Expansion of Informal Finance and Household Behavior

This version: July 2025

Abstract

The use of informal finance is pervasive. This study investigates how the expansion of informal finance—prompted by the 2019 Provisions on Evidence in Civil Proceedings, which clarified and broadened the admissibility of electronic evidence—affects household lending behavior. Using individual-level transaction data from a major Chinese FinTech platform, I find that the enhanced legal protections for informal lenders significantly increase the availability of informal credit within borrowers' social networks. These protections also lead to more formalized lending transaction notes, characterized by greater detail and inclusion of financial terms such as interest rates and loan amounts, making them more closely resemble formal promissory notes. For informal borrowers, the reform also leads to higher rates of informal debt repayment, a shift from formal to informal financing source, and increased discretionary spending, particularly on vocational training and professional tools. Despite these positive effects for informal borrowers, the findings also suggest that informal lenders face increased pressure to accept lending requests from acquaintances, even after experiencing non-repayment from other informal borrowers, thereby heightening their exposure to credit risk. Two primary mechanisms underpin these effects: the legal reform reduces the reliance on social trust and lowers the threshold for repayment capability required to initiate informal loans.

Keywords: informal finance, social distance, electronic evidence, discretionary consumption, individual debt portfolio

JEL codes: D10, D14, G51, K40, R22

1. Introduction

The use of informal finance is pervasive—according to the World Bank, 27.45% of people globally borrowed money from relatives or friends in the past year, rising to 42.75% in low-income countries (Demirgüç-Kunt et al., 2022). In developing countries, informal finance is a crucial means of fulfilling household financial needs.[1] Informal finance generally thrives where formal finance cannot because informal lenders possess an informational advantage or maintain altruistic relationships, allowing them to reduce contracting frictions such as moral hazard and adverse selection. While accurate for informal moneylending, this perspective contrasts with the key features of financing from family and friends.

On the one hand, informal finance is cheaper for borrowers than bank loans or credit cards. On the other hand, informal lenders typically receive a return that is higher than bank deposit rates. If informal finance benefited lenders and borrowers in this manner, it would be the expected first choice for both parties—borrowers should prefer and exhaust it, and lenders with spare money deposited in banks should lend to their friends; however, this is often not the case. Informal lending is associated with shadow costs, including a greater risk of non-repayment, monitoring costs, and social penalties, implying a premium on lenders' required returns.

The development of digital technology in the 21st century has enabled informal lending methods to evolve.[2] For example, the real-time transfer function embedded in digital payment platforms allows lenders to easily and conveniently transfer money to borrowers. Nonetheless, this convenience imposes significant repayment problems, as the standards for reviewing and admitting electronic data evidence have historically

[1] The World Bank estimates that globally, there are 1.4 billion unbanked people, majority from developing countries, who lack access to formal financial resources, with no choice but to seek help from informal financing sources.
[2] According to a 2023 survey by the Payment & Clearing Association of China, the penetration rate of digital transfers in China has reached an impressive 92.7%.

been challenging in court proceedings. The Supreme People's Court Judicial Committee passed *"*Some Provisions of the Supreme People's Court on Evidence on Evidence in Civil Proceedings*"* on October 14, 2019 (hereafter referred to as the 2019 Provisions), to address these problems. These provisions formally and explicitly specified the type, scope, and standards for reviewing and admitting electronic data as evidence in court. This paper examines how the expansion of informal finance, driven by the enhanced creditor protection provided by the 2019 Provisions, influences informal lending behavior among households.

This paper utilizes transaction-level data from a prominent financial technology (FinTech) platform in China. This platform offers small-value money transfer services and social networking features, serving over 300 million active users daily; it is widely recognized as one of the most dynamic mobile applications in the country. Registered users can initiate chats and transfer funds to others who have accepted friend requests.[3]

Unlike conventional peer-to-peer (P2P) platforms, this FinTech platform prioritizes social networking, payment services, and investment functions. This unique combination allows us to assess the social connectivity between lender–borrower pairs by analyzing the frequency and intensity of historical textual interactions and financial transactions. From the millions of registered users on the FinTech platform, we randomly drew a sample of 80,000 people from 396 cities and obtained detailed records of informal lending transactions conducted between June 2018 and June 2020.[4] This rich dataset provides a valuable foundation for examining the interplay between informal creditor protection, social distance, and social lending among friends in a digitally connected environment.

[3] Fund transfer function is activated only if both the sender account and the receiver account have completed the real-name authentication requirement to ensure the safety of inter-account transactions.

[4] Transactions that include transfer notes indicating a lending intention are defined as informal lending. In this context, users who send money are considered lenders, while the social friends who receive the money are considered borrowers.

I first verify the relationship between the social distance measure (derived from analyzing the frequency and intensity of historical textual interactions and financial transactions) and the amount of informal lending. My findings confirm a negative correlation—more socially distant lenders tend to provide smaller amounts of money to borrowers within their social networks. Subsequently, I examine the legal impact of enhanced protections for informal creditors on lender–borrower pairs with varying social distances. The results indicate that strengthened creditor protections significantly expand the pool of available informal credit within social circles, particularly for socially distant lenders.[5]

Next, I examine the content of the transfer notes associated with informal lending transactions. I extract specific information from each transfer note, finding that social lenders write longer transfer notes following the 2019 Provisions. Such lenders are also more likely to include details such as interest rates or lending amounts in these notes. These findings reveal that social lenders devote more effort to composing detailed transfer notes after the 2019 Provisions, making them more closely resemble formal promissory notes.

I also collected the repayment records of my sampled social borrowers from the FinTech platform. My results indicate that socially distant borrowers are more likely to make repayments (either partial or full) to their lenders during the sample period and are more likely to repay the amount of debt within a short time frame (e.g., three months). These findings suggest the 2019 Provisions improve the repayment performance of social borrowers.[6]

Regarding lending purposes, I find that social creditors significantly increase lending to borrowers for turnover and debt repayment purposes, while the increase in

[5] My analysis focuses on social friends and excludes family members.
[6] I acknowledge the possibility that informal borrowers may repay their lenders in person or through the digital platforms provided by banks, meaning that our estimate could represent a lower bound of the actual effect.

lending for asset acquisitions remains limited. These results indicate that informal lending primarily alleviates short-term financial frictions (Turvey and Kong, 2010).

Moreover, I analyze the enhanced pooling of informal lending amounts and observe that social borrowers can gather larger sums through increased lending amounts from each lender and higher lending amounts per transaction frequency. Socially distant borrowers can pool greater amounts of informal lending from social lenders following the enhanced protections introduced by the 2019 Provisions; thus, a natural question arises regarding the real effects of this incremental informal credit on borrowers' daily lives. To address this question, we focus on examining the impact of the increased availability of informal lending on various aspects of recipients' lives, including adjustments in their debt portfolios, and changes in discretionary consumption expenditures.

An ongoing, intense debate focuses on whether informal finance and formal finance function as substitutes or complements to one another (Ayyagari, Demirgüç-Kunt, and Maksimovic, 2010; Cruz-García and Peiró-Palomino, 2019). The FinTech platform's data include monthly credit card repayment records and online debt information, and we analyze the dynamics between these two forms of finance. We categorize credit card debt and online debt as formal credit used by the sample borrowers to meet their daily financial needs. Integrating the formal debt data with our initial sample reveals that, following the 2019 Provisions, social borrowers increased their use of informal debt while reducing their reliance on formal credit. Specifically, our analysis indicates that an increase of 1 standard deviation (SD) in social distance correlates with a 20.77 percentage point rise in the informal finance ratio.[7]

[7] The informal finance ratio is the proportion of informal credit used monthly relative to the total monthly consumption debt (in the time window of three months since the informal borrowing event month). This ratio is calculated by dividing the amount of informal debt by the sum of informal debt, formal credit card debt, and online loan debt.

Millions of registered users utilize the payment function provided by the FinTech platform, generating billions of daily payment transactions. This study focuses exclusively on discretionary expenditures, including all subcategories corresponding to industries in the consumer discretionary sector, as defined by the Global Industry Classification Standard (GICS) (code 25). I aggregate the discretionary consumption of social borrowers every month. The merged data indicate that, with increased informal lending amounts and reduced short-term repayment pressures, discretionary consumption among social borrowers increases by 25.80% within the three-month window following the transfer of funds from their social lenders. This analysis demonstrates that enhanced informal lending effectively eases consumption constraints for borrowers and improves their daily expenditures. The rich subcategories within the consumption data allow me to examine the impact of the 2019 Provisions on specific types of discretionary spending. Increases in discretionary expenditure may reflect improvements in quality of life or investments in future career prospects. Accordingly, my results indicate that individuals increased their spending on adult education and investment in software toolkits, while reducing their expenditures on cigarettes and alcohol products. These findings suggest that augmented informal lending enables individuals to allocate more resources toward investments in their future, such as education and professional tools, which may in turn lead to greater improvements in their future career prospects. This underscores the important role of informal finance in supporting personal development and long-term well-being.

Despite these positive effects for informal borrowers, I pay attention to lender reactions to the 2019 Provisions. Results suggest that informal lenders face increased pressure to accept lending requests from acquaintances. The results reveal that, prior to the 2019 Provisions, social lenders were less likely to extend additional loans to other acquaintances if they were experiencing non-repayment from previous borrowers.

However, following the implementation of the 2019 Provisions, social lenders continued to lend to their social acquaintances even in the face of outstanding non-repayment from others. These findings suggest that, after the new regulations, social lenders may find it more difficult to refuse lending requests from friends. Given the overall low likelihood of short-term repayment, this indicates that social lenders may also bear increased risks and potential losses as a result of the 2019 Provisions.

Furthermore, I investigate how the 2019 Provisions influences informal lending decisions among socially distant friends. My findings support both the trust and repayment capability mechanisms. The trust mechanism suggests that lowered trust requirements—such as borrowers lacking a repayment history for social debt or those working in different industries than their lenders—lead lenders to extend credit more liberally. The repayment capability mechanism indicates that social borrowers with lower monthly incomes or without housing assets face less emphasis on repayment capability during lender negotiations.

Related literature This study contributes to several strands of literature. First, I add to the research on informal credit flows in household finance, particularly concerning lending decisions. Much of the previous work has focused on developing theories to understand the motivations and constraints of informal lending decisions, which remain a crucial financing source despite the rapid development of modern financial institutions (Allen, Qian, and Xie, 2019; Madestam, 2014; Giné, 2011; Jain, 1999). Limited empirical research has examined the role of informal financing, with most studies concentrating on its effects on corporate growth.[8] Among the few empirical

[8] For instance, Ayyagari, Demirgüç-Kunt, and Maksimovic (2010) found that informal finance can facilitate firm growth better than formal banks in developing countries. Beck, Demirgüç-Kunt, and Maksimovic (2008) used a firm-level survey database covering 48 countries and found that small firms use less external finance, especially bank finance, but protecting property rights increases small firms' external financing significantly.

studies examining how informal finance affects individuals, most rely on survey data for analysis (Tomy and Witternberg-Moerman, 2024; Breza and Kinnan, 2021). Unlike the existing literature, we explicitly examine the real effects of informal finance on household behavior, focusing on informal credit from social friends. We employ a large sample and rich demographic information, including quantitative proxies for the social distance between borrowers and lenders. Additionally, my detailed consumption records and debt portfolio information enable us to analyze the real effects of informal credit on individuals' daily lives.

Second, I expand the extensive body of evidence documenting the systematic relationship between law and finance (La Porta et al., 1998; La Porta, Lopez-de-Silanes, and Shleifer, 2008). Existing studies predominantly emphasize the effects of creditor protection on the development of credit markets, mainly focusing on bank lending behavior (Qian and Strahan, 2007; Haselmann, Pistor, and Vig, 2009; Visaria, 2009). Conversely, limited scholarly attention has been given to the legal system's role in private credit markets. Among the few studies that have explored this area, Djankov, McLiesh, and Shleifer (2007) found that enhanced creditor rights lead to an increased private credit-to-gross domestic product ratio in a cross-country investigation. Our paper provides novel evidence on the expansion of informal credit originating directly from social circles following the enhanced creditor protection induced by China's 2019 Provisions regarding the use of electronic evidence in court proceedings. This contribution addresses a significant gap in the law and finance literature by exploring the implications of legal changes on the informal credit market among individuals.

Furthermore, nascent literature leverages data from the rapid growth of digital payment platforms—a large and growing FinTech segment—to study market outcomes in consumer finance. This approach includes research on the screening advantages of FinTech lenders who exploit users' transaction data (Ghosh, Vallee, and Zeng, 2022)

and analyses of consumer behavior using real-time money transfers (Balyuk and Williams, 2021). I contribute to this emerging field by utilizing a representative sample of consumer financing and daily expenditure records from a widely adopted financial transfer service on a leading FinTech platform in China, which integrates social communication and digital transfer functions. This approach helps me overcome the challenge of observing informal financing and consumption activities within household finance.

The paper proceeds as follows. Section 2 outlines a theoretical framework that examines the impact of enhanced protection for informal creditors on the offered credit amount and borrowers' repayment behavior. Section 3 introduces the institutional background of the 2019 Provisions. Section 4 describes the data and details our empirical strategy, while the empirical findings are presented in Section 5. Section 6 explores the real effects of the legal shock on social borrowers, and Section 7 discusses lender responses to the 2019 Provisions. Section 8 examines the plausible mechanisms underlying the observed effects, while Section 9 concludes.

