sample of approved loans in HMDA-McDash, Jan1998 to Dec2015.

Data & Sample (cont.)

- Apply several data filters to CHMDA following the literature:
  - 1) retain only applications that are either approved or denied (e.g., we exclude applications that were withdrawn or closed for incompleteness before the decision); 2) exclude observations with missing decision action dates or those that fall on non-workdays; 3) retain only conventional mortgage applications; 4) retain only new home purchases; 5) exclude loans sold upon origination because they have relatively little effect on the originating lender's portfolio risk; and 6) retain only owner-occupied properties to ensure that consumers live at the property location and are thus subject to the local social norms and networks. 7) exclude non-bank lenders because they are less likely to engage in face-to-face interactions with borrowers. 8) remove broker-originated applications (those filed with lenders that do not have a branch in the county of the mortgaged property).
- Merge data with county-level social capital measures from the NRCRD and county-level controls from several sources, including the IRS, Haver Analytics/BLS, Census Bureau, CoreLogic Solutions, and the FRBNY Consumer Credit Panel/Equifax (CCP).
- Our final CHMDA sample consists of 2,578,020 mortgage applications from 1998 to 2015, of which 2,118,673 are approved and 459,347 are denied, for an average denial rate of about 20%.
  - The mortgage applications are made to 5,579 unique banks in 2,916 counties over 216 different monthly periods.

Social Capital & Consumer Credit Approval: Econometric Approach

- Estimate linear probability models of loan approvals using CHMDA; each observation is a mortgage application; outcome variable is a bank's decision to approve or deny the loan:

$$Approved_{i,m,b,t} = \beta_0 + \beta_1 Social\ Capital_{m,t-1} + \beta_2 Borrower\ Controls_i + \beta_3 County\ Controls_{m,t-1} + \chi Bank\ Controls_{b,t-1} + \eta_b + \vartheta_{s,t} + \zeta_{i,m,b,t}. \quad (1)$$

$$Approved_{i,m,b,t} = \delta_0 + \delta_1 Social\ Capital_{m,t-1} + \delta_2 Borrower\ Controls_i + \delta_3 County\ Controls_{m,t-1} + \alpha_{b,t} + \varphi_{s,t} + \varepsilon_{i,m,b,t}. \quad (2)$$

- *i* indexes a mortgage application, *m* the borrower county, *b* the bank, and *t* the time period, month-year. *Approved* =1 if the loan application is approved and 0 if it is denied.
- *Social Capital* is the level of social capital in the county of the borrower's property in the year immediately before the year the borrower applied for a mortgage.
- *Borrower Controls*: Debt-to-Income, Ln(Borrower Income), Minority, Female, Co-Applicant, Metro, Ln(Loan Amount) and Ln(Loan Amount) Sq.
- *County Controls*: Ln(Cnty Income), Cnty Unemployment Rate, ΔCnty HPI, Population Density, Cnty Credit Score, Cnty Age and Cnty Age Sq.
- Eqn (1): rich set of time-varying observable *Bank Controls* and *Bank* FE, while Eqn (2): stricter approach including *Bank* × *Month-Year* FE.
- Both Eqn (1) and (2) also include *State* × *Month-Year* FE and cluster errors at the county level (level of variation) to account for within-county correlation of residuals in loan approvals.

Social Capital & Consumer Credit Performance: Econometric Approach

- We compare the ex-post performance of loans originated in counties with high social capital relative to counties with lower social capital using the HMDA-McDash dataset.
- We estimate the following model:

$$Performance_{i,m,t+3} = \omega_0 + \omega_1 Social\ Capital_{m,t-1} + \omega_2 Borrower\ Controls_i + \omega_3 County\ Controls_{m,t-1} + \varpi_{s,t} + \varepsilon_{i,t+3}, \quad (3)$$

  - *Performance* measures consumer mortgage performance over the 36 months (three years) after origination to allow time for potential credit problems to show up.
    - Results are robust to measuring performance over 24 months (two years) after origination.
  - All other controls are the same as those in Equation (1), except we cannot include bank fixed effects or bank controls because we cannot identify the lenders in the merged HMDA-McDash dataset.

