

Informal Lending in Social Networks

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Informal Lending and Social Networks

Introduction

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- Information and Enforcement

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- Trust Measure

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Social networks are an important source of financial support.

- In the 1995 General Social Survey, 55 percent of Americans report they first approach close friends and family members when they need to borrow a large sum of money.
- In a 2007 UK YouGov survey, 48 percent of respondents reported lending, on average, \$1,800 to friends and relatives during the past 12 months
- In US, more than 50 percent of startup capital is raised from family, friends and other informal investors.
- semiformal lending: Circle Lending, Prosper, Lending Club, etc.
 - co-signed loans
 - microfinance

Trust in Social Networks

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“Trust is an important lubricant of a social system”

(Arrow, 1974)

- Real-world social networks provide a natural laboratory to study trust.
- Social networks generate trust by providing
 1. INFORMATION
 2. ENFORCEMENT
- Social networks are measurable and therefore trust can be analyzed as a function of network architecture.

Information and Enforcement

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Social networks provide **INFORMATION** about borrower's types based on past interaction ⇒ social networks facilitate screening

- reliability
- business aptitude
- past credit history (including informal loans)

Social networks provide **ENFORCEMENT** based on the prospect of future interaction ⇒ cooperative behavior is enforced through punishment threats in a repeated game.

- Parties can break a relationship if promises are broken.

Example

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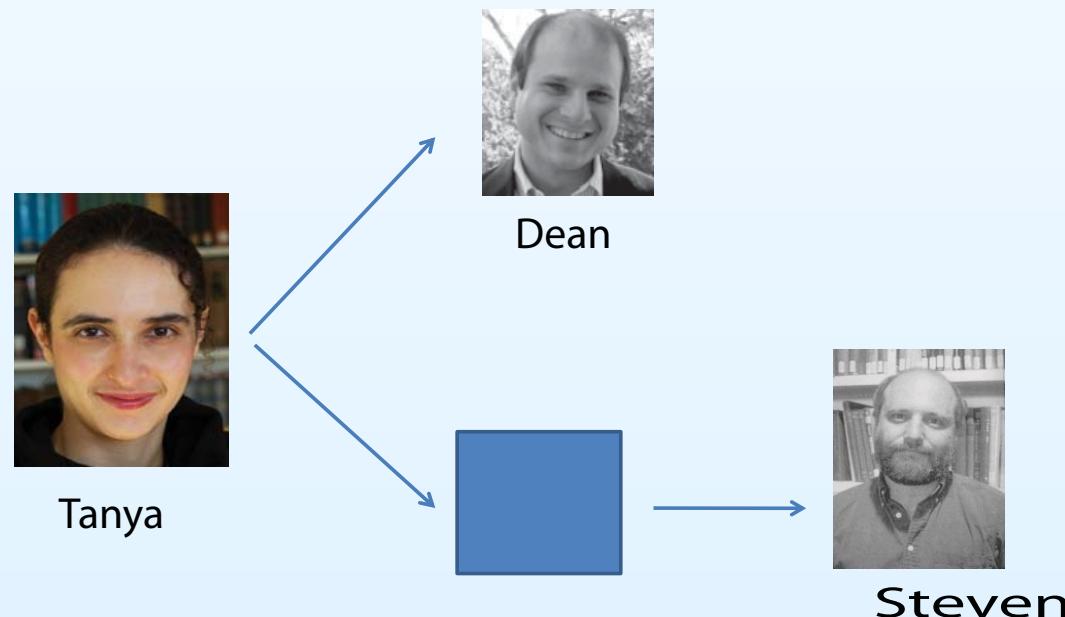
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- Assume Dean and Steven both have some spare \$100 which have a zero return to both of them for the next 30 days.
- Tanya needs \$100 which have a high return to her. She would like to borrow from either Steven (a friend of a friend) or Dean (a friend).



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Example (cont.)

Since he is a direct friend, Dean trusts Tanya more than Steven in the sense that:

- He knows Tanya better and is more certain that Tanya is competent and invests sensibly and will return the money within 30 days.
- He knows that even if she “forgets” to return the money he’ll be able to force her to repay because it would otherwise jeopardize their relationship which Tanya values more than the relationship to Steven.

What will Tanya do?

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- Tanya will presumably find it easier to borrow from Dean.
 - Can we determine how much easier?
 - Assume we could exogenously add a cost T to Tanya borrowing from Dean.
 - If T is large enough Tanya will switch from Dean to Steven. Let's call this cutoff value T^* .
 - T^* can be interpreted as the extra transaction costs Tanya has to "pay" in order to borrow from Steven, i.e:
 - She gives Steven her first edition of the Wealth of Nations as collateral (and loses the services of this volume for 30 days).
 - She promises to run experiments for him in exchange for the expected trouble he anticipates in getting his money.

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- If this cost increases quickly with social distance then we can say that “trust” is very localized. Otherwise trust is more of a community-wide attribute.

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We implement the above thought experiment in a micro-finance field experiment.