2. Theoretical Framework

Existing theories suggest two critical determinants of the credit amount that informal lenders (such as relatives and friends) are willing to extend to borrowers: information availability and altruistic relationships.[9] Without formal enforcement in the informal

[9] This first opinion supports that informal lenders have more information about borrowers, which facilitates reducing the verification and monitoring costs in the lending process, resulting in lenders being less concerned about the moral hazard or adverse selection, thus providing more credit (Jaffee and Russel, 1976; Stiglitz and Weiss, 1981; Mookherjee and Png, 1989; Ghatak and Guinnane, 1999; Giné, 2011). The second opinion relates to the role of social relations in mitigating the borrower's incentive problem. Typically, social sanctions stemming from broken friendships could function as a shadow cost for the borrower in the event of default (Besley and Coate, 1995; Karaivanov and Kessler, 2018). In particular, Karlan et al. (2009) model the borrower's social network connections as social collateral, determining the level of trust between individuals that can be leveraged to secure informal credit. In detail, Karlan et al. (2009) predicted that the dense social relations of the borrower generate "bonding social capital," which facilitates transactions involving valuable assets such as cash transfers. In contrast, the borrower's loose connections create "bridging social capital," which primarily enhances access to less costly favors, such as information sharing.

lending market, the information and social capital theories of credit suggest that informal lenders who possess superior information about, or are more socially connected with, the borrower are more likely to extend credit.[10]

This section outlines a simple framework to partially formalize the above-mentioned views. We distinguish between how informal credit from social friends can be obtained merely through the borrower's social collateral and how introducing formal enforcement can change the informal creditor's lending behavior. The framework's key elements are borrowed from Lee and Persson (2016), who model reciprocal social altruism to capture a debtor's preference for repaying informal debt from friends. This preference arises from the desire to maintain the friendship, especially since friends often offer favorable loan terms, such as below-market or even negative interest rates.

2.1. Model setup

Consider a capital-constrained borrower (B) who wishes to finance their consumption plans by requesting an amount of credit (C) from a social friend (F) who is endowed with wealth W (where $W \geq C$). We assume that after receiving the credit, B will generate an uncertain income flow $\tilde{I}$, which equals $I > 0$ with a probability q and 0 otherwise before the debt is due. F expects to receive R_F as the required return from B. Without social altruism, the purely selfish consumption utility of B or F is given by $u(x) = x$.

Under reciprocal social altruism (as mentioned above), B is assumed to consider

[10] Beyond the specific scope of a lender's social circle, the lender's participation incentive is naturally constrained by information asymmetry or the lack of social collateral implicitly pledged by borrowers. This constraint can be relaxed through external interventions such as forced debt repayment. Relatedly, theories of incomplete financial contracting (Aghion and Bolton, 1992; Hart and Moore, 1994, 1998) indicate that if creditors can more easily enforce debt repayment under better legal protection, they are more willing to extend credit. In informal finance, improved creditor rights may offer a substitute for the lack of information or social capital in expanding the availability of credit. Consequently, we would expect that lenders who are more socially distant from the borrower (i.e., those connections generating bridging social capital as defined in Karlan et al. (2009)) may particularly benefit, as they are more disadvantaged in acquiring information or social capital in the absence of legal enforcement.

doing F costly social favors (e.g., sending some valuable assets to F) in an amount of g at a private cost of mg, where $(\mathrm{m} \geq 1)$ if B defaults on the debt due to a lack of cash. Thus, the social favor mechanism allows B to pay F something valuable, as expected by F, even if B earns an income of 0 and chooses to default. By honoring the norm of reciprocal altruism, B also cares about the utility of F, which is reflected in the borrower's social utility:

$$U_B = u_B + \frac{s_B + \varphi s_F}{1+\varphi} u_F. \quad (1)$$

Here, s_B, $s_F \in [-1, 1]$ represent the *"*sentiments*"* of B and F in the financing process. $\varphi \in [0, 1]$ measures the degree of reciprocity between B and F (Levine, 1998). We assume that $s_B = s_F = s^+$ if B can maintain their friendship with F by repaying the debt as scheduled or doing F social favors in the event of default; however, s_F will fall to s^- if B defaults and does nothing. That is, B's social utility is $u_B + s^+ u_F$ if they manage to honor their social obligation with F*;* however, B's social utility declines to $u_B + \frac{s_B + \varphi s^-}{1+\varphi} u_F$ if they violate the social favor norm, ultimately harming the sentiment of F.

Consider the case where the realized $\tilde{I} = 0$, meaning B has no cash to repay the debt. F still expects to receive a favor from B under the reciprocity norm; therefore, this case is defined as B owing F a social debt of R_F. Accordingly, by paying a social favor to *F* at the cost of mR_F through endeavors, B's disutility from paying the favor is $(m - s^+)R_F$. This amount is lower than the private cost mR_F for B due to the positive sentiment generated in F upon receiving B's costly favor. Conversely, if B refuses to pay the social favor, then their disutility after failing to honor the reciprocity norm is $(s^+ - s^-)\frac{\varphi}{1+\varphi} u_F$. This potential damage to the friendship can be defined as the social collateral implicitly pledged by B. We then derive a condition for when B honors the reciprocity norm and pays social favors to F even if B's realized income

is 0, thus facing a social debt of R_F:

$$(\mathrm{m} - s^+)R_F < (s^+ - s^-)\frac{\varphi}{1+\varphi}(W - C). \quad (2)$$

The above condition shows that $B's$ decision to comply with the reciprocity norm in the case of default depends on the trade-off between the social disutility incurred from paying F costly favors and the social collateral forfeited if no favors are paid to F.

2.2. Credit availability without legal enforcement

We first discuss F's lending decision without formal debt enforcement. In this case, financing from F may still be feasible if B chooses to honor the reciprocity norm and satisfies the following condition:

$$(1 - s^+)min\{R_F, \tilde{I}\} + (m - s^+)max\{R_F - \tilde{I}, 0\} < (s^+ - s^-)\frac{\varphi}{1+\varphi}(W - C). \quad (3)$$

Here, B's net disutility from repaying their social debt is represented by the left-hand side of Equation (3), which considers two cases depending on whether the realization of $\tilde{I}$ is high or low. If the realized value of B's uncertain income exceeds R_F, B can repay the entire debt, reducing the left-hand side to $(1 - s^+)R_F$; otherwise, the left-hand side becomes $(1 - s^+)\tilde{I} + (m - s^+)(R_F - \tilde{I})$ because B can only partially repay the debt and must compensate the remainder through social favors. The value of the social collateral B forfeits if they decide not to pay off the social debt is shown on the right-hand side.

Therefore, B can still obtain credit from F as long as B complies with the reciprocity norm, even though the debt is not legally enforced.[11] Furthermore, the value of social collateral rises with φ while the debt remains unchanged. We deduce that

[11] Another intuition with this case is that Condition (3) is less likely to be satisfied when the realized income of B is low, as the left-hand side of (3) decreases in $\tilde{I}$. Consequently, when B's realized income is low, B must use more costly favors $(\mathrm{c} > 1)$ to repay the social debt, R_F, and may tend to forfeit the social collateral.

stronger reciprocity—indicated by a higher φ or a closer relationship between B and F—can relax Condition (3). That is, under social reciprocity alone, when B and F have a closer relationship, B is more likely to secure financing from F due to their stronger reciprocity.

2.3. Credit availability with legal enforcement

We now consider the changes in Condition (3) after formal debt enforcement is implemented throughout the financing process. On the one hand, the first term on the left-hand side of Condition (3) drops out, as B is unable to divert income even if the realized $\tilde{I}$ is low, and the motivation to break the reciprocity norm is lessened. Thus, if claims on B's income are legally enforceable, the condition can be loosened further. On the other hand, F can still recover some cash flows even in cases where B violates the reciprocity norm; thus, F's participation constraint is also expected to relax further.

Moreover, with legal enforcement, besides the social collateral represented by the right-hand side of Condition (3) when B fails to repay the social favor to F, a litigation cost may also arise that should be added to the right-hand side of Condition (3), making the condition even more easily satisfied. Nevertheless, we argue that the higher probability of B being prosecuted when failing to repay the social debt is more likely when F is more socially distant from B. Legal studies find an inverse correlation between the degree of social closeness between parties and the likelihood that a dispute between them will become a lawsuit (Black, 1976; Wofford, 2017).[12] Accordingly, the impact of legal protection on informal credit availability increases with F's social distance from B.

This paper's empirical sections test the above hypothesis by examining whether

[12] More specifically, Wofford (2017) documents that both men and women are less likely to sue individuals as their relational distance decreases, with the probabilities of men (women) filing a lawsuit against a stranger, an acquaintance, and a friend being 39.4% (27.36%), 30.3% (26%), and 12.3% (8.10%), respectively.

formal legal enforcement can expand the availability of informal credit from social friends and investigating how the legal effects vary with the heterogeneity of social relations between B and F.

3. Institutional Background

This section examines the historical evolution and developmental stages of electronic evidence within China's civil law system. Particular emphasis is placed on the 2019 amendment of the "Some Provisions of the Supreme People's Court on Evidence in Civil Proceedings," which serves as the pivotal event for the subsequent empirical analysis.[13]

3.1 Electronic data in civil proceedings: 2012-2015

Electronic data has been formally recognized as a form of evidence in civil proceedings under the Chinese Civil Procedure Law since 2012, which explicitly established its legal status as admissible evidence. [14][15] However, in practice, the smooth transition of electronic data between administrative and civil procedures is hindered by factors such as insufficient regulation in administrative proceedings and the lack of clear definitions and scope for its use in civil cases.

Following the formal recognition of electronic data as a form of evidence in civil law, the Supreme People's Court of China issued the "Interpretations on the Application of the Civil Procedure Law" in 2015, which clearly defines electronic data as

[13] Considering the civil nature of individual informal borrowing from relatives and friends, we focus on the legal institutions regulating electronic evidence in civil law laws in China. For the legal framework of electronic evidence in criminal laws in China, see the review by Guo (2023).

[14] Article 66 of the *Chinese Civil Procedure Law (2012)* provides that "Evidence includes: (i) statement of a party; (ii) documentary evidence; (iii) physical evidence; (iv) audiovisual recordings; (v) ***electronic data***; (vi) witness testimony; (vii) expert opinion; and (viii) transcripts of survey." "Evidence must be verified before being used as a basis for deciding a fact."

[15] Initially, the inclusion of electronic data in civil laws holds particular significance in the field of intellectual property, where electronic evidence is most frequently encountered in early 2000s.

information formed or stored with electronic medium.[16] Although electronic data is now admissible as evidence in civil litigation, persistent challenges persist in judicial practice concerning its scope, methods of collection and preservation, and the standards for examining and verifying its authenticity, particularly at the local and district court levels.

For example, the use of WeChat for communication, document transmission, and electronic transactions has grown significantly, with over 40,000 cases involving WeChat evidence reported in 2018.[17] Verifying the identity of users in WeChat conversations is a primary challenge in establishing the authenticity, legality, and relevance of WeChat chat records as evidence. In practice, courts frequently exclude such evidence when participant identities or content authenticity are disputed, or when records are incomplete. Ideally, authenticity can be confirmed through party admissions, in-court demonstrations, notarization, verification by the platform, or third-party authentication. However, courts have applied inconsistent standards to notarized WeChat records: some accept notarized screenshots as evidence, while others reject them due to unverified participant identities. Moreover, verification through the WeChat platform or third-party institutions is hindered by limited cooperation and privacy concerns, making these approaches rare in civil proceedings.[18]

[16] In specific, Article 116 of the Some Interpretations on Implementing the Civil Procedure Law defines electronic data as follows: "Electronic data refers to the information formed or stored with electronic medium by means of email, electronic data exchange, online chat records, blog, microblog, text message, electronic signature and domain name. The regulations on electronic data are applicable to the recorded materials and image materials stored with the electronic medium."

[17] According to data from the China Judgments Online database, the number of first-instance civil cases admitting WeChat records as evidence has risen dramatically in recent years—from 20 cases in 2013 to over 40,000 cases in 2018—demonstrating the widespread use of WeChat as electronic evidence.

[18] Sourced from *People's Daily Online*, 2019, "Electronic evidence must ensure legal and authentic relevance", via the link.

3.2. 2019 Provisions

In order to further implement the Civil Procedure Law and address the practical needs of civil adjudication—particularly the principles of evidence-based judgment and the improvement of evidentiary rules—the Supreme People's Court initiated the revision of the Provisions on Several Issues Concerning Evidence in Civil Procedures in 2015.[19] After four years, the amended version, Some Provisions of the Supreme People's Court on Evidence in Civil Proceedings, approved on October 14, 2019 (henceforth, the *"*2019 Provisions*"*), formally addressed electronic evidence in civil law. The 2019 Provisions set out detailed rules regarding the scope of electronic evidence, criteria for assessing its authenticity, and requirements for its collection. These measures unify evidentiary standards, enhance litigation efficiency, and protect parties' legitimate rights and interests. The following discussion examines the latest developments regarding electronic evidence under the new Civil Evidence Provisions.

3.2.1. Definition and scope of electronic data

The 2019 Evidence Provisions provide a more comprehensive definition of electronic data, expanding its scope beyond information stored on electronic media—as defined in the 2015 Interpretation of the Civil Procedure Law—to explicitly include both information and electronic documents. The Provisions enumerate specific types of electronic data, such as data generated during online activities and electronic documents, while also allowing for the admission of other emerging forms of electronic information. This approach provides clear guidance on the admissibility, scope, and presentation of electronic evidence in civil proceedings.[20] By specifying concrete categories and

[19] The Original Civil Evidence Provisions were promulgated on April 1, 2002. Further details on the background and rationale for amending these provisions since 2015 are available at the link.

[20] In particular, Article 14 of the 2019 Amendment states: "[e]lectronic data shall include the following information

emphasizing the digital and evidentiary nature of electronic data, the 2019 Provisions broaden the range of admissible electronic evidence and accommodate ongoing technological advancements.

3.2.2. Rules for verifying the authenticity of electronic data

The 2019 Evidence Provisions denotes significant emphasis on verifying the authenticity of electronic data, prioritizing its integrity and reliability, and increasingly relying on technical methods for assessment. Given the inherent susceptibility of electronic data to alteration and fabrication—changes often undetectable through direct examination—its use as evidence presents unique challenges. These challenges complicate the development of examination standards and frequently necessitate expert analysis or specialized authentication techniques. Recognizing these difficulties, the 2019 Provisions clarify the scope of review for electronic data evidence and underscore the importance of authenticity assessment. Specifically, courts are required to conduct a comprehensive evaluation of authenticity based on enumerated factors,[21] and the 2019 Provisions identifies

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and electronic documents: (i) information published on such online platforms as webpages, blogs and microblogs; (ii) messages transmitted through network communication applications such as mobile phone text messages, emails, instant messages, group chat messages, etc.; (iii) user registration information, identity authentication information, electronic transaction records, communication records, login logs, etc.; (iv) electronic documents such as text files, pictures, audio and video records, digital certificates, computer programs, etc.; and (v) other information stored, processed or transmitted in a digital form which can prove the facts of cases."