Effects of Social Capital on Consumer Credit Approval:

Dependent Variable	(1) Approved	(2) Approved
Independent Variables		
SK	0.029***	0.014***
	(14.836)	(6.732)
Borrower Controls		
Debt-to-Income		-0.001***
		(-4.348)
Ln(Borrower Income)		0.082***
		(63.016)
Minority		-0.057***
		(-13.911)
Female		0.006***
		(6.177)
Co-Applicant		0.009***
		(6.623)
Metro		0.034***
		(11.491)
Ln(Loan Amount)		0.079***
		(13.320)
Ln(Loan Amount) Sq		-0.009***
		(-12.727)
County Controls		✓
State × Month-Year FE	✓	✓
Bank × Month-Year FE	✓	✓
Cluster by County	✓	✓
Observations	2,859,250	2,578,020
Adjusted R-squared	0.089	0.122

Effects of Social Capital on Consumer Credit Approval: Additional Identification Tests

- *IV Analysis*:
  - Prior research develops an instrument for social capital based on the ancestral countries of U.S. communities' residents (e.g., Algan and Cahuc, 2010; Hoi et al., 2019).
    - Parents' attitudes, values, and behaviors are good predictors of those of their children (e.g., Rice and Feldman, 1997; Putnam, 2000; Algan and Cahuc, 2010). Related work: social characteristics of ancestral countries shape U.S. communities' current social preferences, norms, and behaviors (e.g., Becker, 1996; Guiso et al., 2006). Hoi et al. (2019) show that the social characteristics of ancestral countries help explain cross-county differences in social capital and use this approach to identify the impact of social capital on corporate agency problems.
  - Use "ancestral trust," the level of trust in the ancestral countries of county residents. Past research suggests that ancestral trust is positively related to contemporaneous social capital in a community, as ancestral trust is the basis for current mutual trust and collective behavior and cooperation among people in the community.
  - Measure trust across countries using data in the World Values Survey (WVS).
    - "Generally speaking, would you say that most people can be trusted or that you need to be very careful in dealing with people?" The WVS only allows for two answers: 1: "Most people can be trusted," and 0: "Can't be too careful."
  - Use ancestry data from the U.S. Census Bureau's American Community Surveys (which report the first ancestry of residents in a county).
    - Calculate each county's weighted average trust using the percentage of the population in a county from each ancestral country as the weights. We then use *Ancestral Trust* as an instrument for *SK* in assessing the impact of social capital on loan approvals.

Effects of Social Capital on Consumer Credit Approval: Additional Identification Tests

- *PSM Analysis*:
  - Address the concern that the nonrandom assignment of individuals across counties could interfere with identifying the impact of social capital on mortgage approvals
  - Construct artificial control groups by matching each treated loan application with non-treated loan applications having similar observable characteristics.
  - Define a "treated" county = one with sufficiently high social capital, results are robust to using alternative cut-off levels.
- *Additional County Controls*:
  - Demographic: Racial Animosity, Political Polarization, Education, Population Growth, Percent Minority Population, Percent Female Population, Latitude, Longitude.
  - Financial and Bank Competition: Inequality, Housing Instability, Bank Competition (HHI Deposits), Bank Branches/Pop, Inequality (Gini), County Delinquency Rate 60DPD Rate, County Predicted Delinquency 60DPD Rate, Ln(Loan Officer Median MSA Compensation.
  - Other: Percentage of Religious Population.

Effects of Social Capital on Consumer Credit Approval: Additional Identification Tests (cont.)

	(1)	(2)	(3)
Model	IV 1st stage	IV 2nd stage	PSM
Dependent Variable	SK	Approved	Approved
Instrument			
Ancestral Trust	0.045*** (3.527)		
Independent Variables			
SK		0.078*** (3.311)	
High_SK			0.034*** (7.792)
Instrument			
Ancestral Trust	0.045*** (3.527)		
Borrower, County Controls	✓	✓	✓
State × Month-Year FE	✓	✓	✓
Bank × Month-Year FE	✓	✓	✓
Cluster by County	✓	✓	✓
Observations	2,578,020	2,578,020	316,067
Adjusted R-squared	0.755	0.046	0.128
K–P Weak Identification		12.44***	
K–P Underidentification		11.67***	

Falsification Tests: Fintech vs Banks

Dependent Variable	(1) Approved	(2) Approved
Independent Variables		
SK	0.016***	0.016***
	(8.322)	(8.424)
SK × *Fintech (Buchak et al.)*	-0.028***	
	(-5.813)	
SK × *Fintech (Buchak et al. & Jagtiani et al.)*		-0.028***
		(-6.169)
Borrower, County Controls	✓	✓
State × Month-Year FE	✓	✓
Lender × Month-Year FE	✓	✓
Cluster by County	✓	✓
Observations	2,811,339	2,849,273
Adjusted R-squared	0.168	0.169

- We assess one potential mechanism of how social capital might influence credit allocation: social capital boosts credit approval by enhancing interpersonal connections and trust.
- We should find the relationship between social capital and loan approval weakens when studying lenders that rely less on interpersonal interactions with borrowers.
  - We conduct several falsification tests of this view.

