Social Networks and the Decision to Insure: Evidence from Randomized Experiments in China

Jing Cai

University of Michigan

October 5, 2012
Introducing technological or financial innovations is important for economic development but diffusion is usually extremely slow.

This paper studies the role of social networks in the diffusion of a new financial product: weather insurance.

Demand for insurance in rural areas is surprisingly low: 4.6% in India. Social interactions can be an important factor in the diffusion process: social learning about product benefits or experience, imitation, etc.

Using a field experiment in rural China, I investigate:

- The effect of social interactions on the adoption of a new financial product
- The monetary equivalence of the network effect
- Mechanisms through which social networks operate
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My contributions:

- Use experimental designs to identify mechanisms of network effects
- Estimate the monetary equivalence of social network effects
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II. Insurance demand literature:

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  - Cole et al. 2011: Liquidity constraint, Lack of trust
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  - Study both initial participation rate and renewal decisions
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There is a significant effect of social networks on insurance adoption.
Overview of Key Results

- There is a significant effect of social networks on insurance adoption
- The monetary equivalence of the network effect equals 15% of the insurance premium
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There is a significant effect of social networks on insurance adoption.

The monetary equivalence of the network effect equals 15% of the insurance premium.

Mechanisms including scale effect, imitation, and informal risk-sharing cannot explain the effect.

The social network effect is mainly driven by social learning about insurance knowledge and friends’ experience.
I. Background

II. Short-term effect of social networks on insurance demand
   II.1. Experimental design
   II.2. Causal effect
   II.3. Monetary value
   II.4. Mechanisms

III. Effect of social networks over time

IV. Conclusion
I. Background: Rice Insurance

- A program initiated by the People’s Insurance Company of China (PICC)
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- Insurance contract:
  - Price: 3.6 RMB after subsidy (actuarially fair price 12 RMB = 1.9 dollars)
  - Responsibility: 30% or more loss in yield caused by: Heavy rain, flood, windstorm, drought, etc.
  - Indemnity Rule: 200 RMB × Loss%
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- Insurance contract:
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  - Responsibility: 30% or more loss in yield caused by:
    - Heavy rain, flood, windstorm, drought, etc.
  - Indemnity Rule: 200 RMB × Loss%
- The maximum payout covers 30% of the gross rice production income or 70% of the production cost
I. Background: Experimental Sites

- 185 randomly selected villages in Jiangxi, China
- On average, around 70% household income comes from rice production
- No similar types of insurance provided before
II.1 Experimental Design: Within-village Randomization

- Two rounds of information sessions in each village:
In each round, two types of information sessions:

1. Simple sessions: Distribute insurance flyer + introduce the contract briefly
2. Intensive sessions: In addition to information covered in simple sessions, provide financial education about weather insurance products

Definition of social network: the fraction of five friends (named in a social network census) who were invited to an early round intensive session
II.1 Experimental Design: Within-village Randomization

- After the presentation in each second-round session, disseminate first-round take-up information to a subgroup

In all cases, households make decisions individually at the end of our visit
II.1 Experimental Design: Village-level Randomization

Sample Villages
(185 Villages)

Type I (173 Villages)
Price Variation = No

Type IA (85 Villages)
1st Round Default = Buy

Type II (12 Villages)
Price Variation = Yes

Type IB (88 Villages)
1st Round Default = Not Buy
Effect of financial education: Type I villages, 1st round sessions

\[ \text{Takeup}_{ij} = \alpha_0 + \alpha_1 \text{Intensive}_{ij} + \alpha_2 X_{ij} + \eta_j + \epsilon_{ij} \]  (2)

Table 2. Effect of Financial Education on Insurance Take-up, Year One

<table>
<thead>
<tr>
<th>Variables</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensive Financial Education Session</td>
<td>0.149***</td>
<td>0.140***</td>
</tr>
<tr>
<td>(1 = Yes, 0 = No)</td>
<td>(0.0261)</td>
<td>(0.0259)</td>
</tr>
<tr>
<td>No. of Observation</td>
<td>2,175</td>
<td>2,137</td>
</tr>
<tr>
<td>Village Fixed Effects</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Household Characteristics</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.121</td>
<td>0.129</td>
</tr>
</tbody>
</table>
II.2 Estimation Strategy - Financial Education Effect