[21] The new Civil Evidence Provisions introduce Article 93, which explicitly requires courts to comprehensively assess the authenticity of electronic evidence based on the following factors: (1) Whether the hardware and software environment of the computer system relied upon for the generation, storage, and transmission of electronic data is complete and reliable; (2) Whether the hardware and software environment was operating normally during the relevant processes, and if not, whether any abnormalities affected the generation, storage, or transmission of the electronic data; (3) Whether the computer system possesses effective mechanisms for error prevention, monitoring, and verification; (4) Whether the electronic data has been preserved, transmitted, and extracted in a complete and reliable manner, and whether the methods employed are dependable; (5) Whether the electronic data was formed and stored in the course of regular business activities; (6) Whether the entities responsible for preserving, transmitting, and extracting the electronic data are appropriate; (7) Other factors affecting the integrity and reliability of the electronic data. Where necessary, the court may also employ expert appraisal or on-site inspection to examine and determine the authenticity of electronic data.

circumstances under which the authenticity of electronic data may be presumed.[22]

3.2.3. Means for obtaining electronic data

The new Civil Evidence Provisions introduce four additional articles (Articles 45–48) that further develop the "Order to Produce Documentary Evidence" system by specifying application requirements, review procedures, mandatory disclosure circumstances, and the consequences of non-compliance. Under this framework, if electronic data is controlled by the opposing party, the party bearing the burden of proof may, before the evidence submission deadline, submit a written application for the court to order the opposing party to produce the data. The court must then consider the opposing party's position, and if the application is found to be justified, order the production of the requested electronic data.[23]

By refining this system, the new Provisions provide parties with expanded means to obtain electronic evidence, facilitating fact-finding amid the proliferation of electronic data and safeguarding parties' rights and interests. Additionally, the 2019 Provisions establish clear standards for the examination of electronic data, offering guidance for both parties in presenting evidence and for courts in reviewing it. To

[22] Article 94 of the new Civil Evidence Provisions sets out five circumstances under which courts may presume the authenticity of electronic data evidence: (1) electronic data submitted or retained by a party that is adverse to its own interests; (2) electronic data provided or verified by a neutral third-party platform that records and stores such data; (3) electronic data generated in the ordinary course of business; (4) electronic data preserved through archival management methods; and (5) electronic data preserved, transmitted, or extracted in accordance with an agreement between the parties—unless there is sufficient contrary evidence to rebut this presumption. Furthermore, the Article stipulates that if the contents of electronic data have been notarized by a notarial authority, the people's court shall confirm its authenticity, unless there is sufficient evidence to overturn it. In addition, Article 90 of the new Provisions provides that audio-visual materials or electronic data with doubts as to their authenticity cannot serve as the sole basis for establishing the facts of a case. Thus, the new Civil Evidence Provisions not only set out general principles for determining authenticity, but also clarify the circumstances in which authenticity may or may not be established, thereby providing a clearer basis for the assessment of electronic evidence.

[23] In addition, a party controlling documentary evidence must produce it in the following circumstances: (1) the document has been cited by the controlling party during litigation; (2) the document was created for the benefit of the opposing party; (3) the opposing party is legally entitled to inspect or obtain the document; (4) account books or original accounting vouchers; and (5) other circumstances where the court deems production necessary. Where the evidence involves state secrets, trade secrets, the privacy of parties or third parties, or other legally protected confidential information, it shall not be disclosed for cross-examination after submission. If the party controlling the evidence unjustifiably refuses to produce it, the court may presume the authenticity of the contents as claimed by the opposing party.

enhance the admissibility and probative value of electronic data, parties are encouraged to notarize such evidence or submit data verified by neutral third-party platforms.

3.3 Dissemination of the 2019 Provisions

3.3.1. Press conference

To enhance the impact and public understanding of the 2019 Provisions, the Supreme People's Court of China held a press conference on December 26, 2019, announcing the revisions to the Civil Evidence Provisions. Justice Jiang Bixin and Judge Zheng Xuelin presented the main amendments, emphasizing that these changes reflect the needs of long-term judicial practice and illustrating key articles with case examples. The judges highlighted that the revisions are essential for implementing the Civil Procedure Law, standardizing civil trial procedures, and meeting evolving judicial needs. Strengthening evidentiary and procedural rules is expected to better protect litigants' rights, enhance judicial transparency, unify adjudicative standards, and increase public confidence in the judiciary.

3.3.2. Mainstream Chinese news websites

The Supreme People's Court of China's press conference formally introduced the 2019 amendment and provided detailed explanations of relevant articles. However, the use of specialized legal terminology and court case examples rendered the content less accessible to the general public. In contrast, major Chinese news outlets, [24] including

[24] According to the November ranking released by the Office of the Central Cyberspace Affairs Commission, People's Daily Online (People.cn), Xinhua News Agency Online (Xinhuanet.com), and Eastday.com, were ranked as the top three Chinese news websites in terms of communication influence in 2019. Details can be viewed via the link.

People's Daily Online, Xinhua News Agency Online, and Eastday.com, focused their coverage on the amendment's practical implications, such as its impact on litigation costs for informal lenders who conduct transactions via social media without formal contracts.[25] [26] These reports highlighted how chat histories and transaction records can now serve as evidence in disputes, enabling informal lenders to more effectively pursue claims against borrowers. By disseminating this information through widely read platforms, public understanding of the 2019 Provisions was enhanced, particularly regarding its benefits for reducing litigation costs in informal lending.

4. Data and the Empirical Design

To empirically assess the impact of the 2019 Provisions and social distance among social acquaintances on informal lending activities, as derived from the theoretical framework, I employ data from a major Chinese FinTech platform that integrates social networking with small-value transfer services. This section provides an overview of the FinTech platform, the dataset used in the analysis, and introduces the baseline empirical model for evaluating the effects of the 2019 Provisions and social distance on household lending behavior.

4.1. The FinTech platform

The analyzed platform serves over 300 million active users daily and is ranked among China's most vibrant mobile applications. It is accessible from devices with internet connectivity, including personal computers, tablets, and smartphones. Upon registration, users can create a profile that discloses personal information about themselves and chat with others who have accepted their friend requests. Moreover, users can post text,

[25] Some examples can be found via: People.cn, Xinhuanet.com, Eastday.com.

photos, and multimedia content, which can be shared with friends or publicly, depending on their privacy settings.

Upon completing real-name authentication using a Mainland Chinese ID card (or other official identification documents)[27] and a valid phone number, users can make user-to-user transfers ranging from 0.01 to 200,000 Chinese yuan (CNY), with a daily cap of 200,000 CNY. These transfers can be made directly to social friends on the platform. The sender can include a transfer note of up to 20 Mandarin Chinese characters for each transfer, with the default setting left empty.[28] Additionally, once a user initiates a transfer to a friend, the recipient receives a notification from the platform and can choose whether to accept or reject the transfer.[29]

4.2. Informal lending data

From the millions of registered users on the FinTech platform, we randomly drew a sample of 80,000 individuals from 396 cities across 22 provinces and five autonomous regions in China. These users engaged in informal borrowing from their social acquaintances via the platform between January 2019 and August 2020. Transactions with transfer notes explicitly indicating a lending intention were classified as informal lending. In this context, users initiating the transfers were identified as lenders, while their social acquaintances who received the funds were considered borrowers.

For each of the 80,000 borrowers, we extracted detailed information on every

[27] Real-name authentication can be accomplished by providing information from various official identification documents, including, but not limited to, a passport, a People's Republic of China Resident Identity Card, a Mainland Travel Permit for Hong Kong and Macau Residents, and a Taiwan Compatriot Permit. Furthermore, the authentication process can be expedited by linking a bank card (either debit or credit) from mainland China that has undergone real-name authentication and by associating the registered phone number with the bank account.

[28] In the system settings, each English letter and the punctuation mark are, by default, equivalent to the length of 0.5 Mandarin characters.

[29] By default, the system automatically rejects transactions if the recipient does not accept the transfer within 24 hours, and the transferred money are subsequently returned to the sender.

informal borrowing transaction with social acquaintances on the platform, including the transfer date and time, transaction amount, and the content of the transfer note.[30] We also obtained the corresponding repayment records from the platform. For analysis, we aggregated the informal lending records at the lender-borrower-monthly level, resulting in 38,152 borrowers with 168,989 lender-borrower-month observations.[31]

Each borrower had a median of only four informal lending records from one social lender. An average user on the platform had 128 social friends, indicating the underutilized capacity of informal lending. The average informal lending amount was 3,069 CNY, close to the monthly salary of both the borrower and the lender.[32] However, the SD is 6,207 CNY, indicating a considerable variation in the amounts involved in informal lending. Additionally, 13% of the borrowers repaid money to their informal lenders via the platform during our sample period, indicating that repayment timing could be a concern for social lenders.[33]

Regarding the content of the transfer notes associated with informal lending, I found a median length of nine characters, equivalent to three Mandarin characters or six English letters and punctuation marks. I used a textual analysis approach to extract relevant lending features from these notes, specifically obtaining potential information about the lending amount, interest details, and due dates for repayment. Although the notes were short and potentially incomplete, I attempted to categorize the lending purposes into four groups: (1) Turnover—borrowing money to tide over financial

[30] For clean interpretation and analysis, we retrieved 80,000 borrowers who did not overlap as lenders. Additionally, these 80,000 borrowers did not lend money exceeding the notable threshold of 500 CNY to any of their friends on the platform during the sample period.

[31] I excluded informal borrowers who had conducted informal lending transactions exclusively with immediate family members (parents, children, or spouses). Additionally, borrowers with missing administrative information were removed from the sample.

[32] In my sample, the average informal lending amount is 67% of an average borrower's monthly income and 70% of an average lender's monthly income.

[33] I cannot exclude the possibility of borrowers repaying the debt via other methods, such as direct bank transfers or cash; therefore, my repayment measure is likely an underestimate of the actual payback rate. Additionally, a survey conducted by the Institute of Social Science Survey of China Youth Daily in 2017 revealed that 65.3% of the 2,003 participants expressed concerns about friends not repaying borrowed money.

difficulties; (2) Debt repayment—using informally borrowed funds to repay debts from formal lending sources; (3) Asset acquisition—borrowing money informally to purchase tangible assets, such as an apartment or a car; and (4) None—no applicable purpose specified.

4.3. Demographic information

Furthermore, I collected specific borrower characteristics for valid empirical analyses. Among these attributes, two unique features of my dataset regarding social interactions significantly enhance my empirical analysis: (1) the ability to observe different types of social relations within a lender−borrower pair and (2) the ability to quantify the social distance between a lender and a borrower. Specifically, each lender–borrower pair can be classified based on the nature of their connection. The platform grouped people into family members and friends (e.g., schoolmates, colleagues); these relationships can be segmented into a more granular second layer. In my sample, 13,189 individuals had informal lending records only with direct family members, while 38,152 users borrowed money from their social friends on the platform. This paper's empirical analysis focuses primarily on social acquintainces.

Importantly, the platform quantitatively measures each lender−borrower pair's social distance based on the frequency and intensity of historical textual interactions and financial transactions between the two individuals. This quantification allows me to measure the strength of social ties more precisely, providing a deeper understanding of how social influence operates within different types of relationships.

Moreover, I collected additional demographic information about my sample borrowers and their lenders, including gender, age, monthly income, education level, city of residence, working industry, and housing conditions. This comprehensive

demographic data, combined with the unique features of social interactions and social distance quantification, enables a robust empirical analysis of informal lending behaviors and the influence of social relationships on financial transactions.

4.4. Consumption and consumption debt data

The *"*2020 Report on Mobile Payment Users' Questionnaires,*"* published by the Payment & Clearing Association of China, revealed that mobile payment has emerged as the preferred payment method for most consumers. Approximately 75% of users reported utilizing mobile payments daily. The primary factors driving the popularity of mobile payments include the simplicity of scanning QR codes, the convenience of not needing cash or bank cards, and the numerous discounts and promotional activities offered by merchants.

I supplement daily expenditure information and other formal lending sources from the platform to examine the effects of the relaxed informal borrowing Condition (3) derived from our theoretical framework on borrowers. These additional data allow me to examine how access to expanded informal financing affects borrowers' consumption behavior and reliance on formal lending sources. Integrating these elements provides deeper insights into the dynamics of informal borrowing and its broader economic effects.

The detailed purchases made via the payment function on the platform[34] enable me to analyze informal borrowers' consumption patterns on a daily basis. I extract each borrower's spending category, amount, and frequency. I apply the commonly used

[34] The payment function associated with the FinTech platform has gained widespread popularity in mainland China, quickly becoming one of the country's top three mobile payment products since its launch. According to internal reports, the FinTech platform established an extensive online ecosystem by 2019, encompassing over 1 billion users using the payment function. Additionally, the platform supported over 50 million small- and medium-sized merchants and collaborated with over 60,000 service providers.

measure of discretionary expenditure as a proxy for consumption levels to statistically analyze its effect on individual consumption patterns (Garmaise, Levi, and Lustig, 2024; Stephens, 2008). In detail, discretionary expenditures include spending in all subcategories corresponding to industries in the Consumer Discretionary sector (GICS Code 25). Each individual's average monthly discretionary consumption amount is 2,176 CNY, with an SD of 8,204 CNY. This approach allows me to examine how informal borrowing conditions influence the discretionary spending behavior of borrowers.[35]

I extracted borrowers' credit card repayment information and online debt details from the platform to supplement informal lending information and obtain an expanded understanding of informal borrowers' debt portfolios.[36] The platform has initially offered zero transaction fees and service charges to incentivize users to utilize the payment feature for credit card debt repayment. Although the fee policy was adjusted after several years of providing free services, users who had linked their cards to the platform were generally reluctant to alter their repayment methods.

The records available on the FinTech platform show that a median borrower in my sample repaid 2,931 CNY in credit card debt each month. When combining credit card and online debt repayments, a median user had an outstanding formal debt of 3,160 CNY for discretionary expenses. The SD of this debt was 15,147 CNY, indicating significant variation in the consumption levels of our sample users. This comprehensive dataset provides a nuanced view of the debt management behaviors of informal borrowers, enriching our understanding of their overall financial health and borrowing practices.

[35] The median value is 750 CNY.

[36] The FinTech platform enables users to repay their credit card and online debts using either the balance in their e-wallets on the platform or linked bank accounts. In 2018, over 110 million users, representing approximately 14% of the total registered users on the platform, utilized the payment function to repay their credit card and online debts.