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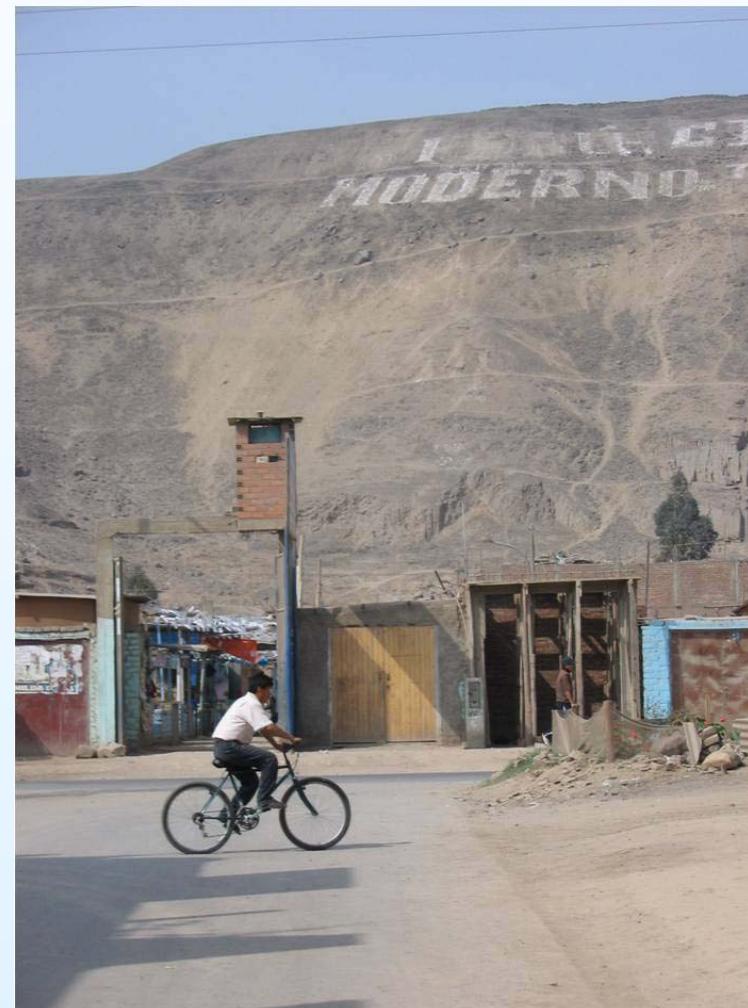
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Microfinance field experiment was conducted in two Shantytowns in Lima, Peru:



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1. Baseline survey (household level)
2. Social network survey (individual level)
3. “Sponsors” are invited.
4. Microfinance program starts.

Baseline Survey

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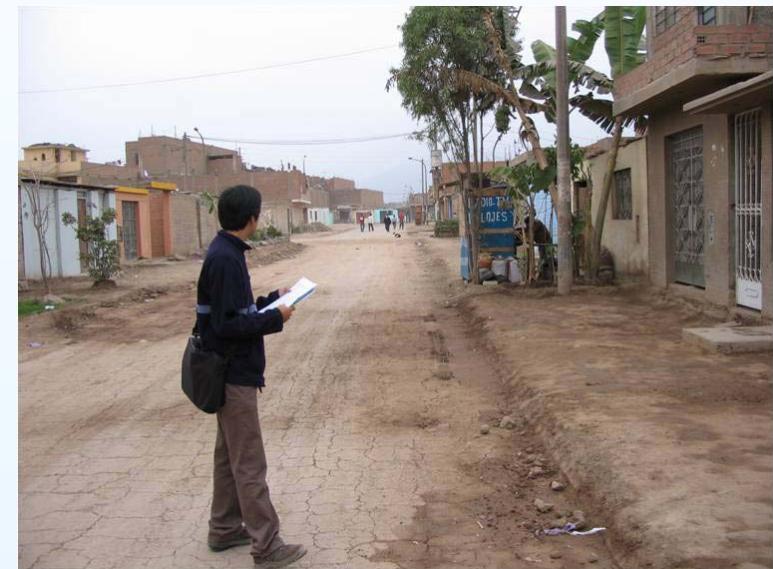
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- Communities have 240 and 371 households respectively.
- We conduct a baseline survey to build a roster of the population in the community.
- Collect basic demographic information (household composition, occupation, age, education).

Network Survey

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- We ask for list of 10 best friends.
- We ask a list of relatives in community.
- All links are classified:
 - time spent on average per week
 - borrow/lend objects to friend?
 - borrow/lend money to friend?
 - ask friend for help?
 - would start business with friend?

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- Invite 25 members of community to become “sponsors”.
- Clients can only get a loan if a sponsor cosigns the loan.
- A sponsor receives a “credit line” which depends on his income and wealth.
- 30 percent of the credit line can be used by the sponsor. The rest can only be used for sponsoring loans of other people in the community.
- 70 percent of the credit line is therefore an asset which is potentially valuable to other community members but not to the sponsor.

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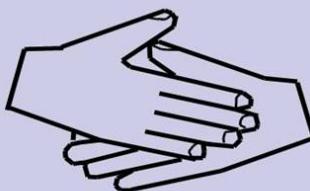
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Manos Juntas

Alternativa está llevando a cabo un nuevo servicio de crédito. El servicio ofrece un crédito flexible, ágil e individualizado a personas de su comunidad.



ALTERNATIVA

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Programa de Microcrédito

Manos Juntas



Programa de Microcrédito

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Tel: 481-5801

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Manos Juntas

¡Felicitaciones!

Usted ha sido elegido como un garante comunitario.

Cada garante elegido de la comunidad puede manejar una línea de crédito.

Del total del crédito, un treinta por ciento está reservado para uso del garante.

El garante tiene la opción de ofrecer préstamos flexibles a otros miembros de la comunidad con el resto de su línea del crédito.

Características del crédito

El crédito es de libre disponibilidad.

Los intereses del crédito varían entre:
1.5 % y 2.5 % en dólares y 3 % y 5 % en nuevos soles.

El crédito tiene un plazo de hasta seis meses.

La línea de crédito para cada garante es entre **S/. 500 y S/. 2,000** nuevos soles.

Se realiza un sorteo en la comunidad sólo para los garantes que participen en el programa.

Lotería Comunitaria

Cada dos meses del programa se realiza un sorteo. Cada sorteo ofrece los siguientes premios:

Sorteo del Quinto Mes:
Un Equipo de DVD



Sorteo del Tercer Mes:
Una Cámara Fotográfica



Sorteo del Primer Mes:
Pardo's Chicken



Dos Cenas Familiares Especiales en el Pardo's Chicken de MegaPlaza
(Para una familia de 6 personas)

 **Términos de la lotería**

La lotería está basada en un sistema de puntaje. Mientras más garante más puntos recibe. Los puntos que recibirá serán proporcionales a la monto utilizado de su línea de crédito. El uso completo de la línea de crédito le otorga 20 puntos. Pero por ejemplo, si tiene una línea de 2000 y usa sólo 1500, entonces tendrá 15 puntos. El garante recibe doble puntaje en el caso que avale a un nuevo prestatario, al cual no haya avalado antes.