Falsification Tests: Zero Deposit Branches

	(1)
Dependent Variable	Approved
Independent Variables	
SK	0.010***
	(6.553)
SK × *Zero Deposit Branches*	-0.004***
	(-3.088)
Zero Deposit Branches	-0.028***
	(-25.803)
Borrower, County Controls	✓
State × Month-Year FE	✓
Bank × Month-Year FE	✓
Cluster by County	✓
Observations	7,907,462
Adjusted R-squared	0.145

Falsification Tests: Loan Officer Approvals vs. AUS Decisions (Approvals and Rejections)

Dependent Variable:	(1) Approved	(2) AUS Approved	(3) AUS Rejected
Independent Variables:			
SK	0.012***	-0.001	0.001
	(4.209)	(-0.908)	(1.087)
Borrower Credit Score	0.001***	0.001***	-0.001***
	(59.627)	(36.482)	(-42.197)
Borrower Age	-0.007***	-0.003***	0.001***
	(-25.890)	(-13.851)	(9.350)
Borrower Age Sq	0.000***	0.000***	-0.000***
	(18.735)	(10.589)	(-7.658)
CLTV Ratio	-0.045***	-0.021***	0.035***
	(-8.660)	(-5.046)	(11.327)
Debt-to-Income	-0.001*	-0.000*	0.000
	(-1.902)	(-1.669)	(0.848)
Ln(Borrower Income)	0.088***	0.014***	-0.029***
	(38.522)	(12.085)	(-31.251)
Minority	-0.024***	-0.007***	0.003*
	(-6.846)	(-2.727)	(1.719)
Female	0.013***	0.002**	0.001
	(11.062)	(2.251)	(1.141)
Co-Applicant	-0.003*	-0.001	-0.003***
	(-1.912)	(-1.108)	(-4.365)
Metro	0.022***	-0.003	-0.003*
	(4.995)	(-1.437)	(-1.779)
Ln(Loan Amount)	-0.056***	0.062***	-0.015***
	(-6.027)	(8.650)	(-4.273)
Ln(Loan Amount) Sq	0.006***	-0.009***	0.003***
	(6.492)	(-10.658)	(6.981)
County Controls	✓	✓	✓
State × Month-Year FE	✓	✓	✓
Bank × Month-Year FE	✓	✓	✓
Cluster by County	✓	✓	✓
Observations	759,490	759,490	759,490
Adjusted R-squared	0.198	0.765	0.163

Effects of Social Capital on Screening Time

Dependent Variable	(1) Screen Days
Independent Variables	
SK	-1.797*** (-4.318)
Borrower, County Controls	✓
State × Month-Year FE	✓
Bank × Month-Year FE	✓
Cluster by County	✓
Observations	2,578,020
Adjusted R-squared	0.087

- Test the view that social capital shapes credit decisions by ***enhancing interpersonal interactions and easing information asymmetries***: we examine the time it takes lenders to screen mortgage applications.
- If social capital facilitates the acquisition and processing of information about borrowers, we expect that social capital will reduce screening time. We confirm this conjecture
- To the best of our knowledge, we are the first to use lenders' screening time in processing credit applications as a proxy for the level of information asymmetry between lenders and borrowers.