4.5.Empirical model

My baseline analysis examines the effect of 2019 Provisions and the social distance between the borrower and the lender on informal lending activities. I employ the following two-way fixed-effect model:

$$Borrowing_{ij,t} = \beta_0 + \beta_1 \times Post_t \times Distance_{i,j} + \beta_2 \times Distance_{i,j} + \\ + \sigma_i + \gamma_j + \delta_t + \varepsilon_{i,j,t} \quad (4)$$

where the dependent variable, $Borrowing_{i,t}$, is defined as the logarithm of the sum of the monetary value of the informal lending transfers received by individual i from a potential lender j in month t. $Post_t$ is a dummy variable equal to 1 if the borrowing month falls after October 2019, the approval month of the 2019 Amendment discussed in Section 3. These provisions, issued by the Judicial Committee of the Supreme People's Court of China, clearly defined the scope of electronic data admissible as evidence, established rules for verifying its authenticity, expanded admissible channels for obtaining electronic evidence, and specified associated handling procedures. $Post_t$ is equal to 0 if the informal lending transaction occurred before October 2019. $Distance_{i,j}$ is the distance score of each lender–borrower pair for borrower i and lender j.[37] σ_i, γ_j, and δ_t denote borrower, lender and year–month fixed effects, respectively. $\varepsilon_{i,j,t}$ is the error term. This model allows me to isolate the effect of social distance on informal lending and understand how this relationship changed following the 2019 Provisions. The interaction term $Post_t \times Distance_{i,j}$ captures the differential impact of social

[37] I assigned the social distance score of each lender-borrower pair as measured at the end of 2018 (prior to the sample period) to avoid potential bias from changes in their social connectedness resulting from subsequent informal lending events.

distance on informal lending in the post-shock period. I estimated the model using ordinary least squares (OLS) regression and cluster standard errors at the lender-borrower pair level.

[Insert Table 1 here]

5. Empirical Results

5.1. Baseline result

I first examined the changes in informal lending outcomes among social friends with different levels of social distance after creditor protection was strengthened through the approval of 2019 Provisions.

Table 2 presents my baseline results estimated using Equation (4). Column 1 displays the results of regressing the informal lending amount on my primary social distance measure, $Distance_{i,j}$, and the interaction between social distance and the legalization time indicator ($Post_t$). Column 2 includes controls for year–month fixed effects. Column 3 reports the results with additional controls for the borrower fixed effects. Column 4 reports the results with futhur controls for the lender fixed effects. Standard errors were clustered at the lender-borrower pair level.

The results in Table 2 indicate that the amount of informal credit increases with social distance after the 2019 Provisions. For example, in my preferred baseline estimation in Column 4, a one-standard-deviation increase in social distance among lender–borrower pairs in my sample (0.146) is associated with a 48.54% increase in lending amount following the enactment (exp(2.710*0.146)–1). I used the specification in Column 4 as my baseline model for the remainder of this paper, as it includes additional controls for borrower and lender fixed effects. My baseline results suggest that socially distant friends lend more money informally on the FinTech platform

following the creditor protection enhancement provided by the 2019 Provisions.

[Insert Table 2 here]

Furthermore, I plotted the estimated coefficients (βs) using my econometric model (4) in Figure 1 to assess parallel trends and study dynamic treatment effects. Point 0 on the x-axis represents relative month 0—October 2019—the month in which Supreme People's Court approved the 2019 Amendment to the Provisions on Evidence in Civil Proceedings. The coefficients for the relative months before the approval remain consistently close to 0. This finding supports the validity of the parallel trends assumption.

[Insert Figure 1 here]

5.2. Social distance and lending amount

The role of social distance in influencing informal lending is critical to my analysis and interpretation. Therefore, I verify the relationship between social distance and the amount of informal lending using the following regression model at the individual–year–month level:

$$Borrowing_{i,j,t} = \beta_0 + \beta_1 \times Distance_{i,j} + \sigma_i + \gamma_j + \delta_t + \varepsilon_{i,j,t} \quad (5)$$

where the dependent variable, $Borrowing_{i,j,t}$, is defined as the log of the sum of the monetary value of the informal lending transfers received by individual i from lender j in month t. $Distance_{i,j}$ is the distance score of each lender–borrower pair for borrower i and lender j. σ_i, γ_j, and δ_t denote borrower, lender and year–month

fixed effects, respectively. $\varepsilon_{i,j,t}$ is the error term. I estimated the model using OLS regression with clustered standard errors at the lender-borrower pair level.

Appendix Table 1 shows the regression results estimated from Equation (5), demonstrating that social distance negatively affects the amount of informal borrowing. In other words, the more socially distant the friends are, the less money is borrowed. For example, in the preferred estimation in Column 4, consistent with our baseline model, a SD increase in social distance among lender–borrower pairs in our sample (0.146) corresponds to a 53.45% (exp(0.146*(-5.237)) –1) decrease in the informal lending amount.

5.3. Placebo test: Informal lending among direct family members

I conducted a placebo test to examine how 2019 Provisions affects informal lending within a special treatment group: directly related family members. Household members are far less likely to legal disputes over debt, as these transactions are generally regarded as routine living expenses in China and are rarely upheld in civil court (Chen, Chen, and He, 2018; Chou, 2010). As a result, the timing and amount of informal lending within families remain largely unaffected by strengthened legal protections, making this group an appropriate benchmark for my robustness check. Using my econometric model (4), I plotted the estimated coefficients (β) in Figure 2. In this specification, 13,189 individuals informally borrowed money from 15,827 family members, resulting in a panel of 17,987 individual–year–month observations. The results reveal that enhanced creditor protection had no significant effect on informal lending within families, supporting the robustness of my main findings.

[Insert Figure 2 here]

The absence of significant legal effects among family members reinforces the idea that enhanced protection brought by 2019 Provisions is more relevant to non-family social relationships, where default risk and the need for formal creditor protection are greater. Thus, the placebo test results confirm the validity of my main conclusions—the observed changes in informal lending are not driven by factors that would similarly affect family-based lending, which is less suspectible to legal protections.

5.4. Features of lending notes

I obtain all the textual contents of the transfer notes associated with informal lending transactions. This section exploits the effects of 2019 Provisions and social distance on lending features. Analyzing the textual content of the transfer notes provides deeper insights into how the enhanced creditor protection brought by 2019 Provisions have influenced the characteristics of informal debt.

Examining and verifying the relevant word lists in the transfer notes reveals critical information such as clear due dates, interest rates, and the specified lending amounts. These elements are considered the most critical components of a loan agreement (Bushman, Gao, Martin, and Pacelli, 2021; Laudenbach and Siegel, 2024).

Table 3 presents how the 2019 Provisions and social distance impact the content features of informal lending notes. Column 1 in Table 3 considers the length of the transfer notes as the outcome variable of interest, showing an increase in the length of these notes. Columns 2–4 in Table 3 use dummy variables to represent the presence of specific information, such as due date (Column 2), interest rate (Column 3), and precise lending amount (Column 4). The results suggest that the clarified definition of electronic evidence, along with the rules established by the 2019 Provisions for

validating its authenticity, have led lenders to be more meticulous and careful when drafting transfer notes for informal lending transactions. This behavioral change is likely motivated by a desire to comply with the relevant requirements for the collection and verification of electronic evidence during court proceedings in accordance with the 2019 Provisions.

One exception pertains to the due date information. Lenders tend not to mention the due dates of informal debts as frequently, since this information is less relevant to financial outcomes. Due dates are mentioned infrequently because informal lenders place greater emphasis on the eventual repayment of the debt rather than the precise timing of its collection.

[Insert Table 3 here]

5.5. Repayment behavior

I next examine how informal borrowers adjust their repayment behaviors following 2019 Provisions. First, Column 1 in Table 4 uses a repayment dummy (where even partial repayment would set the dummy to 1) as the dependent variable, showing that socially distant borrowers respond to the enhanced creditor protection with an increased probability of repayment during the sample period. This outcome indicates that borrowers are more likely to make some form of repayment under the new legal protections.

Second, I consider whether borrowers fully repay the informal lending amount, which may exert additional pressure on their cash management.I changed the dependent variable to a full repayment dummy in Column 2. The results indicate that borrowers increased the probability of full repayment within our sample period. This result suggests a tendency toward full repayment.

Third, I examine whether the enhanced protection of informal creditors

following 2019 Provisions brings extra short-term pressure on informal borrowers; I replace the dependent variable with a dummy variable representing whether the informal lending amount is repaid within three months. The positive results in Column 3 show that the short-term pressure of returning money is augmented for borrowers. This outcome implies that enhanced creditor protection does significantly increase the immediate repayment pressure on borrowers.

These findings contribute to the broader literature on how borrowers adjust their repayment behaviors to respond to enhanced creditor protection. Specifically, borrowers may be more likely to make some form of repayment under enhanced protections; also, the pressure to fully repay or repay quickly does significantly increase. This nuanced understanding can inform policymakers and stakeholders about the practical impacts of legal reforms on borrower behavior in informal lending contexts (Dagher and Sun, 2016; Heitz and Narayanamoorthy, 2020; Zhong, 2020).

[Insert Table 4 here]

6. Effects of 2019 Provisions on Borrowers

The previous section demonstrated that borrowers could obtain larger amounts of money from informal financing sources following the implementation of the 2019 Provisions. A natural follow-up question concerns how borrowers are able to secure more informal lending from social lenders under the same level of social distance. Additionally, it is important to consider the effectiveness or real-world impact of this incremental informal lending on borrowers' lives. To address these questions, I examine the effects of increased access to informal lending on various aspects of borrowers' well-being.

If these lending funds are cheaper and used appropriately, I anticipate that

borrowers will experience smoother consumption outcomes and an improvement in their overall well-being, along with a shift toward informal financing in their debt portfolios following the 2019 Provisions. Therefore, this section first examines how borrowers pool informal lending and the purposes for which they obtain funds from their social networks. Subsequently, I investigate the effects of social distance and the 2019 Provisions on borrowers' adjustments to their regular discretionary consumption and the composition of their debt portfolios.

6.1. Pooling of aggregate informal lending amounts

I have validated our main result that more alienated friends are willing to informally lend more money to others following the improved protection of informal creditors due to 2019 Provisions. The increase in social lenders' informal lending amount may be attributed to two factors: the coverage of lenders (i.e., the number and frequency of lending) and the significance of the lending amount. This subsection explores how borrowers pool money from lenders along these two aspects when the protection of informal lenders increases following the legalization of electronic evidence. This examination can deepen our understanding of borrowers' informal loan schemes under the smoothened lending restrictions.

Table 5 presents the results estimated with the same specification as Column 4 in Table 2. In Columns 1 and 2 of Table 5, the dependent variables include the number of social friends lending money via the FinTech platform (Column 1) and the log of the average amount of money lent to borrowers per lender (Column 2) in each calendar month. The results in Columns 1 and 2 indicate that lenders facing enhanced creditor protections respond primarily by increasing the lending amount to their borrowers.

Next, I consider how borrowers change their loan schemes regarding lending

frequency after the creditor protection shock. Column 3 in Table 5 shows that borrowers significantly increase the frequency of informal borrowing in their informal loan schemes. In addition, Column 4 shows that borrowers significantly increased the average borrowing amount per lending event in the sample period after the legislation regarding electronic evidence, which enhanced creditor protection by 2019 Provisions.

A possible explanation for these results is that borrowers have already reached the maximum capacity for informal lending within their social networks—that is, all willing informal lenders have already provided loans to these borrowers. As a result, the effect of the 2019 Provisions is to increase the willingness of existing informal lenders to extend larger loan amounts, rather than attracting new lenders or increasing the frequency of lending transactions.

[Insert Table 5 here]

Understanding the change in how borrowers pool money from social lenders is important. The results in Table 5 show that borrowers obtain more borrowing amounts via increased lending from each lender and in each borrowing experience; however, increased willingness from previous lenders (those willing to lend money informally before the legalization of electronic evidence in October 2019) and the inclusion of new lenders with greater lending capacities can drive the same results. Therefore, the interpretation of borrowers' decisions can vary depending on these dynamics. I use Equation (4) to specifically test how 2019 Provisions affects the informal lending amounts from pre-shock lenders and plot the results in Figure 3. The focus is on understanding whether the increase in lending amounts is driven by the same lenders who were active before the policy change or if new lenders with greater capacities have entered the market.

Figure 3 shows that the enhanced creditor protection since the 2019 Provisions has had an insignificant effect on the lending amounts of preshock lenders with the same level of social distance. This outcome suggests that the borrowers enhanced their pooling of informal lending amounts primarily by obtaining money from new lenders with more lending capacity who had limited lending willingness before the shock.

This finding indicates that the policy change has attracted new lenders into the informal lending market rather than simply increasing the lending amounts from existing lenders. These new lenders likely had the financial capacity to lend but were previously deterred by the risks associated with informal lending. The 2019 Provisions reduced these risks, encouraging participation. Thus, the enhanced protection of informal creditors appears to have expanded the pool of available lenders, enabling borrowers to access more significant amounts of money by tapping into the capacities of these new entrants. Rather than increasing the lending amounts from preexisting lenders, this expansion of the lender base is the primary driver of the observed increase in borrowing amounts post-legalization.

[Insert Figure 3 here]

6.2. Lending purposes

Analyzing specific phrases within electronic transfer notes associated with informal lending reveals four primary purposes for these transactions: (1) Turnover—borrowing money to tide over financial difficulties; (2) Debt repayment—using informally borrowed funds to repay debts; (3) Asset acquisition—borrowing money informally to purchase tangible assets (e.g., an apartment or a car); and (4) No applicable purpose identified.

Table 6 presents the results of examining the effects of legalizing electronic evidence on different lending purposes. Columns 1–3 display the findings for lending related to turnover, debt repayment, and asset acquisition, respectively. The results indicate that informal lenders provide more funds for essential needs, such as turnover and debt repayment, while the effect on lending for asset acquisition is statistically insignificant. This finding aligns with the primary intentions of informal lending, which typically focus on addressing immediate financial needs rather than facilitating the purchase of tangible assets (Lee and Persson, 2016; Balyuk and Williams, 2021; Tomy and Wittenberg-Moerman, 2024).