- Effect of financial education: Type I villages, 1st round sessions

\[ \text{Takeup}_{ij} = \alpha_0 + \alpha_1 \text{Intensive}_{ij} + \alpha_2 X_{ij} + \eta_j + \epsilon_{ij} \]  

- Around 14 percentage points (from 35% to 50%)

<table>
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<tr>
<th>VARIABLES</th>
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<tbody>
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<td></td>
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Table 2. Effect of Financial Education on Insurance Take-up, Year One

Social Networks & Insurance Demand
II.2 Estimation Strategy - Social Network Effect

- Social network effect: Type I villages, 2nd round (no take-up info)

\[
\text{Takeup}_{ij} = \beta_0 + \beta_1 \text{Network}_{ij} + \beta_2 X_{ij} + \eta_j + \epsilon_{ij} \tag{3}
\]
II.2 Estimation Strategy - Social Network Effect

- Social network effect: Type I villages, 2nd round (no take-up info)

\[
\text{Takeup}_{ij} = \beta_0 + \beta_1 \text{Network}_{ij} + \beta_2 \text{X}_{ij} + \eta_j + \epsilon_{ij} \tag{3}
\]

- Having one addition friend attending 1\textsuperscript{st} round intensive session (financial education) increases own take-up by 6.7 percentage points, which is around 45\% of the direct financial education effect

- The magnitude of social network effects depends on the strength of ties

### Table 3. Effect of Social Networks On Insurance Take-up, Year One

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Insurance Take-up (1 = Yes, 0 = No)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>%Network Receiving 1st Round Financial Education</td>
<td>0.337***</td>
</tr>
<tr>
<td>%Network Receiving 1st Round Financial Education (Strong ties, mutually listed)</td>
<td>0.428**</td>
</tr>
<tr>
<td>%Network Receiving 1st Round Financial Education (Weak Ties, second order links)</td>
<td>0.0843</td>
</tr>
<tr>
<td>No. of Observation</td>
<td>1,274</td>
</tr>
<tr>
<td>Village Fixed Effects and Household Characteristics</td>
<td>Yes</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.087</td>
</tr>
</tbody>
</table>
Estimate the monetary equivalence of the network effect: Type II villages

\[
\text{Takeup}_{ij} = \gamma_0 + \gamma_1 \text{Price}_{ij} + \gamma_2 \text{Network}_{ij} + \gamma_3 \text{Price}_{ij} \times \text{Network}_{ij} \\
+ \gamma_4 X_{ij} + \eta_j + \epsilon_{ij}
\]
II.3 Monetary Equivalence of Social Network Effect

- Estimate the monetary equivalence of the network effect: Type II villages

\[
\text{Takeup}_{ij} = \gamma_0 + \gamma_1 \text{Price}_{ij} + \gamma_2 \text{Network}_{ij} + \gamma_3 \text{Price}_{ij} \times \text{Network}_{ij} \\
+ \gamma_4 X_{ij} + \eta_j + \epsilon_{ij}
\]

- The network effect is equivalent to reducing the insurance price by 15%

| Table 6. Monetary Value of the Social Network Effect on Insurance Take-up, Year One |
|---------------------------------|---------------------------------|
| VARIABLES | Insurance Take-up (1 = Yes, 0 = No) |
|           | (1)                      | (2)                      |
| Price     | -0.112***               | -0.151***               |
|           | (0.0162)                | (0.0306)                |
| %Network Receiving 1st Round Financial Education | 0.364***               | -0.241               |
|           | (0.0979)                | (0.243)                |
| Price * %Network Receiving 1st Round Financial Education | 0.151**               |                   |
|           | (0.0520)                |                       |
| Observations | 429                      | 429                      |
| Village Fixed Effects and Household Characteristics | Yes                      | Yes                      |
| R-Squared | 0.239                   | 0.260                   |
| P-value of Joint-significance: Price | 0.0013***               |                      |
| %Network Receiving 1st Round Financial Education | 0.0018***               |                      |
Figure 3. Effect of Having Friends Attending Financial Education on Insurance Demand, Year One
II.4 Mechanisms of the Social Network Effect

Possible mechanisms:

- Social Network Effect
  - Insurance Knowledge
  - Purchase Decisions
    - Scale Effects
    - Imitation
    - Informal Risk Sharing
II.4 Mechanism I: Insurance Knowledge

Do social networks diffuse insurance knowledge?