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Sponsors can also win prizes at a lottery (once a month) when they sponsor people.

niños de la lotería

en un sistema de puntuaje. Cuanto más puntos recibe. Los puntos serán proporcionales a la línea de crédito. El uso

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- Each household receives a customized “card”.
- The card explains the rules of the lending program.
- To get a loan the client has to find a co-signer among the list of 25 sponsors.
- **Each sponsor provides the client with a different, randomized interest rate!**

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Programa de Crédito



Manzana : L
Lote: 2

Estimado Sr(a). JORGE VENTOCILLA GONERO y Sr(a).

Alternativa los invita a participar de un nuevo servicio de crédito. El mismo, ofrece créditos flexibles, ágiles y personalizados, por intermedio de garantes comunitarios, a todos los vecinos de Los Olivos de Pro. El crédito es de libre disponibilidad.

PASO 1: ¿Qué es lo primero que necesita antes de iniciar el trámite?

Contar con un garante. Usted como residente de la comunidad Los Olivos de Pro, puede escoger un garante de la siguiente lista:

	Tasa (soles)	Tasa (soles)	Tasa (soles)
Jesus Gonzales Tiicla	4.25%	Elizabeth Sierra Chávez	4%
Martha Norma Castro Espinoza	3%	Luis Santos Barilles	4%
Rosa Edith Panduro Ramírez	3.25%	Aura Sandoval Valiente	4%
Julia Sabina Maguña Toledo	3.75%	Julia Bustinza Choque	3.75%
Pedro Francisco Salazar Aquino	3%	Guisella Vargas Valdivia	3.25%
Delia Rodriguez Encarnación	3.5%	Balvina Alcalde Vizconde	3%
Gladys Selene Alvarado Saldaña	3.25%	Manuel Medrano Gómez	3.5%
Aurelio Pedro Oscanoa Rosas	3%	Alfredo Fernando Castillo	3%
Manuel Amador Chávez Lezama	4%	Melquiades Huayta Tafur	3%

Nota: La tasa de interés que ofrece cada garante difiere para cada solicitante. La tasa se ha decidido por sorteo.

PASO 2: ¿Cómo iniciar el trámite y en dónde?

Una vez que elija un garante, debe presentar: número de DNI, nombre completo y dirección de usted y de su cónyuge. Lo puede hacer personalmente en la reunión semanal de los miércoles o mediante una llamada telefónica al promotor.

Dirección Contáctese con el Sr. Carlos Carbajal, los días miércoles de 3 a 5 de la tarde en cualquiera de las siguientes direcciones: mz L2 lote 20, mz L1 lote 34, o mz L lote 38.

Teléfono 481-5801, 481-5466
Celular 9 652-4485

PASO 3: ¿Que documentación debe llevar la semana siguiente de iniciado el trámite?

Deberá asistir acompañado por su cónyuge a la reunión semanal para llenar y proveer los siguientes documentos:

- Fotocopia de su DNI y el de su cónyuge
- Ficha de Información Económica Básica
- Contrato de Crédito
- Pagaré

Los montos del crédito van desde S/.50.00 a S/.2000.00 o \$15.00 a \$650.00 dólares. Los créditos se pagarán en cualquiera de las Sucursales del Banco Continental.



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PASO 1: ¿Qué es lo primero que necesita antes de iniciar el trámite?

Contar con un garante. Usted como residente de la comunidad Los Olivos de Pro, puede escoger un garante de la siguiente lista:

	Tasa (soles)	Tasa (soles)	Tasa (soles)
Jesus Gonzales Tiicla	4.25%	Elizabeth Sierra Chávez	4%
Martha Norma Castro Espinoza	3%	Luis Santos Barilles	4%
Rosa Edith Panduro Ramírez	3.25%	Aura Sandoval Valiente	4%
Julia Sabina Maguña Toledo	3.75%	Julia Bustinza Choque	3.75%
Pedro Francisco Salazar Aquino	3%	Guisella Vargas Valdivia	3.25%
Delia Rodriguez Encarnación	3.5%	Balvina Alcalde Vizconde	3%
Gladys Selene Alvarado Saldaña	3.25%	Manuel Medrano Gómez	3.5%
Aurelio Pedro Oscanoa Rosas	3%	Alfredo Fernando Castillo	3%
Manuel Amador Chávez Lezama	4%	Melquiades Huayta Tafur	3%

Nota: La tasa de interés que ofrece cada garante difiere para cada solicitante. La tasa se ha decidido por sorteo.

PASO 2: ¿Cómo iniciar el trámite y en dónde?

Una vez que elija un garante, debe presentar: número de DNI, nombre completo y dirección de usted y de su cónyuge. Lo puede hacer personalmente en la reunión semanal de los miércoles o mediante una llamada telefónica al promotor.

Dirección Contáctese con el **Sr. Carlos Carbajal**, los días miércoles de **3 a 5** de la tarde en cualquiera de las siguientes direcciones: mz L2 lote 20, mz L1 lote 34, o mz L lote 38.

Teléfono 481-5801, 481-5466

Celular 9 652-4485

PASO 3: ¿Que documentación debe llevar la semana siguiente de iniciado el trámite?

Deberá asistir acompañado por su cónyuge a la reunión semanal para llenar y proveer los siguientes documentos:

- Fotocopia de su DNI y el de su cónyuge
- Ficha de Información Económica Básica
- Contrato de Crédito
- Pagaré

Los montos del crédito van desde S/.50.00 a S/.2000.00 o \$15.00 a \$650.00 dólares.
Los créditos se pagarán en cualquiera de las Sucursales del Banco Continental.