Components of Social Capital and Trust

Dependent Variable	(1) Approved	(2) Approved	(3) Approved
Independent Variables			
SK	0.014***		
	(6.732)		
PVOTE		0.011***	
		(4.686)	
RESPN		0.005**	
		(2.301)	
NCCS		0.004*	
		(1.877)	
ASSN		0.011***	
		(4.100)	
TRUST			0.007**
			(2.160)
Borrower, County Controls	✓	✓	✓
State × Month-Year FE	✓	✓	✓
Bank × Month-Year FE	✓	✓	✓
Cluster by County	✓	✓	✓
Observations	2,578,020	2,578,020	1,202,215
Adjusted R-squared	0.122	0.122	0.115

Other Contractual Loan Terms at Origination:

	Anonymized HMDA-McDash (main sample)		*Robustness using 2018–2019 Enhanced HMDA*	
	(1)	(2)	(3)	(4)
Dependent Variable	Interest Rate	Maturity	Interest Rate	Maturity
Independent Variables				
SK	-0.053***	0.044*	-0.019***	0.056*
	(-7.334)	(1.732)	(-3.137)	(1.731)
Borrower, County Controls	✓	✓	✓	✓
State × Quarter-Year FE	✓	✓		
State × Month-Year FE			✓	✓
Bank × Month-Year FE			✓	✓
Cluster by County	✓	✓	✓	✓
Observations	1,452,672	1,452,976	637,605	617,571
Adjusted R-squared	0.684	0.280	0.474	0.371

Effects of Social Capital on Consumer Credit Performance

- We next examine loan performance for two reasons.
- First, Putnam (2000) argues that people with stronger social bonds to their community will have weaker incentives to engage in opportunistic behaviors and stronger incentives to build trust and sound reputations within their networks.
  - This view suggests that social capital will also improve borrower behaviors after receiving loans, besides boosting credit approval rates and enhancing loan terms.
  - We test whether borrowers in high social capital communities are less likely to default on loans to maintain their reputations.
- Second, we analyze loan performance to address a potential concern with the study of loan approvals and the terms of approved loans.
  - Specifically, suppose social capital increases loan approvals through inefficient nepotism and cronyism rather than by reducing informational asymmetries.
  - In that case, there would also be a negative association between social capital and loan performance.
  - Thus, we evaluate the impact of social capital on loan performance.

Effects of Social Capital on Consumer Credit Performance

	(1)	(2)
	Delinquent	Delinquent
Dependent Variable	60DPD	60DPD
Independent Variables		
SK	-0.027***	-0.013***
	(-11.863)	(-7.370)
Borrower Controls		
Borrower FICO		-0.001***
		(-79.552)
Loan-to-Value Ratio		0.026***
		(9.041)
Low Doc Borrower		0.040***
		(17.119)
Debt-to-Income		0.002**
		(2.116)
Ln(Borrower Income)		0.002
		(1.044)
Minority		0.029***
		(8.254)
Female		0.001
		(1.255)
Co-Applicant		-0.039***
		(-27.125)
Metro		-0.000
		(-0.152)
Ln(Loan Amount)		0.078***
		(3.250)
Ln(Loan Amount) Sq		-0.003***
		(-3.297)
County Controls		✓
State × Quarter-Year FE	✓	✓
Cluster by County	✓	✓
Observations	1,979,408	1,452,984
Adjusted R-squared	0.128	0.233

Effects of Social Capital on Consumer Credit Performance: Additional Identification Tests

Model	(1) IV 1st stage	(2) IV 2nd stage	(3) PSM
Dependent Variable	SK	Delinquent 60DPD	Delinquent 60DPD
Instrument			
Ancestral Trust	0.039***		
	(3.242)		
Independent Variables			
SK		-0.120***	
		(-2.858)	
High_SK			-0.019***
			(-3.865)
Borrower, County Controls	✓	✓	✓
State × Quarter-Year FE	✓	✓	✓
Cluster by County	✓	✓	✓
Observations	1,452,984	1,452,984	216,218
Adjusted R-squared	0.713	0.075	0.250
K–P Weak Identification		10.51***	
K–P Underidentification		10.17***	

- IV Analysis, PSM Analysis
- Additional County Controls: Demographic (Education, Population Growth, Percent Minority Population, Percent Female Population, Latitude, Longitude) & Competition and Financial (Bank Competition (HHI Deposits), Bank Branches/Pop, Inequality (Gini), County Approval Rate, County strength of the Democratic/Republican party, Percentage of Religious Population.