[Insert Table 6 here]

6.2. Adjustment in the debt portfolio

Another natural question following the increased informal lending amount after the 2019 Amendment is how the increase in funds from informal sources influences the loans from formal sources in the borrower's debt portfolio. To address this question, we analyze the composition of borrowers' debt portfolios before and after the 2019 Provisions, focusing on the interplay between informal and formal loans.

I supplement my analysis with information on debt from formal lending sources for sample borrowers—the FinTech platform provides monthly credit card repayment data and online debt information from official online lending platforms. When merging the regular repayment records of credit cards and online debts, I excluded informal borrowers who lacked formal lending records (i.e., no repayment records for either credit cards or online debt). This data integration process resulted in a comprehensive dataset comprising 96,483 borrower-year–month observations for 22,716 borrowers.

Table 7 presents the results estimated using the same specification as Column 3 in Table 2. In Columns 1 and 2 of Table 7, the dependent variable is the logarithm of the informal lending amount (Column 1) and the formal lending amount (Column 2) for informal borrowers within three months since the informal lending event month. Columns 1 and 2 indicate that, following the enhanced protection of creditors due to the 2019 Provisions, informal borrowers increased their reliance on informal lending sources while reducing their dependence on formal lending sources for their daily expenditures. In Column 3, the outcome variable of interest is the share of the informal lending amount over the total amount borrowed from informal and formal sources within three months since the informal lending event month. The results demonstrate that the reduced lending frictions for informal lenders led socially distant friends to shift their lending activities from formal sources to informal social networks.

This analysis underscores the significant impact of the 2019 Provisions on borrowing behavior, highlighting a clear shift in preference toward informal lending sources. The enhanced protection afforded to informal lenders has increased the volume of informal loans and altered the overall composition of borrowers' debt portfolios, favoring informal over formal lending channels.

[Insert Table 7 here]

6.3. Discretionary consumption

Now I examine the real effect of the 2019 Provisions on the discretionary consumption levels of borrowers, considering different levels of social distance.

I merged social borrowers' consumption data by extracting each borrower's spending category, amount, and frequency and aggregating their discretionary

consumption expenditures at the monthly level. Discretionary expenditures include spending in all subcategories that correspond to industries in the Consumer Discretionary sector according to GICS Code 25. Appendix Table 4 presents the summary statistics by each discretionary consumption category.

I merged the consumption data of social borrowers to examine the effect of the enhanced protection of informal lenders due to the legalization of electronic evidence on the discretionary consumption levels of borrowers. Specifically, I extracted each borrower's spending category, amount, and frequency and aggregated their discretionary consumption expenditures at the monthly level. Discretionary expenditures include spending in all subcategories corresponding to industries in the Consumer Discretionary sector (according to GICS Code 25). Appendix Table 4 presents the summary statistics for each discretionary consumption category. These statistics provide an overview of the spending behavior of borrowers in various discretionary categories, such as dining out, entertainment, travel, and other leisure activities.

Table 8 presents the results of the smoothened lending constraints and social distance on the borrowers' discretionary consumption. I consider the logged discretionary expenditures as the dependent variable to test the equation. The results across four columns in Table 8 show the impact of enhanced informal lending on borrowers' discretionary consumption over different time horizons. These include in the month following the informal lending transaction month (Column 1), within three months (Column 2), and within six months (Column 3), following the informal lending transaction month.

The results indicate that borrowers' daily quality of life improves following the informal lending transaction. This improvement is attributed to the increased informal lending and reduced short-term repayment pressures due to the legalization of

electronic evidence. For example, within 3 months after the informal lending records, a one SD increase in social distance caused the borrowers' discretionary consumption to increase by 25.80% (exp(1.572*0.146) –1). This result suggests that borrowers with greater social distance from lenders experience a notable increase in discretionary spending following the informal lending transaction after the 2019 Provisions.

[Insert Table 8 here]

The rich subcategories within the consumption data allow me to examine the impact of the 2019 Provisions on specific types of discretionary spending. Increases in discretionary expenditure may reflect improvements in quality of life or investments in future career prospects. Accordingly, I focus on three particular subcategories: vocational training, purchasing software, and spending on cigarettes and alcohol products. The relevant results for these subcategories are presented in Table 9.

The results in Table 9 indicate that individuals increased their spending on adult education (Column 1) and investment in software toolkits (Column 2), while reducing their expenditures on cigarettes and alcohol products (Column 3). These findings suggest that augmented informal lending enables individuals to allocate more resources toward investments in their future, such as education and professional tools, which may in turn lead to greater improvements in their future career prospects. This underscores the important role of informal finance in supporting personal development and long-term well-being.

[Insert Table 9 here]

7. Lender reactions to the 2019 Provisions

In the previous sections, I documented the increased lending amounts provided by

social acquaintances to their friends, and investigated the positive effects of this expanded informal credit on borrowers' daily lives. However, lenders—being the other key party in these lending transactions—are just as important as borrowers. Therefore, in this section, I explore lenders' responses to the 2019 Provisions, in addition to their role in providing increased credit.

There is a prevailing belief that repayment capability remains a crucial consideration in informal lending scenarios, particularly for individuals who resort to informal borrowing due to limitations with formal financial institutions (Udry, 1994; Besley and Coate, 1995; Armendáriz and Morduch, 2010; Ghosh and Ray, 2016).

To examine the effect of non-repayment events on lenders' future lending decisions, I reorganize the data at the lender-month level. For each lender-month observation, I construct a non-repayment indicator, which equals 1 if the lender has any prior informal borrower who has failed to repay for at least three months (Panel A of Table 10) or at least six months (Panel B of Table 10), and 0 otherwise. The dependent variables capture the lender's informal lending activity in a given month: the logged value of the lender's total informal lending, and a dummy variable to capture whether the lender extended any informal loan to social acquaintances during that month. Panel A presents results for non-repayment durations of at least three months, whereas Panel B focuses on durations of at least six months.

The results in Table 10 reveal that, prior to the 2019 Provisions, social lenders were less likely to extend additional loans to other acquaintances if they were experiencing non-repayment from previous borrowers. However, following the implementation of the 2019 Provisions, social lenders continued to lend to their social acquaintances even in the face of outstanding non-repayment from others. These findings suggest that, after the new regulations, social lenders may find it more difficult to refuse lending requests from friends. Given the overall low likelihood of short-term

repayment, this indicates that social lenders may also bear increased risks and potential losses as a result of the 2019 Provisions.

[Insert Table 10 here]

8. Mechanisms

This section explicitly explores through which mechanisms the2019 Provisions influences informal lending activities among socially distant friends.

8.1. Trust

Building on my previous analysis, I established that socially distant friends are more significantly affected by the 2019 Provisions. The observed increase in informal lending is attributable to the reduced necessity for *"*trust*"* between lenders and borrowers to initiate lending transactions. To further substantiate this hypothesis, I incorporate social distance into my tests and explicitly examine the trust channel through three primary attributes: the borrowers' repayment records, the overlapping working industries of borrowers and lenders, and overlapping residing cities of borrowers and lenders.

Individuals with historical repayment records of informal lending may develop a good reputation and establish a reliable image as borrowers. This reputation can lead other social lenders to trust them more, even when the level of social interaction is controlled for (as captured by our social distance measure) (Liberman, 2016; Vercammen, 1995; Collier and Hampshire, 2010; John and Nachman, 1985; Duygan-Bump and Grant, 2009). To investigate this phenomenon further, wI categorize social borrowers into two groups based on whether they had a repayment history before the 2019 Provisions. Panel A of Figure 4 presents the results of this analysis.

Panel A indicates that social lenders are more inclined to increase lending amounts to social friends without a prior repayment history. This result suggests that lenders' need for *"trust"* has diminished post-legalization. In other words, the legal amendments have reduced the reliance on borrowers' historical repayment behavior as a prerequisite for initiating lending transactions.

Individuals within the same industrial sector often exhibit higher trust in one another, a sentiment primarily attributed to their shared understanding of the work milieu and content. This mutual comprehension provides an unobscured insight into each other's financial circumstances, which is frequently intertwined with the dynamics and transformations peculiar to their industry. This type of nuanced, industry-specific information—often referred to as *"*soft information*"*—assumes a crucial role in facilitating the informal lending process (Hasan, He, and Lu, 2022; Duarte, Siegel, and Young, 2012; Agarwal and Hauswald, 2010; Agarwal and Ben-David, 2018; Liberti, 2018).

My study examines the impact of the legalization of electronic evidence on the amounts involved in informal lending while adjusting for an equivalent level of social interactions. I categorize borrowers into two groups, depending on whether they share the same industry as their lenders. Panel B of Figure 4 presents the results, suggesting that lenders with larger social distances are more inclined to extend higher lending amounts to acquaintances operating in dissimilar industries.

Similarly, individuals residing in the same cities often exhibit higher trust in one another, a sentiment primarily attributed to their shared understanding of the living environment. Thus, I categorize borrowers into two groups, depending on whether they reside in the same city as their lenders. Panel C of Figure 4 presents the results, suggesting that lenders with larger social distances are more inclined to extend higher lending amounts to acquaintances living in difference cities.

Along with the heightened lending amounts to individuals lacking a repayment record, this observation indicates a diminishing need for *"trust"* in the negotiation process for lenders. The clear definition of electronic evidence, the expanded scope, and rules to validate its authenticity in legal contexts alleviates the traditional dependence on personal, professional familiarity, and overlapping residing city, expanding the potential scope of lending relationships. The findings suggest that legal reforms have effectively reduced the barriers to informal lending by introducing a formal mechanism for enforcing agreements. This development reduces the significance of past repayment history, industry and residing city associations in lending decisions. Consequently, the lowered trust requirements prompt lenders to extend credit more liberally, even to socially less reliable borrowers or operate in disparate industries or stays in different cities.

[Insert Figure 4 here]

8.2. Repayment capability

Borrowers' repayment capacity is another pivotal factor that lenders consider, especially in small-amount informal lending (Dorfleitner and Oswald, 2016). Related studies such as Berger and Udell (1990), Boot et al. (1991), Liberti and Mian (2009) and Jiménez et al. (2014) have demonstrated that lenders tend to have lower expectations regarding repayment capacity for small-scale lending. In contrast, lenders may demand official documentation for larger loan amounts, such as a receipt. Nonetheless, there is a prevailing belief that repayment capability remains a crucial consideration in informal lending scenarios, particularly for individuals who resort to informal borrowing due to limitations with formal financial institutions (Udry, 1994; Besley and Coate, 1995; Armendáriz and Morduch, 2010; Ghosh and Ray, 2016).

My study delves into two key indicators of repayment capability: monthly income and tangible asset ownership. These metrics are crucial in informal financing, where loans are typically of modest sums, lack official agreements, and feature short and ambiguous repayment terms. Monthly income, the primary cash inflow for most individuals in China, is important to social lenders.[38] Additionally, I focus on tangible assets, specifically real estate holdings, as a substantial percentage of the population in China allocates a significant portion of their wealth toward acquiring property.[39]

Furthermore, property ownership in urban areas signifies stability and rootedness and indicates a decreased likelihood of borrowers relocating or evading lenders. Panels A and B of Figure 5 present and analyze the estimated coefficients within subgroups divided by income levels (with the median income as the cutoff) and by the presence or absence of real estate assets, respectively. The results underscore a diminished emphasis on borrowers' repayment capability during negotiations with lenders.

[Insert Figure 5 here]

9. Conclusion

The adoption of real-time digital payment systems has proliferated, bringing significant attention to the legal recognition of electronic data as valid evidence in household credit activities. In October 2019, a landmark legal reform in China formally defined electronic transaction records as admissible evidence in civil court proceedings, strengthening protections for informal creditors. This study examines how this legal

[38] According to the National Bureau of Statistics of China, in 2019, the average wage income contributed to 55.9% of residents' disposable income.
[39] According to the China Household Wealth Survey Report 2019, urban residents' net real estate value accounts for 71.35% of the per capita household wealth.

change has impacted the informal credit market, which predominantly comprises transactions between relatives and friends, often documented through simple electronic notes on digital payment platforms.

Our findings reveal that enhanced protections for informal lenders significantly expand the availability of informal credit within a borrower's social network, as evidenced by a broader lender base and increased loan amounts from new creditors. These protections also lead to more formalized lending transaction notes, characterized by greater detail and inclusion of financial terms such as interest rates and loan amounts, making them more closely resemble formal promissory notes. Furthermore, the legal reform led to a rise in borrowers' discretionary consumption and a shift from formal to informal financing sources. In contrast to the positive effects for informal borrowers, the findings also indicate that informal lenders face increased pressure to accept lending requests from acquaintances, even after experiencing non-repayment by other borrowers, thereby heightening their exposure to credit risk. Two mechanisms drive these outcomes: reduced reliance on the lender's social trust in the borrower and lower requirements for the borrower's repayment capacity. This study highlights the real-world implications of expanded informal finance resulting from enhanced creditor protection through the legalization of electronic evidence in informal credit markets, elucidating their effects on household financial behavior and outcomes.

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Figure 1. Impact of the 2019 Provisions of Evidence in Civil Proceedings on Informal Lending Activities

This figure examines the impact of the 2019 Provisions of Evidence in Civil Proceedings and lender-borrower social distance score on the amount of informal lending among social acquaintances. The analysis draws on data from a major Chinese FinTech platform covering January 2019 to August 2020. On October 14, 2019, the Supreme People's Court of China approved the Provisions on Evidence in Civil Litigation (2019 Provisions), which clarified the definition of electronic evidence, established rules for verifying its authenticity, expanded admissible means for obtaining electronic evidence, and specified relevant handling procedures. These regulatory changes reduced litigation costs in cases involving electronic data, such as informal lending without formal promissory notes. The figure reports estimates of the coefficients β from my preferred econometric specification, which includes borrower, lender, and year-month fixed effects. The dependent variable is the logged value of the informal lending amount received by a borrower from each potential lender in a given month. The social distance measure is quantified based on the frequency and intensity of prior textual and financial interactions between individuals. Further details on variable construction are provided in Appendix A1. The bars represent 95% confidence intervals, and standard errors are clustered at the lender-borrower pair level.