Emeterio Pérez Nro. 348 Teléfono: (051)-481-5801
Urb Ingeniería . Distrito de San Martín de Porres Lima - Perú

Cards

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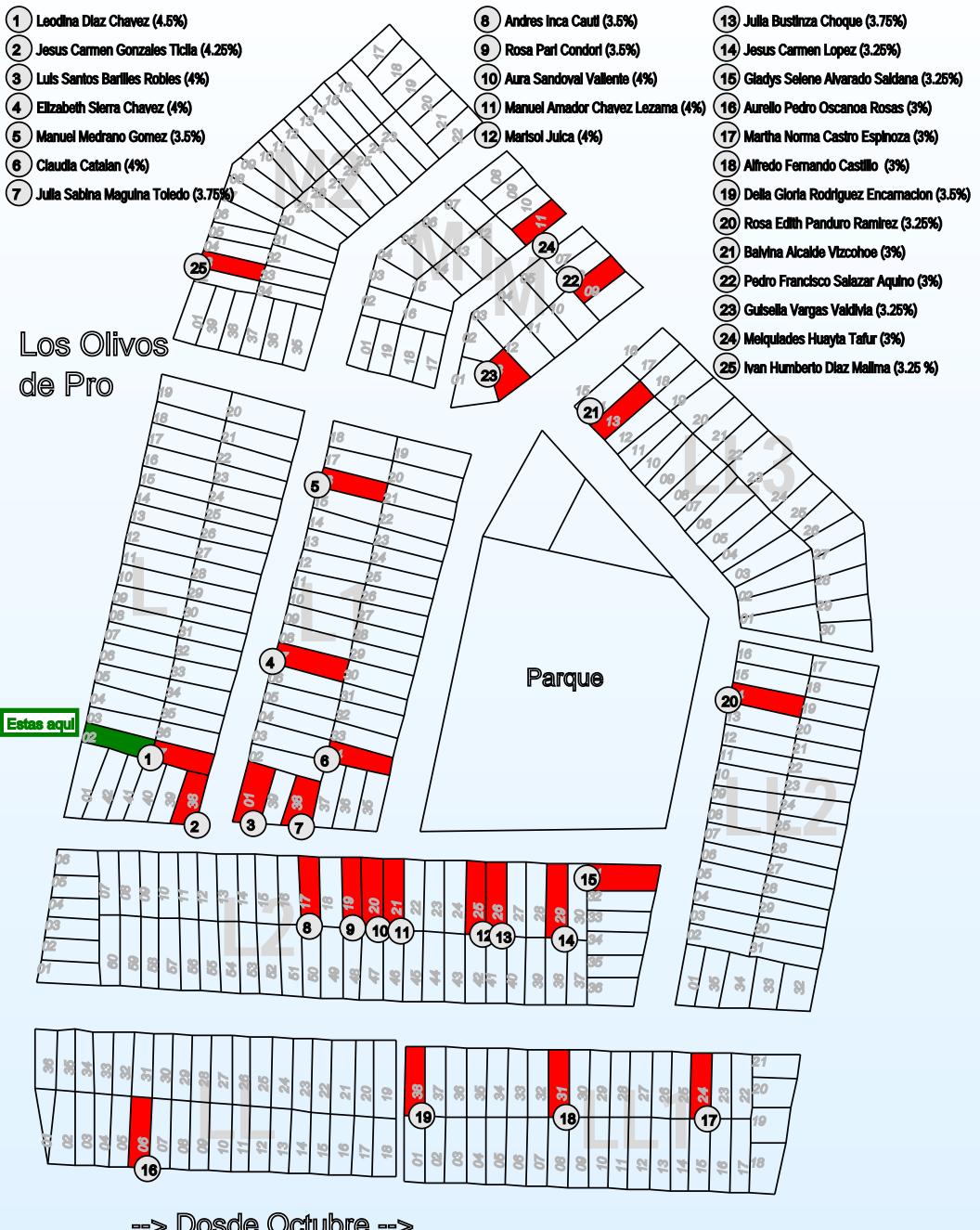
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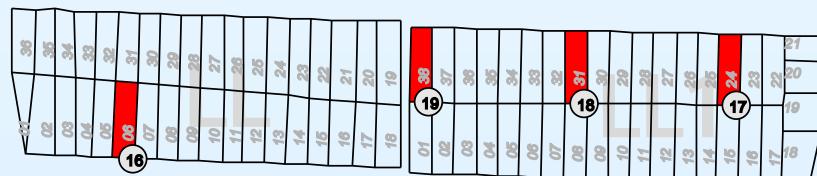
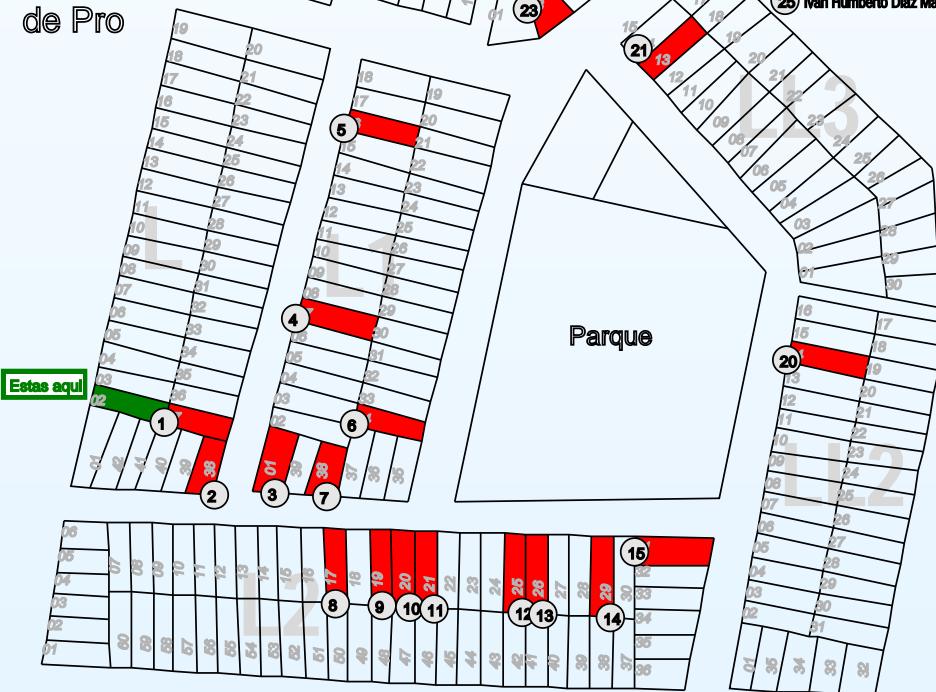
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Back of card shows map of community and location of sponsors (and interest rates).