- Strategy A: Compare the effect of financial education on both take-up and insurance knowledge between first and second round sessions

\[
\text{Outcome}_{ij} = \omega_0 + \omega_1 \text{Intensive}_{ij} + \omega_2 \text{Second}_{ij} \\
\quad + \omega_3 \text{Intensive}_{ij} \times \text{Second}_{ij} + \omega_4 X_{ij} + \eta_j + \epsilon_{ij}
\]  

(9)
II.4 Mechanism I: Insurance Knowledge

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  \]

- **Strategy B**: Test the effect of social networks on improving insurance knowledge

  \[
  \text{Knowledge}_{ij} = \lambda_0 + \lambda_1 \text{Network}_{ij} + \lambda_2 X_{ij} + \eta_j + \epsilon_{ij} \quad (10)
  \]
II.4 Mechanisms: Diffusion of Insurance Knowledge

- Financial education effect is large and significant in the first round, but it makes no difference in the second round.
II.4 Mechanisms: Diffusion of Insurance Knowledge

- Financial education effect is large and significant in the first round, but it makes no difference in the second round.
- Second round intensive session has a lower take-up and level of insurance knowledge than first round intensive session:

![Figure 2. Average take-up rate in different sessions](image1)

![Figure 2.2. Average Insurance Knowledge in Different Sessions](image2)
II.4 Mechanisms: Diffusion of Insurance Knowledge

- Financial education effect is large and significant in the first round, but it makes no difference in the second round.
- Second round intensive session has a lower take-up and level of insurance knowledge than first round intensive session:
  - Learning from friends is less effective than formal financial education
  - Less attention in the second round

Figure 2. Average take-up rate in different sessions

Figure 2.2. Average Insurance Knowledge in Different Sessions
II.4 Mechanisms: Diffusion of Insurance Knowledge II

- Diffusion of insurance knowledge is more effective when friends better understand financial education materials

### Table 7. Did Social Networks Convey Insurance Knowledge?

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Strategy A Insurance Take-up (1 = Yes, 0 = No)</th>
<th>Strategy A Insurance Knowledge (0 - 1)</th>
<th>Strategy B Insurance Knowledge (0 - 1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1) Intensive Financial Education Session (1 = Yes, 0 = No)</td>
<td>0.141***</td>
<td>0.314***</td>
<td>-0.00129</td>
</tr>
<tr>
<td>(2) Second Round (1 = Yes, 0 = No)</td>
<td>0.0901***</td>
<td>0.245***</td>
<td>(0.0167)</td>
</tr>
<tr>
<td>(3) Intensive Financial Education Session * Second Round</td>
<td>-0.138***</td>
<td>-0.323***</td>
<td></td>
</tr>
<tr>
<td>(4) % Network Receiving 1st Round Financial Education</td>
<td>-0.016</td>
<td>0.128</td>
<td>0.356***</td>
</tr>
<tr>
<td>(5) % Network Receiving 1st Round Financial Education * Average Network Insurance Knowledge</td>
<td>0.621***</td>
<td>0.312***</td>
<td>0.0475</td>
</tr>
<tr>
<td>No. of Observation</td>
<td>3,433</td>
<td>1,255</td>
<td>1,255</td>
</tr>
<tr>
<td>Village Fixed Effects and Household Characteristics</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.093</td>
<td>0.118</td>
<td>0.132</td>
</tr>
</tbody>
</table>

Social Networks & Insurance Demand
Ⅱ.4 Mechanisms: Diffusion of Insurance Knowledge

- Diffusion of insurance knowledge is more effective when friends better understand financial education materials.
- Having one additional friend assigned to a 1st round intensive session improves one’s own insurance knowledge by 7.2 percentage points.