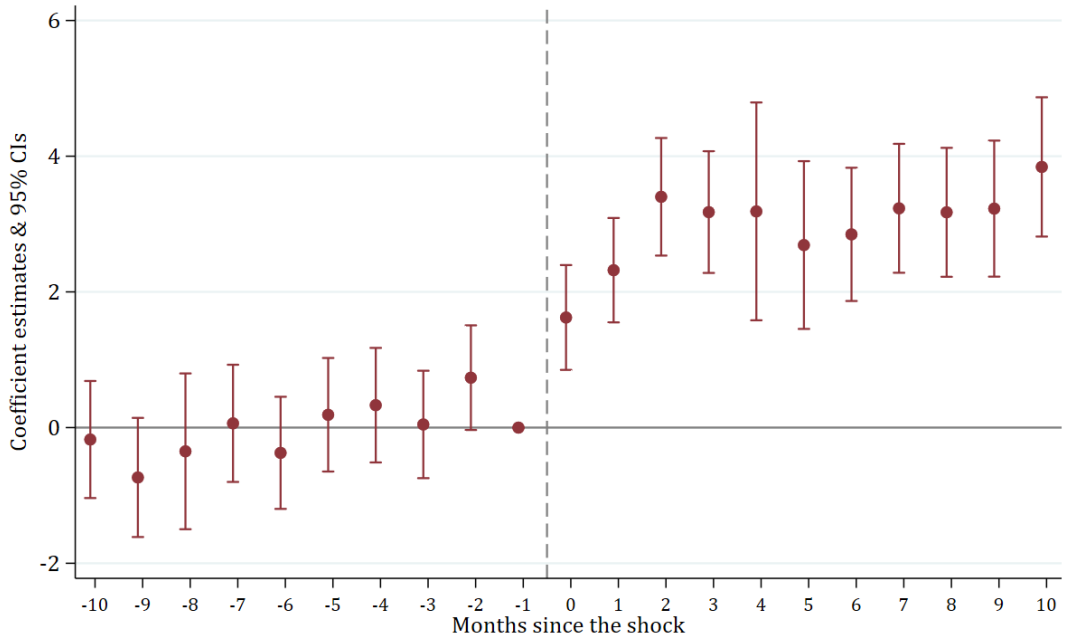


Figure 2. Placebo Test: Impact of the 2019 Provisions of Evidence in Civil Proceedings Among Family Members

This figure presents the estimated effects of the placebo test designed to validate our main findings, focusing exclusively on informal lending activities between family members. Informal lending activities among immediate family members (i.e., parents, children, spouses) are minimally impacted by the 2019 Provisions of Evidence in Civil Proceedings, as such transactions are generally regarded as routine living expenses and are rarely upheld in civil court (Chen, Chen, and He, 2018; Chou, 2010). The figure presents estimates of the coefficients (β) from my preferred econometric specification, which incorporates borrower, lender, and year-month fixed effects. The dependent variable is the logged value of the informal lending amount received by a borrower from each potential family lender in a given month. The bars represent 95% confidence intervals, and standard errors are clustered at the lender-borrower pair level.

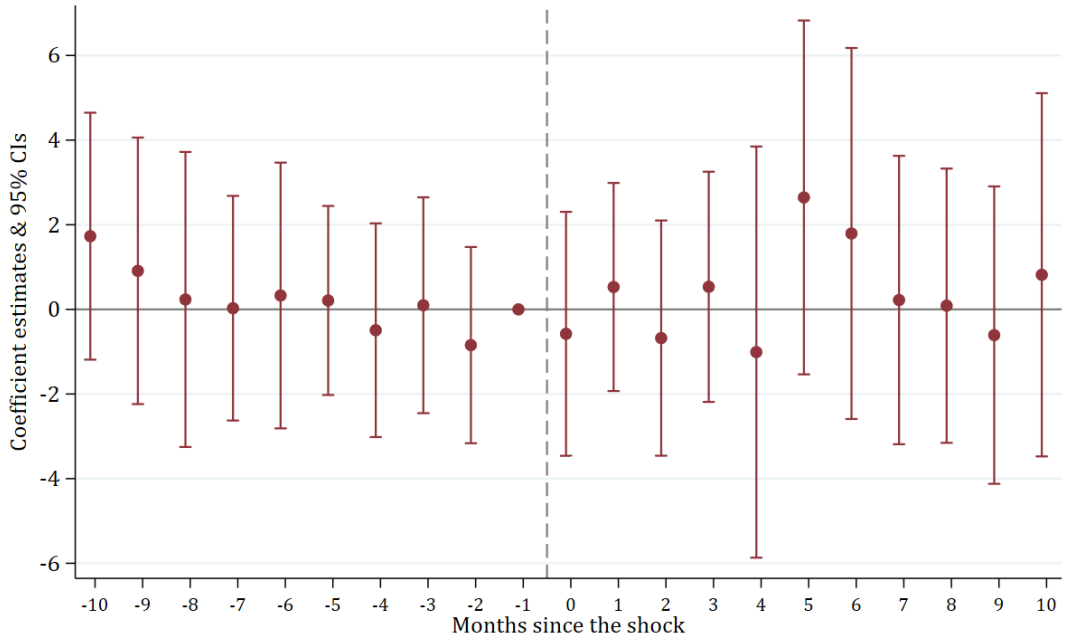


Figure 3. Impact of the 2019 Provisions of Evidence in Civil Proceedings on Pre-Shock Lenders

This figure investigates the impact of the 2019 Provisions of Evidence in Civil Proceedings and the lender-borrower social distance score on the amount of informal lending among social acquaintances who had established lending relationships with the borrower prior to the 2019 Provisions. The figure presents estimates of the coefficients (β) from my preferred econometric specification, which incorporates borrower, lender, and year-month fixed effects. The dependent variable is the logged value of the informal lending amount received by a borrower from each lender with prior lending history in a given month. The bars represent 95% confidence intervals, and standard errors are clustered at the lender-borrower pair level.

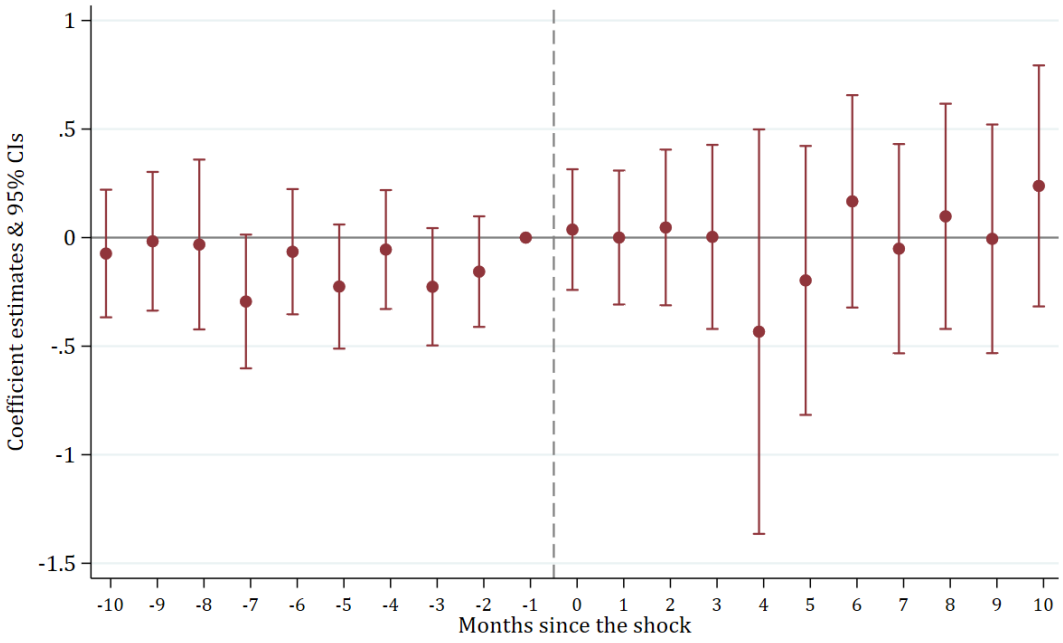
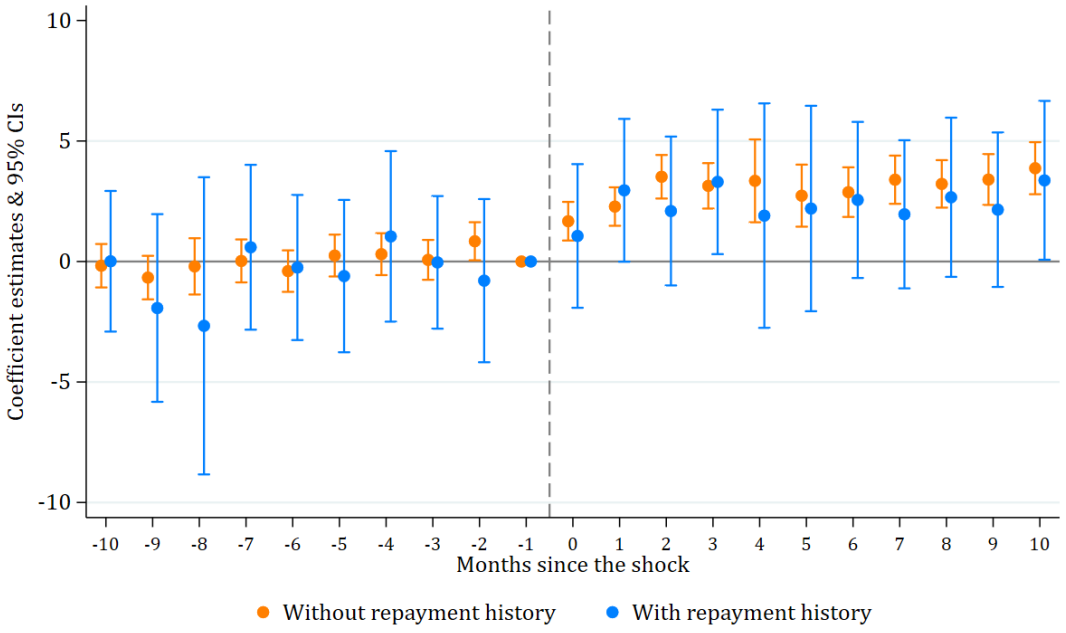


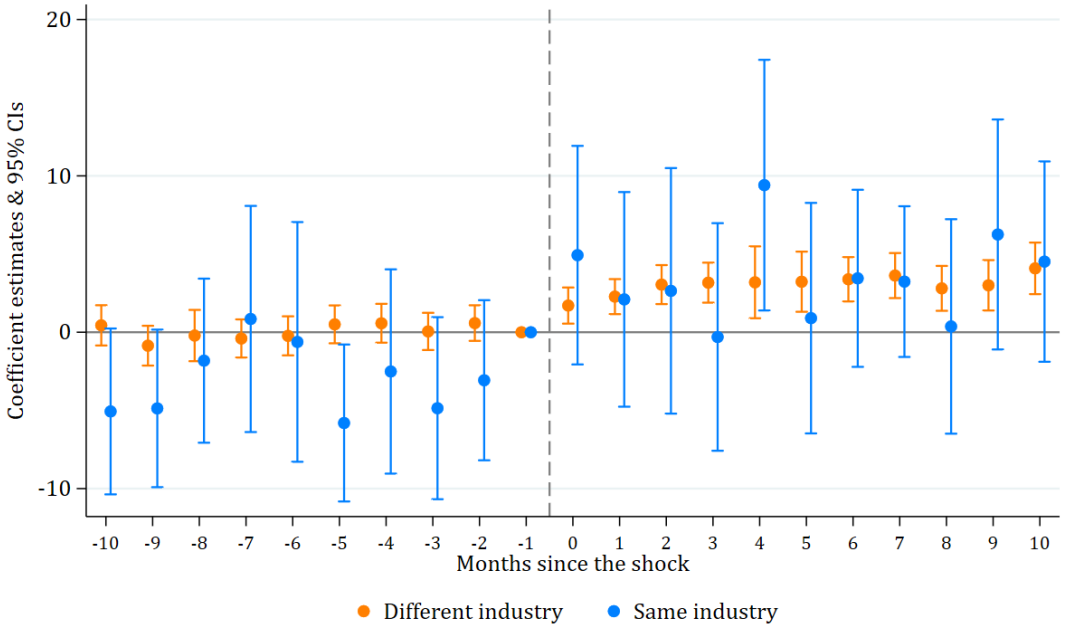
Figure 4. Mechanism: Reduced Reliance on Trust in Lender-Borrower Relationships

This figure investigates the trust mechanism through which the 2019 Provisions impact informal lending activities among social acquaintances. Specifically, Panel A presents estimates of coefficients for borrowers who either have or have not repaid any informal lending to their lenders (in this context, social friends) prior to the 2019 Provisions. Panel B shows coefficient estimates for borrowers who work in the same industry as their lenders versus those in different industries. Panel C reports estimates for borrowers residing in the same city as their lenders compared to those living in different cities. The outcome variable is the logged value of the total amount of informal lending received by the borrower in a given month. The bars represent 95% confidence intervals, and standard errors are clustered at the lender-borrower pair level.