- 1 Leodina Diaz Chavez (4.5%)
- 2 Jesus Carmen Gonzales Ticia (4.25%)
- 3 Luis Santos Barilles Robles (4%)
- 4 Elizabeth Sierra Chavez (4%)
- 5 Manuel Medrano Gomez (3.5%)
- 6 Claudia Catalan (4%)
- 7 Julia Sabina Megulna Toledo (3.75%)
- 8 Andres Inca Cault (3.5%)
- 9 Rosa Pari Condori (3.5%)
- 10 Aura Sandoval Vallente (4%)
- 11 Manuel Amador Chavez Lezama (4%)
- 12 Marisol Juica (4%)
- 13 Julia Bustinza Choque (3.75%)
- 14 Jesus Carmen Lopez (3.25%)
- 15 Gladys Selene Alvarado Seldana (3.25%)
- 16 Aurelio Pedro Oscana Rosas (3%)
- 17 Martha Norma Castro Espinoza (3%)
- 18 Alfredo Fernando Castillo (3%)
- 19 Della Gloria Rodriguez Encamacion (3.5%)
- 20 Rosa Edith Panduro Ramirez (3.25%)
- 21 Balvina Alcalde Vitzcoho (3%)
- 22 Pedro Francisco Salazar Aquino (3%)
- 23 Gutsella Vargas Valdivia (3.25%)
- 24 Melquides Huayla Tafur (3%)
- 25 Ivan Humberto Diaz Mallma (3.25 %)

Los Olivos
de Pro



--> Dosde Octubre -->

Randomization I - Interest Randomization

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- Each client has a “slope” of 1 to 4 assigned which determines the decrease in monthly interest rates depending on social distance (SD) to sponsor:

	SD=1	SD=2	SD=3	SD=4
SLOPE=1	0.125	0.250	0.375	0.500
SLOPE=2	0.250	0.500	0.750	1.000
SLOPE=3	0.500	1.000	1.500	2.000
SLOPE=4	0.750	1.500	2.250	3.000

Randomization II - Demand randomization

- 25 percent of loans start from 5 percent monthly interest rate (SD=1)
- 75 percent of loans start at 4.5 percent

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Randomization III - Sponsor responsibility randomization

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- *After* loan has been assigned it is revealed to clients and sponsors whether the sponsor's loan responsibility is 50 percent or 100 percent.

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Description

- 128 loans between clients and 51 sponsors in two Lima communities
- 53 percent of loans between direct friends
- 26 percent between friends of friends
- mean loan size 1228 S/. and median loan size 1000 S/. (about 330 US\$)
- 60 percent of loans to women
- 88 percent of average loan was repaid

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Does social distance matter?

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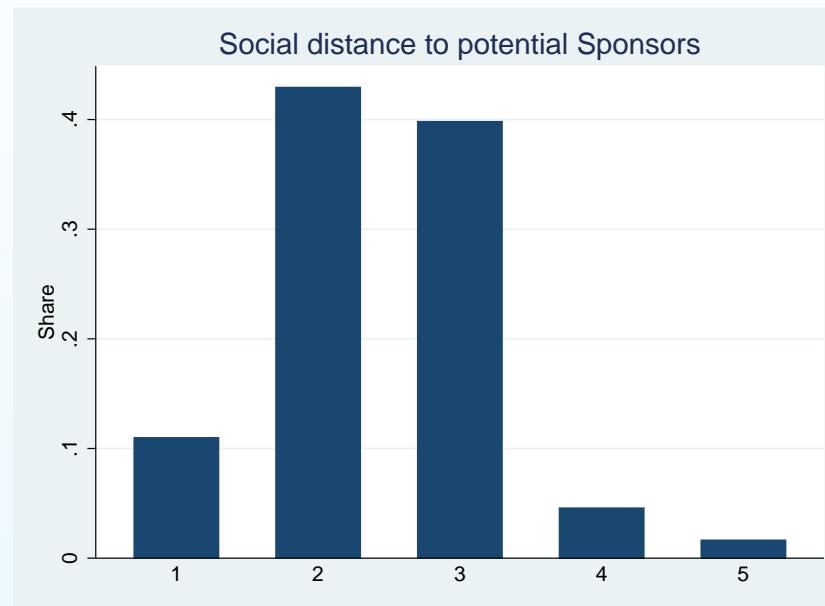
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Does social distance matter?