Other Consumer Credit Performance Indicators:

Dependent Variable	(1) Avg. FICO	(2) FICO Decline
Independent Variables		
SK	2.610***	-0.008***
	(7.614)	(-4.310)
Borrower, County Controls	✓	✓
State × Quarter-Year FE	✓	✓
Cluster by County	✓	✓
Observations	968,058	968,057
Adjusted R-squared	0.656	0.062

Additional Analysis Using a Different Dataset to Address Potential Selection Bias

- The anonymized Federal Reserve Bank of New York's Consumer Credit Panel/Equifax (CCP) contains data at the individual-mortgage-quarter level. 20% random sample over the period 1998:Q1–2015:Q4.
  - *Delinquency 60DPD* = indicator for whether the loan was ever in 60 days past due status of delinquency over the three years after origination.
- By including individual fixed effects, we test whether an individual's performance on a mortgage differs when the person is in a higher or lower social capital county while also conditioning on the full array of other covariates.

	Performance over 3 Years since Origination			
	(1)	(2)	(3)	(4)
Dependent Variable	Delinquent 60DPD	Delinquent 60DPD	Delinquent 60DPD	Delinquent 60DPD
Independent Variables				
SK	-0.006***	-0.004*	-0.006**	-0.008***
	(-2.757)	(-1.694)	(-2.340)	(-2.896)
Borrower, County Controls	✓	✓	✓	✓
Consumer FE	✓	✓	✓	✓
Year-Quarter FE	✓		✓	✓
State × Quarter-Year FE		✓		
State FE			✓	
Census Tract FE				✓
Cluster by County	✓	✓	✓	✓
Observations	229,188	229,125	229,188	226,849
Adjusted R-squared	0.282	0.293	0.282	0.305

Other Robustness and Additional Analyses

- **Alternatives Measures of Dependent and Independent Variables**
  - Origination instead of Approval
  - 30DPD, 90DPD, Foreclosure/REO instead of 60DPD Delinquency
  - Alternative social capital measures and different sampling methods
- **Alternatives Samples**
  - Exclude Month 12 (December)
- **Cross-Sectional Tests**
  - Segmentation using County, Bank, Borrower Characteristics

Conclusions & Contributions

- Using anonymized confidential HMDA data for mortgage credit originations and merged HMDA-McDash data for credit performance, we study the role of social capital on consumer credit decisions.
- We discover that the social capital of the community in which a household lives positively influences the likelihood that the family's mortgage application is approved, the terms (e.g., lower interest rates and longer maturities) on approved mortgages, and the household's subsequent performance on those mortgages.
  - The results are robust to conditioning on household and community characteristics and an extensive array of fixed effects, including individual fixed effects data permitting.
  - Furthermore, the results hold when employing instrumental variables and propensity score matching strategies to address identification and selection concerns.
- The analyses also suggest the mechanisms linking social capital and access to credit.
  - Social capital shapes mortgage credit by enhancing interpersonal connections and trust in communities as:
    - Falsification tests demonstrate that (a) social capital does not affect credit decisions by automated underwriting systems, and (b) the relationship between social capital and mortgage approvals weakens when examining Fintech and other lenders with minimal direct interactions with borrowers.
- The evidence suggests that social capital exerts a strong, independent influence on access to mortgage credit, the terms of that credit, and household performance on those loans.

Conclusions & Contributions (cont.)

This paper adds to several research literatures.

- Literature on role of soft information in credit decisions
  - E.g., Stein, 2002; Agarwal and Hauswald, 2010; An, Deng, and Gabriel, 2011; Heider and Inderst, 2012; Rajan, Seru, and Vig, 2015; An, Do, Riddiough, and Yao, 2015; He and Hu, 2016; Agarwal, Chomsisengphet, Liu, Song, and Souleles, 2018.
  - Find social capital – another form of soft information – shapes consumer credit decisions.
  - Introduce a new proxy for level of information asymmetry between lenders and borrowers: lenders' screening time in processing credit applications.
    - Consistent with social capital facilitating information flow, we find that social capital is associated with shorter screening times.
- Literature on how non-financial borrower metrics affect loan approval
  - E.g., Hunter and Walker, 1996; Munnell, Tootell, Browne, and McEneaney, 1996; Bostic, 2003; Cortés, Duchin, and Sosyura, 2016; Bartlett, Morse, Stanton, and Wallace, 2022.
  - Evidence that another external factor, social capital, shapes loan officers' mortgage decisions.
- Literature on social capital and economic/financial decisions (discussed above)
  - Evidence on how social capital shapes access to consumer credit, the terms on approved mortgages, and subsequent performance on those mortgages.
- Broader literatures on consumer credit and determinants of consumer behavior (many studies)
  - Add social capital as important determinant.

Thank you!