Panel A: Repayment history



Panel B: Industry



Panel C: City

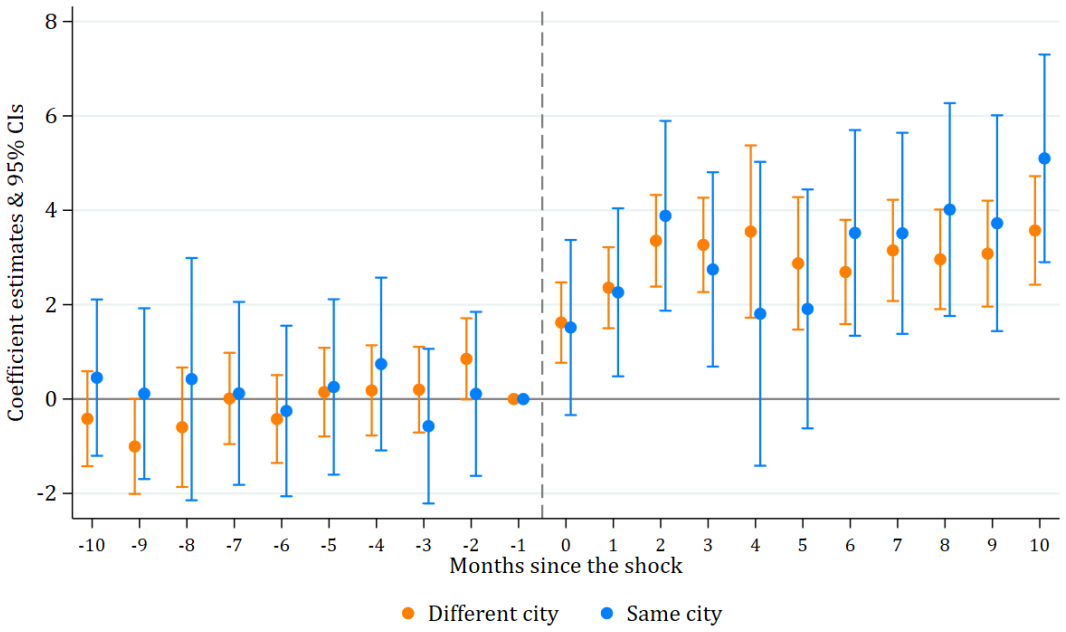
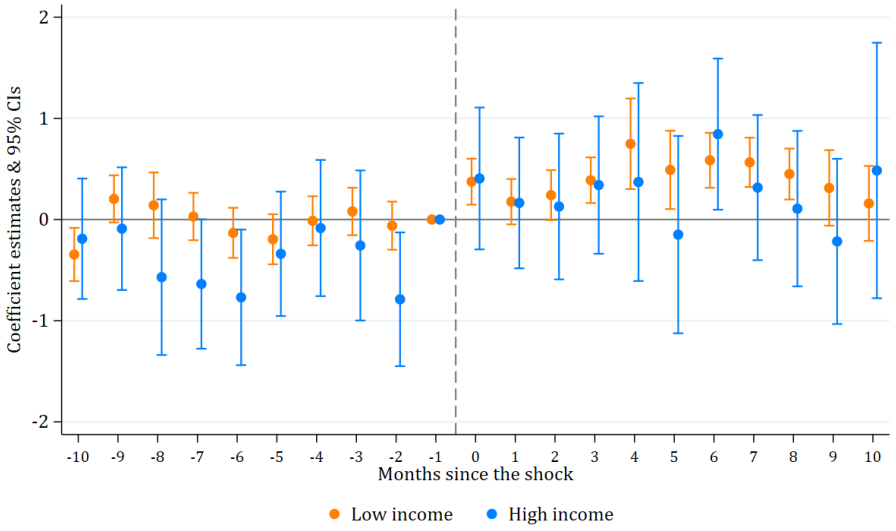


Figure 5. Mechanism: Diminished Importance on Borrower's Repayment Capability

This figure examines the repayment capability mechanism through which the 2019 Provisions affect informal lending activities among social acquaintances. Specifically, Panel A presents coefficient estimates for borrowers divided into two subgroups based on the median value of their monthly income. Panel B displays coefficient estimates for borrowers categorized by whether they own any apartments or real estate assets in the residing city. The outcome variable is the logged value of the total amount of informal lending received by the borrower in a given month. The bars represent 95% confidence intervals, and standard errors are clustered at the lender-borrower pair level.

Panel A: Income



Panel B: House

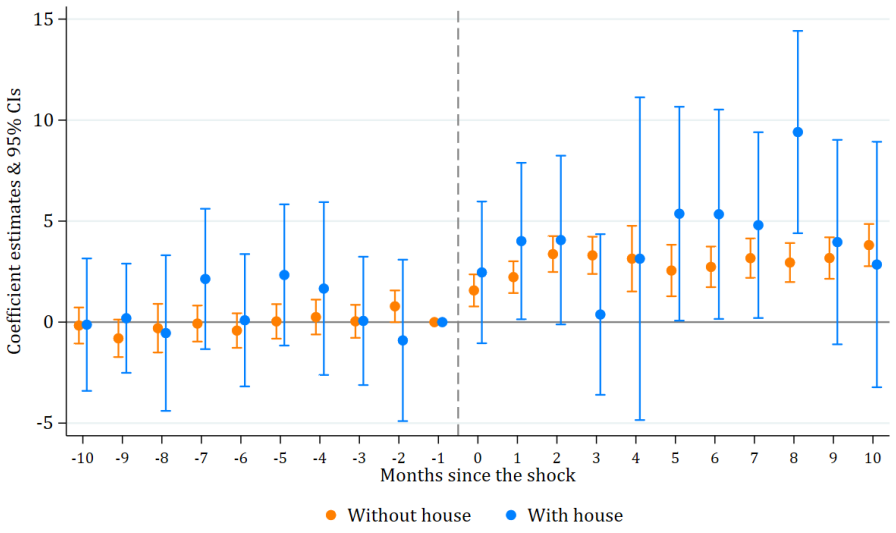


Table 1. Summary Statistics

This table presents summary statistics for the main variables used in this paper. The study examines the impact of China's 2019 Provisions of Evidence in Civil Proceedings, as well as the borrower-lender social distance score, on the amount of informal lending among social acquaintances. The analysis utilizes data from a major Chinese FinTech platform, covering the period from January 2019 to August 2020. On October 14, 2019, the Supreme People's Court of China approved the Provisions on Evidence in Civil Proceedings ("2019 Provisions"), which clarified the definition of electronic evidence, established rules for verifying its authenticity, expanded admissible channels for obtaining such evidence, and specified relevant handling procedures. These regulatory changes reduced litigation costs in cases involving electronic data, such as informal lending without formal promissory notes. The dataset includes detailed transaction records of informal lending, along with administrative information on both borrowers and lenders. It also contains information on borrowers' consumption debt (including credit card and online debt) and their daily consumption details. See Appendix A1 for detailed variable definitions.

	N	Mean	SD	P25	P50	P75
Lender-borrower-month lending details						
Distance (%)	168,989	47.07	14.59	39.12	43.00	52.55
Amt (RMB)	168,989	3,068.68	6,207.59	0	1,060	3,150
Log(Amt)	168,989	5.68	3.54	0	6.97	8.06
Repayment	168,989	0.13	0.34	0	0	0
Length	168,989	10.02	6.05	6	6	12
Borrower-month discretionary consumption						
Consumption_{t+1}	96,483	2,290.30	7,298.73	312.80	826.76	2,056.02
$\text{Consumption}_{[t+1,t+3]}$	96,483	6,015.04	16,306.01	979.76	2,439.94	5,818.38
$\text{Consumption}_{[t+1,t+6]}$	96,483	9,500.82	25,958.09	1,425.48	3,784.22	9,280.40
Borrower-month debt portfolio						
Amt (Formal consumption debt)	29,502	9,138.4	15,889	1001	3,451.8	10,096
Amt(Informal lending)	29,502	5,076.8	8,387.8	1000	2500	5,500
Informal_finance%	29,502	45.01	31.26	16.77	43.2	71.98
Borrower characteristics						
No_lender	38,152	1.32	0.63	1.00	1.00	2.00
Age	38,152	34.51	9.76	27.00	33.00	42.00
Income (RMB)	38,152	4,559.23	1,671.62	3,406.00	4,082.00	5,681.00
Housing_dummy	38,152	0.05	0.21	0	0	0

Table 2. The Impact of China's 2019 Provisions of Evidence in Civil Proceedings on Informal Lending Activiti

This table examines the impact of China's 2019 Provisions of Evidence in Civil Proceedings, as well as the borrower-lender social distance score, on the amount of informal lending among social acquaintances, using data from a major Chinese FinTech platform covering January 2019 to August 2020. On October 14, 2019, the Supreme People's Court of China approved the Provisions on Evidence in Civil Proceedings ("2019 Provisions"), which clarified the definition of electronic evidence, established rules for verifying its authenticity, expanded admissible channels for obtaining such evidence, and specified relevant handling procedures. The outcome variable is the logged value of the total amount of informal lending received by the borrower from each potential social lender in a given month. *Post* is equal to 1 for observations after October 2019, zero prior to the approval of the 2019 Provisions. The social distance measure is quantified as e^{-Close}, where *Close* represents the proxy for social connectedness, determined by the frequency and intensity of historical textual interactions and financial transactions between the two individuals. Column 1 reports results without any controls for borrower characteristics or fixed effects. Column 2 includes year-month fixed effects. Column 3 additionally controls for borrower fixed effects. Column 4 further controls for lender fixed effects. Variable definitions are provided in Appendix A1. Standard errors are reported within parentheses and clustered at the lender-borrower pair level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variable = Log(Informal Lending Amount)				
	(1)	(2)	(3)	(4)
Distance × Post	0.812***	3.214***	2.746***	2.710***
	(0.048)	(0.151)	(0.211)	(0.245)
Distance	-3.616***	-4.565***	-4.792***	-6.133***
	(0.096)	(0.109)	(0.178)	(1.869)
Year-Month FE	No	Yes	Yes	Yes
Borrower FE	No	No	Yes	Yes
Lender FE	No	No	No	Yes
No. of Observations	168,989	168,989	168,989	168,989
R-squared	0.020	0.024	0.414	0.531

Table 3: Features in Transaction Notes of Informal Lending

The table reports the effects of China's 2019 Provisions of Evidence in Civil Proceedings and the borrower-lender social distance score on features of lending notes associated with informal lending activities, focusing on note length and the presence of specific lending information. The variable *Post* equals 1 for observations after October 2019, and 0 for those prior to the approval of the 2019 provisions. Column 1 presents results from the preferred specification—which aligns with the baseline model—using the average length of informal lending notes in a given month as the outcome variable. Note length is calculated such that each English letter or punctuation mark counts as 1, and each Mandarin word counts as 3. Column 2 uses a due date dummy as the outcome variable, equal to 1 if the lender mentioned the due date of informal debt in the transfer note, and 0 otherwise. Column 3 uses an interest dummy, equal to 1 if the lender mentioned the interest rate in the note, and 0 otherwise. Column 4 uses an amount dummy, equal to 1 if the lender mentioned the lending amount in the note, and 0 otherwise. All columns include year-month, borrower, and lender fixed effects. Variable definitions are detailed in the Appendix A1. Standard errors are reported within parentheses and clustered at the lender-borrower pair level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Length	D(Due)	D(Interest)	D(Amount)
	(1)	(2)	(3)	(4)
Distance × Post	5.865***	0.001	0.012**	0.081***
	(0.622)	(0.003)	(0.006)	(0.017)
Distance	-14.064***	-0.000	-0.004*	-0.273***
	(4.940)	(0.001)	(0.002)	(0.095)
Year-Month FE	Yes	Yes	Yes	Yes
Borrower FE	Yes	Yes	Yes	Yes
Lender FE	Yes	Yes	Yes	Yes
No. of Observations	168,989	168,989	168,989	168,989
R-squared	0.571	0.553	0.687	0.608

Table 4. Influence of the 2019 Provisions on Informal Debt Repayment

This table reports the effects of reduced litigation costs and the lender-borrower closeness score on the repayment of informal debt to lenders (i.e., social friends). The dependent variables are as follows: *Repayment* is a dummy variable equal to 1 if the borrower repaid any amount to the lender during the observation period; *Repayment_full* is a dummy equal to 1 if the borrower fully repaid the borrowed amount during the observation period; and *Repayment_3m* is a dummy equal to 1 if the borrower (partially or fully) repaid the borrowed amount within three months of the informal lending transaction. Columns 1 to 3 present results for Repayment, Repayment_full, and Repayment_3m, respectively. All columns include year-month, borrower, and lender fixed effects. Variable definitions are detailed in the Appendix A1. Standard errors are reported within parentheses and clustered at the lender-borrower pair level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Variable	Repayment	Full repayment	Repayment 3m
	(1)	(2)	(3)
Distance × Post	0.041**	0.040***	0.028*
	(0.016)	(0.010)	(0.015)
Distance	0.044	0.061	0.048
	(0.044)	(0.061)	(0.044)
Year-Month FE	Yes	Yes	Yes
Borrower FE	Yes	Yes	Yes
Lender FE	Yes	Yes	Yes
No. of Observations	168,989	168,989	168,989
R-squared	0.817	0.643	0.542

Table 5. Pooling of Aggregate Informal Lending Amount

This table reports the effects of China's 2019 Provisions of Evidence in Civil Proceedings and the borrower-lender social distance score on how borrowers pool funds from informal lenders. The variable *Post* equals 1 for observations after October 2019 and 0 for those prior to the approval of the 2019 Provisions. For each borrower, the average distance score among all actual lending lender-borrower pairs in a given month is used. Column 1 presents results with the number of lenders per borrower per month as the outcome variable. Column 2 uses the logged informal lending amount per lender. Column 3 reports results using the number of lending transactions (frequency). Column 4 uses the logged informal lending amount per transaction. All specifications include year-month and borrower fixed effects. Variable definitions are detailed in the Appendix A1. Standard errors are reported within parentheses and clustered at the borrower-level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	No_lender	Amt/Lender	No_frequency	Amt/Frequency
	(1)	(2)	(3)	(4)
Distance × Post	0.004	0.443***	0.058*	0.417***
	(0.006)	(0.051)	(0.033)	(0.050)
Distance	0.001	-0.663***	-0.190***	-0.561***
	(0.003)	(0.033)	(0.023)	(0.033)
Year-Month FE	Yes	Yes	Yes	Yes
Borrower FE	Yes	Yes	Yes	Yes
No. of Observations	93,978	93,978	93,978	93,978
R-squared	0.001	0.014	0.008	0.014

Table 6. Heterogeneity of Lending Purposes Among Informal Lending Activties

This table reports the effects of China's 2019 Provisions of Evidence in Civil Proceedings and the borrower-lender social distance score on diverse lending purposes in informal lending activities. The variable *Post* equals 1 for observations after October 2019 and 0 for those prior to the approval of the 2019 Provisions. Lending purposes are identified through textual analysis of electronic transfer notes associated with informal lending, resulting in three primary categories: turnover (borrowing to address short-term financial difficulties), debt repayment (using informally borrowed funds to repay formal loans), and asset acquisition (borrowing to purchase tangible assets, such as an apartment or car). Columns 1 to 3 report results with the outcome variable being the logged informal lending amount for the purposes of turnover, debt repayment, and asset acquisition, respectively. All columns include year-month and borrower fixed effects. Variable definitions are detailed in the Appendix A1. Standard errors are reported within parentheses and clustered at the borrower-level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Turnover	Debt repayment	Asset acquisition
	(1)	(2)	(3)
Distance × Post	0.604**	0.466**	0.338
	(0.267)	(0.181)	(0.704)
Distance	-0.575***	-0.491***	-0.092
	(0.135)	(0.107)	(0.384)
Year-Month FE	Yes	Yes	Yes
Borrower FE	Yes	Yes	Yes
No. of Observations	4,158	4,256	503
R-squared	0.716	0.782	0.898