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● Social Distance

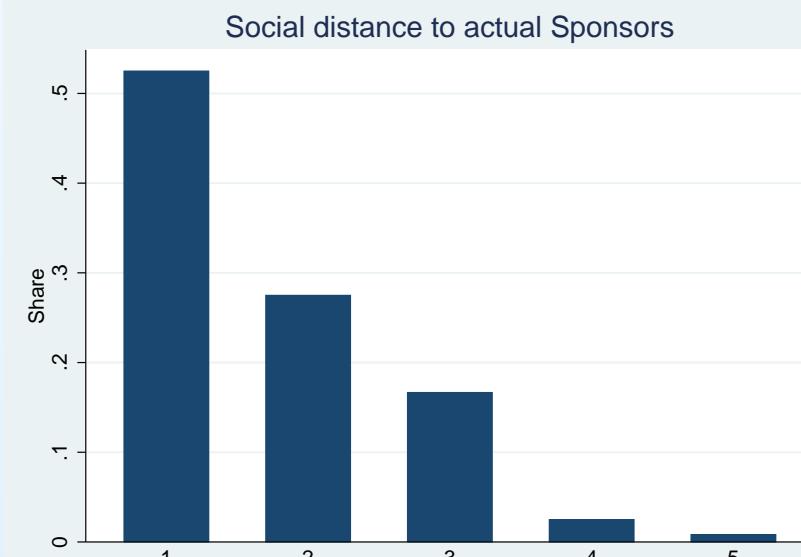
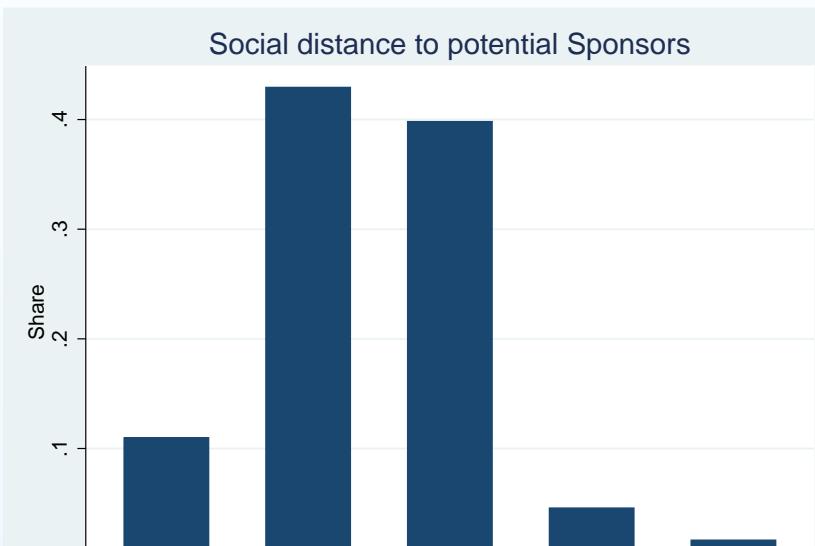
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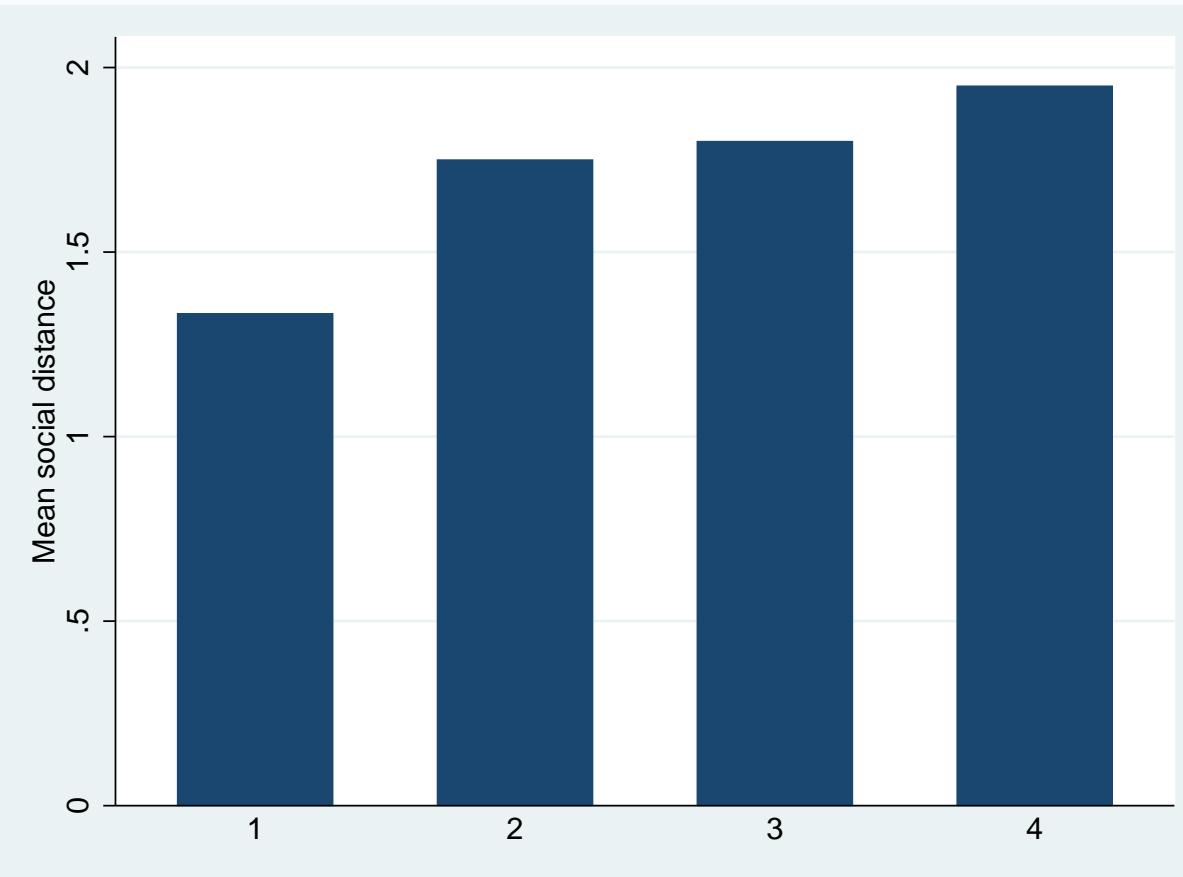
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Average social distance between client and sponsor by slope:



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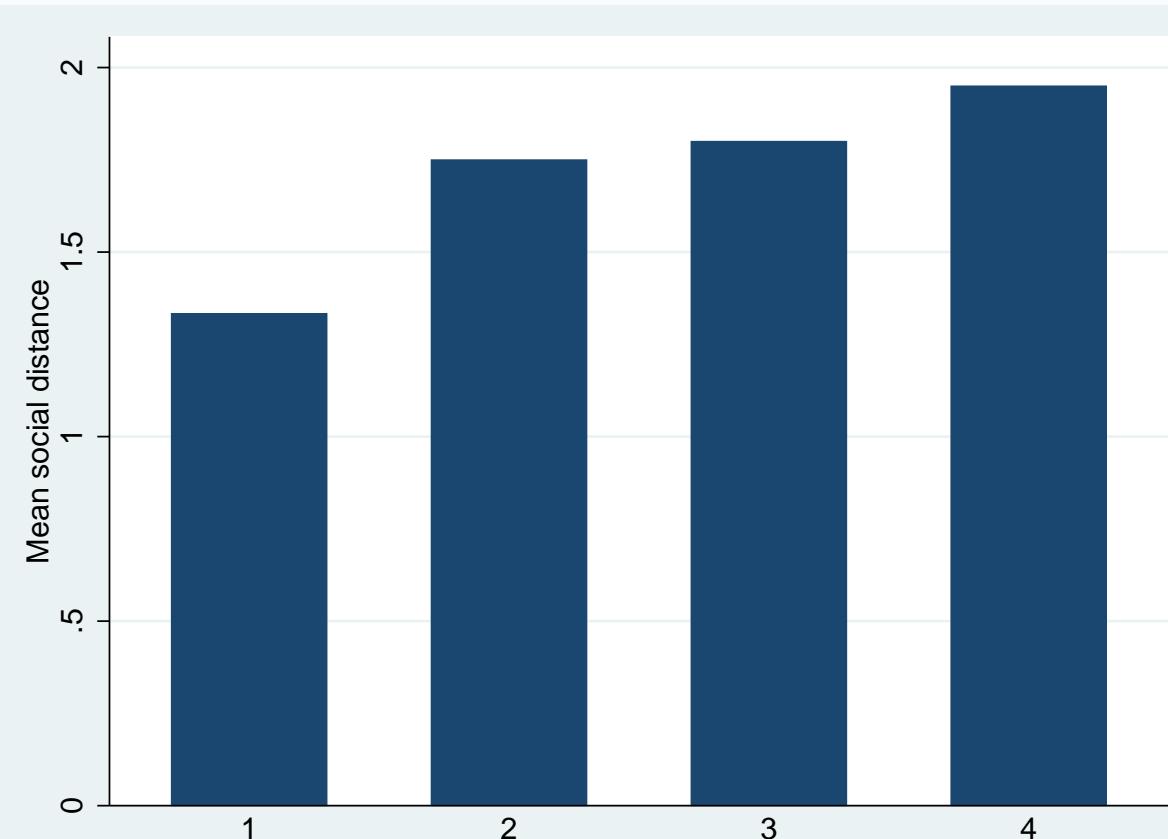
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Average social distance between client and sponsor by slope:



Clients who were assigned a greater slope are more likely to choose socially distant sponsors (tradeoff between interest rate and social distance).

Do interest rates affect choice of projects?

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	Both communities	Community 1	Community 2
DEMAND	-0.040 (0.029)	-0.033 (0.039)	-0.045 (0.041)
Intercept	0.128 (0.015)**	0.101 (0.020)**	0.149 (0.021)**
Obs.	611	240	371

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Conditional Logit

Utility of client c for being sponsored by sponsor s :

$$U_{cs} = \alpha * \text{Interest rate} + \beta * \text{Social Distance} + \gamma * \text{Geo. Distance} + \epsilon_{cs} \quad (1)$$

Interest rate	-.601 (0.26)*
SD=1	3.948 (0.922)**
SD=2	2.102 (0.873)*
SD=3	1.283 (0.791)
Geographic distance (meters)	-.010 (0.004)**
Obs.	2050

Conditional Logit

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Utility of client c for being sponsored by sponsor s :

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SD=2	2.102 (0.873)*
SD=3	1.283 (0.791)
Geographic distance (meters)	-.010 (0.004)**

Lending through a friend is equivalent to a 6 percent decrease in the monthly interest rate.

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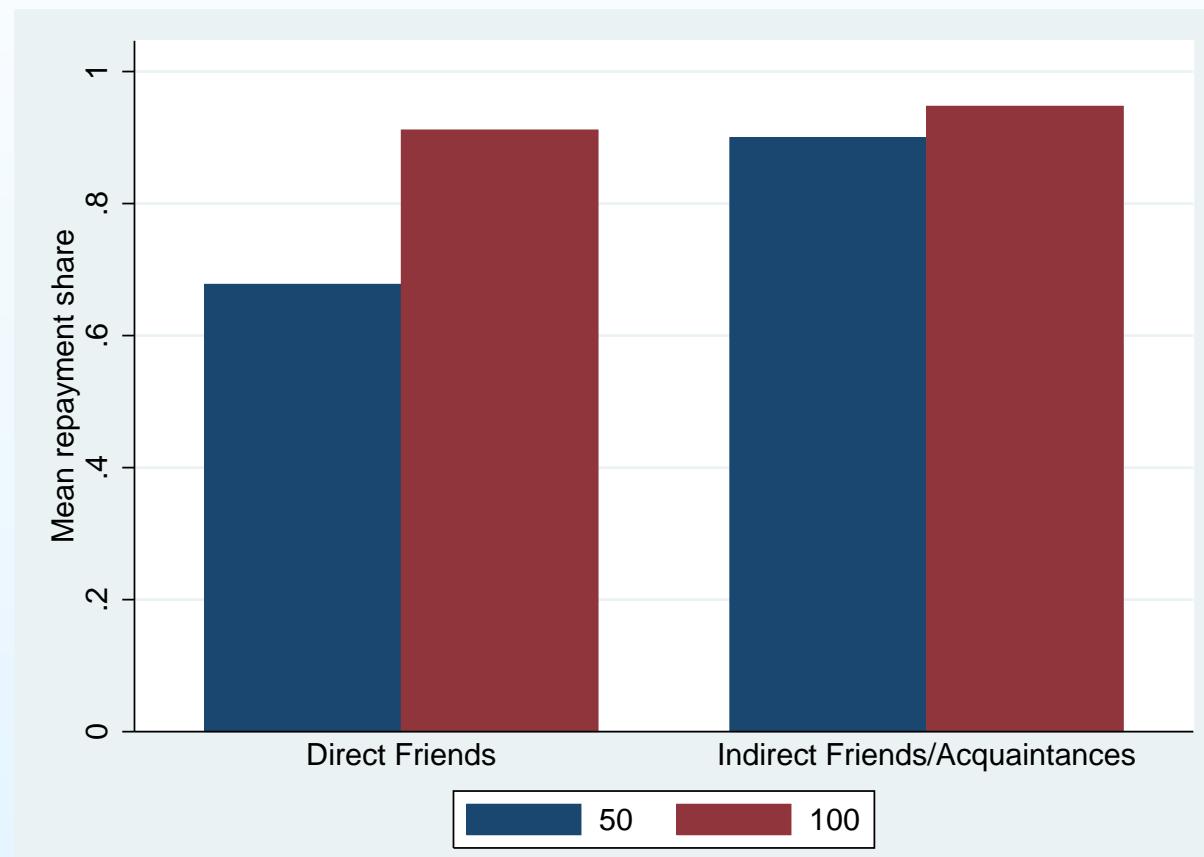
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Share of repaid loans by sponsor responsibility and social distance:



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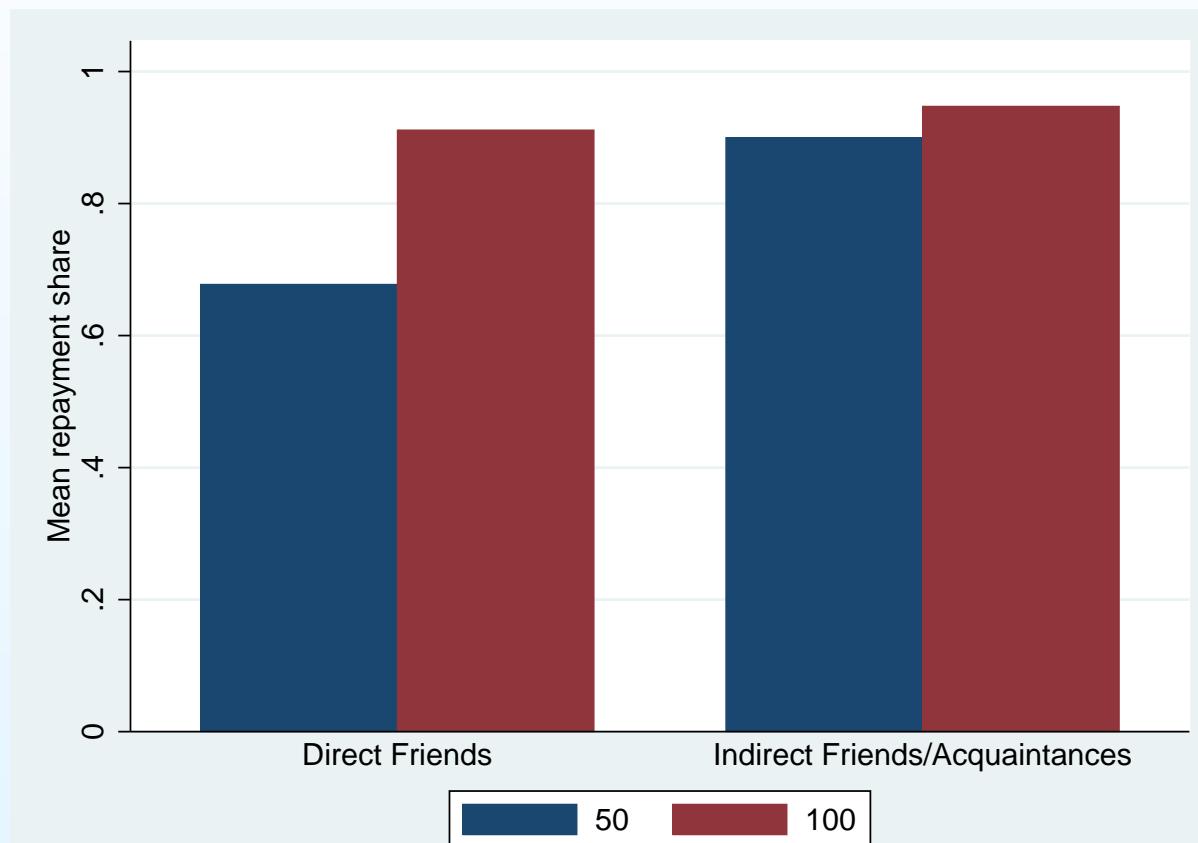
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Share of repaid loans by sponsor responsibility and social distance:



Randomization III has no effect on loans where client/sponsor are socially distant but it increases repayment by about 20 percent when sponsor is direct friend of client.

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● **Summary**

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1. Socially close sponsors raise repayment rates by about 20 percent when they are 100% responsible for the loan - socially distant sponsors have an insignificant effect on repayment rates (must be doing a good job screening).
2. The implied transaction cost to the borrower for accessing a distant rather than socially close lender is equivalent to approximately 6 percent of monthly interest.
3. Evidence that social networks provide not just screening but also enforcement.

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● Summary

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Scenario I: Social Networks provide mainly information ⇒ Formal institutions should direct resources towards better screening of low-income applicants.

- develop better ways to evaluate business plans
- collect *testimonials* from members of community

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Scenario I: Social Networks provide mainly information ⇒ Formal institutions should direct resources towards better screening of low-income applicants.

- develop better ways to evaluate business plans
- collect *testimonials* from members of community

Scenario II: Social Networks provide mainly enforcement ⇒ Since formal enforcement through the legal system carries a fixed cost formal institutions should make greater use of cosigners.

- Allow contracts with several cosigners to diversify the risk of default (as with www.prosper.com).

US Experience

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- US microcredit programs typically offer individual loans and business training.
- Informal lending is nevertheless extremely common for nascent entrepreneurs who borrow from friends and family ⇒ this suggests there are untapped opportunities for the formal sector and which are not served by existing microcredit and loan programs with cosigners.
- Explore greater use of testimonials to improve screening.
- Make cosigning less risky and more flexible by allowing many cosigners.

Future Direction

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“Indeed, one important challenge for the future is to find ways to better measure the impact and cost effectiveness of microfinance programs.”

Remarks by Chairman Ben S. Bernanke at the ACCIN Texas Summit on Microfinance in the United States, San Antonio, Texas, November 6, 2007