Table 7. Effects of the 2019 Provisions on Borrower Debt Portfolios

This table reports the effects of China's 2019 Provisions of Evidence in Civil Proceedings and the borrower-lender social distance score on borrowers' debt portfolios. The variable *Post* equals 1 for observations after October 2019 and 0 for those prior to the approval of the 2019 Provisions. Column 1 reports results where the dependent variable is the logged value of informal lending amount within three months since a given month. Column 2 uses the logged value of formal lending amount within three months—measured as the aggregate credit card and online debt repayment amounts—as the dependent variable. Column 3 examines the share of informal lending in the overall debt portfolio within three months, calculated as the ratio of informal lending to total consumption debts (credit card and online debt) for each borrower, representing the proportion of a borrower's total consumption debts sourced from informal lending. All columns include year-month and borrower fixed effects. Variable definitions are detailed in the Appendix A1. Standard errors are reported within parentheses and clustered at the borrower-level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Amt(Informal lending)	Amt(formal consumption debt)	Informal finance%
	(1)	(2)	(3)
Distance × Post	0.229***	-0.104*	0.052**
	(0.073)	(0.061)	(0.021)
Distance	0.527***	0.024	-0.002
	(0.119)	(0.074)	(0.015)
Year-Month FE	Yes	Yes	Yes
Borrower FE	Yes	Yes	Yes
No. of Observations	29,502	29,502	29,502
R-squared	0.830	0.723	0.695

Table 8. Effects of the 2019 Provisions on Borrower's Discretionary Consumption

This table reports the effects of reduced litigation costs and borrower-lender closeness score on informal borrowers' discretionary consumption. Discretionary expenditures are defined as spending in all subcategories corresponding to industries in the Consumer Discretionary sector according to the Global Industry Classification Standard (GICS code 25). Columns 1 to 3 present results with the dependent variable being the logged value of discretionary consumption over different intervals: month $t+1$ (Column 1); months $t+1$ to $t+3$ (Column 2); and months $t+1$ to $t+6$ (Column 3), where t denotes the month of informal lending. All columns include year-month and borrower fixed effects. Variable definitions are detailed in the Appendix A1. Standard errors are reported within parentheses and clustered at the borrower-level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Var = Log(Discretionary consumption) in the time window			
	$t+1$	$[t+1, t+3]$	$[t+1, t+6]$
	(1)	(2)	(3)
Distance × Post	3.481***	1.572***	0.819*
	(0.589)	(0.481)	(0.454)
Distance	-7.838***	-6.366***	-5.386***
	(0.307)	(0.246)	(0.226)
Year-Month FE	Yes	Yes	Yes
Borrower FE	Yes	Yes	Yes
No. of Observations	45,076	45,076	45,076
R-squared	0.682	0.813	0.875

Table 9. Subcategories of Borrower's Discretionary Consumption

This table reports the effects of reduced litigation costs and the borrower-lender closeness score on several subcategories of informal borrowers' discretionary consumption. Specifically, Column 1 presents results for the logged value of the borrower's expenditures on vocational training and adult education in the three months following the informal borrowing activity. Column 2 reports results for the logged value of spending on purchasing software and digital tookits over the same period. Column 3 presents results for the logged value of expenditures on cigarettes and alcohol products in the three months after the informal borrowing activity. All columns include year-month and borrower fixed effects. Variable definitions are detailed in the Appendix A1. Standard errors are reported within parentheses and clustered at the borrower-level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

	Adult Training	Software	Cigarette & Alcohol
	(1)	(2)	(3)
Distance × Post	2.730**	5.965***	-6.929**
	(-1.340)	(2.286)	(-2.836)
Distance	-0.911	1.110	-1.071
	(1.043)	(1.543)	(2.807)
Year-Month FE	Yes	Yes	Yes
Borrower FE	Yes	Yes	Yes
No. of Observations	45,076	45,076	45,076
R-squared	0.621	0.677	0.629

Table 10. Lender Responses to Borrower Non-Repayment

This table presents the effects of borrower non-repayment events on subsequent lender informal lending behavior, comparing periods before and after the approval of the 2019 Provisions. For each lender-month, a non-repayment indicator is constructed and equals 1 if the lender has any prior informal borrower who has failed to repay for at least three months (Panel A) or six months (Panel B), and 0 otherwise. The dependent variables capture the lender's informal lending activity in a given month: *Amt(Lending)* denotes the logged value of the lender's total informal lending, while *D(Lending)* is a dummy variable equal to 1 if the lender extended any informal loan to social acquaintances, and 0 otherwise. Panel A reports results for non-repayment durations of at least three months; Panel B reports results for durations of at least six months. All columns include year-month and lender fixed effects. Variable definitions are detailed in the Appendix A1. Standard errors are reported within parentheses and clustered at the lender-level. ***, **, and * indicate significance at the 1%, 5%, and 10% levels, respectively.

Panel A: Borrower non-repayment for at least 3 months

	Amt(Lending)		D(Lending)	
	Before Oct 2019	After Oct 2019	Before Oct 2019	After Oct 2019
	(1)	(2)	(3)	(4)
No_Repayment_3m	-1.079***	-1.020	-0.085***	-0.079
	(0.258)	(0.672)	(0.020)	(0.056)
Year-Month FE	Yes	Yes	Yes	Yes
Lender FE	Yes	Yes	Yes	Yes
No. of Observations	16,816	36,891	16,816	36,891
R-squared	0.434	0.381	0.421	0.368

Panel B: Borrower non-repayment for at least six months

	Amt(Lending)		D(Lending)	
	Before Oct 2019	After Oct 2019	Before Oct 2019	After Oct 2019
	(1)	(2)	(3)	(4)
No_Repayment_6m	-1.472***	-0.902	-0.111***	-0.068
	(0.320)	(0.699)	(0.025)	(0.056)
Year-Month FE	Yes	Yes	Yes	Yes
Lender FE	Yes	Yes	Yes	Yes
No. of Observations	16,816	36,891	16,816	36,891
R-squared	0.434	0.381	0.421	0.368

Appendix A1. Variable definitions

Variable	Definition
Lender-borrower-month lending details	
Distance	The measure of social distance between a borrower and their lender ranges from 0.5 to 1, with higher scores indicating greater social estrangement. This distance measure is quantified using the formula (e^{-Close}), where e is the base of the natural logarithm and $Close$ represents the proxy for social connectedness. Social connectedness is determined based on the frequency and intensity of historical textual interactions and financial transactions between the two individuals.
Amt	The total amount of informal lending received by the borrower from each potential lender in a given month. I applied the logarithmic transformation to this amount in empirical analysis.
Repayment	Dummy variable, is equal to 1 if the borrower has repaid any amount of money to lenders during the observation period for informal lending in the given month, otherwise 0.
Repayment_full	Dummy variable, is equal to 1 if the borrower has fully repaid the borrowed amount of money to lenders during the observation period for informal lending in the given month, otherwise 0.
Repayment_3m	Dummy variable, is equal to 1 if the borrower has (either partially or fully) repaid the borrowed amount of money to lenders within three months for informal lending in the given month, otherwise 0.
Length	The length of the lending notes attached with the monetary transfer from the lender to the borrower is calculated as: each English letter and punctuation mark is counted as a length of 1, and each Mandarin charater is counted as a length of 3.
D(Due)	Dummy variable, is equal to 1 if the lender mentioned the due date of the informal lending activity in the transfer note, otherwise 0. If there exist multiple transactions for a lender-borrower pair in a given month, the average value of the due date dummy is considered.

D(Interest)	Dummy variable, is equal to 1 if the lender mentioned the interest rate of the informal lending activity in the transfer note, otherwise 0. If there exist multiple transactions for a lender-borrower pair in a given month, the average value of the interest dummy is considered.
D(Amount)	Dummy variable, is equal to 1 if the lender mentioned the lending amount of the informal lending activity in the transfer note, otherwise 0. If there exist multiple transactions for a lender-borrower pair in a given month, the average value of the lending amount dummy is considered.

Lender-month lending details

Amt(Lending)	The total amount of informal lending provided by the lender in a given month. I applied the logarithmic transformation to this amount in empirical analysis.
D(Lending)	Dummy variable, is equal to 1 if the lender has provided any amount of informal lending money to their friends in a given month.
No_Repayment_3m	Dummy variable, is equal to 1 if in a given month, the lender has at least one social friend with a history of failing to repay their informal debt to the lender within at least three months
No_Repayment_6m	Dummy variable, is equal to 1 if in a given month, the lender has at least one social friend with a history of failing to repay their informal debt to the lender within at least six months.

Borrower-month discretionary consumption

Consumption_{t+1}	The borrower's discretionary consumption amount in the following month since informal borrowing activity from a friend is measured. Discretionary expenditures include spending in all subcategories that correspond to industries in the Consumer Discretionary sector according to the Global Industry Classification Standard (GICS code 25). This same approach is

	used to categorize discretionary consumption in constructing the following consumption measures. We applied the logarithmic transformation to this amount in empirical analysis.
$\text{Consumption}_{[t+1,t+3]}$	The borrower's discretionary consumption amount within three months since informal borrowing from a friend is measured.
$\text{Consumption}_{[t+1,t+6]}$	The borrower's discretionary consumption amount within six months since informal borrowing from a friend is measured.
$\text{Consumption}_{[t+1,t+12]}$	The borrower's discretionary consumption amount within twelve months since informal borrowing from a friend is measured.

Borrower-month debt portfolio

Credit_card_amt	The credit card payment for each borrower in a given month refers to the total amount paid towards the borrower's credit card balance within that month. This includes all payments made to reduce the outstanding balance on any credit cards ever used on the Fintech platform held by the borrower.
Online_debt_amt	The online debt payment for each borrower in a given month refers to the total amount paid towards the borrower's online debt within that month. This includes all payments made to reduce the outstanding balance on any online debt platforms ever used for transactions on the Fintech platform held by the borrower.
Formal_amt	The formal lending amount refers to the aggregate credit card repayment and online debt repayment amount.
Informal_amt	The informal lending amount refers to the total amount of informal lending received by the borrower. If there is no informal lending record in a given month, the informal lending amount is recorded as zero.
Informal_finance%	The percentage of informal lending in the overall debt portfolio (consumption debts) for each borrower in a given month is calculated by dividing the amount of informal lending by the total amount of consumption debts (credit card and online debt) for

	that borrower in the same month, and then multiplying by 100 to express it as a percentage. This represents the proportion of the borrower's total consumption debts that come from informal lending sources.
Borrower characteristics	
No_lender	The number of lenders associated with each borrower.
Age	The age of the borrower.
Income	The borrower's monthly income.
Housing_dummy	Dummy variable, is equal to 1 if the borrower has owned any apartments or real estate assets, otherwise 0.

Appendix Table 1. The Effect of Social Distance on Informal Lending Amount

The table reports regression results of the social distance score on the logged informal lending amount from social friends. Column 1 reports results without any controls for borrower characteristics or fixed effects. Column 2 includes year-month fixed effects. Column 3 additionally controls for borrower fixed effects. Column 4 further controls for lender fixed effects. Standard errors are reported within parentheses and clustered at the lender-borrower pair level. ***, **, * means that the point estimate is significantly different from zero at the 1%, 5%, and 10% levels, respectively.

Variable = Log(Informal Lending Amount)				
	(1)	(2)	(3)	(4)
Distance	-3.199***	-3.307***	-3.819***	-5.237***
	(0.093)	(0.093)	(0.165)	(1.844)
Year-Month FE	No	Yes	Yes	Yes
Borrower FE	No	No	Yes	Yes
Lender FE	No	No	No	Yes
No. of Observations	168,989	168,989	168,989	168,989
R-squared	0.017	0.020	0.413	0.529

Appendix Table 2. Summary Statistics by Discretionary Consumption Category

This table presents the summary statistics for the main subcategories of borrower's discretionary consumption transactions at the borrower-day-level from January 2019 to August 2020. Discretionary expenditures encompass spending in all major subcategories that correspond to industries in the Consumer Discretionary sector according to the Global Industry Classification Standard (GICS code 25).

Category	Example	N	Mean	SD
Online platform services	Top up game time cards	77,815	181.75	627.06
Restaurant/Food	Starbucks	93,647	350.5	4,016.72
General merchandise retailer	Supermarket, shopping malls	118,634	212.19	1,411.10
Stockist	Watsons, flower shop	67,969	574.11	5,107.32
Services in daily life	Barbershop	35,778	274.91	1,999.18
Entertainment/fitness	KTV, bar, gym	13,666	486.99	1,983.05
Ticketing/Travel	Air tickets, hotel	45,895	587.51	1,905.34
Transportation	Highway toll fees, car rent	97,734	220.59	2,138.58
Education/training	Tutoring for primary schoolkids	2,563	1170.88	4,460.16
Bill payments	Electricity bills, property management fees	28,544	407.78	1,932.33
E-commerce	JD.com	41,123	488.27	2,351.04
Virtual services	Live streaming top up	43,213	210.59	1,582.41
Communication fees	Top up on China Mobile website	11,005	454.32	3,104.60
Lottery	Soccer lottery	882	823.45	5,121.08
Charity donation	Donation to NGO foundations	7,715	63.08	391.21
Other discretionary consumption	Wholesale shops, tax-free shops	25,556	438.44	3,411.68
Total		711,739	333.57	2,728.52

Appendix Table 3. Summary Statistics for Subcategories of Discretionary Consumption

This table presents summary statistics for three subcategories of borrowers' discretionary consumption transactions at the borrower-month level from January 2019 to August 2020. Specifically, the table reports statistics for spending on (i) vocational training and adult education, (ii) software and digital tookits, and (iii) cigarettes and alcohol products.

Category	Example	N	Mean	SD
Adult training	Certified Public Accountant (CPA) courses	96,483	108.57	1500.16
Software	WPS office	96,483	169.8	1928.05
Cigarettes & Alcohol	Wine & Spirits Shop	96,483	184.75	3259.6