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Strategy A</th>
<th>Strategy B</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Insurance Take-up (1 = Yes, 0 = No)</td>
<td>Insurance Knowledge (0 - 1)</td>
</tr>
<tr>
<td>Intensive Financial Education Session (1 = Yes, 0 = No)</td>
<td>0.141***</td>
<td>0.314***</td>
</tr>
<tr>
<td></td>
<td>(0.0259)</td>
<td>(0.0120)</td>
</tr>
<tr>
<td>Second Round (1 = Yes, 0 = No)</td>
<td>0.0901***</td>
<td>0.245***</td>
</tr>
<tr>
<td></td>
<td>(0.0309)</td>
<td>(0.0142)</td>
</tr>
<tr>
<td>Intensive Financial Education Session *Second Round</td>
<td>-0.138***</td>
<td>-0.323***</td>
</tr>
<tr>
<td></td>
<td>(0.0422)</td>
<td>(0.0200)</td>
</tr>
<tr>
<td>%Network Receiving 1st Round Financial Education</td>
<td>-0.106</td>
<td>0.128</td>
</tr>
<tr>
<td></td>
<td>(0.167)</td>
<td>(0.103)</td>
</tr>
<tr>
<td>%Network Receiving 1st Round Financial Education *Average Network Insurance Knowledge</td>
<td>0.621***</td>
<td>0.312**</td>
</tr>
<tr>
<td></td>
<td>(0.209)</td>
<td>(0.122)</td>
</tr>
</tbody>
</table>

- No. of Observation: 3,433, 1,255, 3,259, 1,255, 1,255
- Village Fixed Effects and Household Characteristics: Yes, Yes, Yes, Yes, Yes
- R-Squared: 0.093, 0.118, 0.233, 0.137, 0.132
II.4 Social Network Mechanism II: Purchase Decisions

Do social networks diffuse peers’ purchase decisions?

\[ \text{Takeup}_{ij} = \delta_0 + \delta_1 \text{TakeupRate}_j + \delta_2 \text{TakeupRateNetwork}_{ij} + \gamma_3 X_{ij} + \epsilon_{ij} \] (13)

- IV for 1st round take-up rate: Default options
Do social networks diffuse peers’ purchase decisions?

\[
\text{Takeup}_{ij} = \delta_0 + \delta_1 \text{TakeupRate}_j + \delta_2 \text{TakeupRateNetwork}_{ij} + \gamma_3 X_{ij} + \epsilon_{ij} \tag{13}
\]

- IV for 1\(^{st}\) round take-up rate: Default options
- IV for take-up rate of friends in social network: Default \(\times \%\text{Network in 1}\(^{st}\) round sessions
Friends’ decisions do not have a significant effect if this info is not explicitly revealed. But if it is revealed, its effect becomes significant.

Table 9. Effect of Peers’ Decisions in 1st Round Sessions on 2nd Round Take-up (IV), Year One

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>First Stage:</th>
<th>Insurance Take-up (1 = Yes, 0 = No)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st round overall take-up%</td>
<td>Network 1st round take-up%</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Default</td>
<td>0.121***</td>
<td>0.308***</td>
</tr>
<tr>
<td>(0.0326)</td>
<td></td>
<td>(0.0593)</td>
</tr>
<tr>
<td>Default * % Network in 1st Round Sessions</td>
<td></td>
<td>0.0996</td>
</tr>
<tr>
<td>(Village level)</td>
<td></td>
<td>(0.252)</td>
</tr>
<tr>
<td>1st Round Overall Take-up Rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Village level)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Round Network's Take-up Rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Village level)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of Observation</td>
<td>2,137</td>
<td>1,643</td>
</tr>
<tr>
<td>Village FE and Housheold Characteristics</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.120</td>
<td>0.163</td>
</tr>
</tbody>
</table>
Friends’ decisions do not have a significant effect if this info is not explicitly revealed. But if it is revealed, its effect becomes significant. Only 9% of the households knew at least one of their friends’ decisions.

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<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>First Stage: 1st round overall take-up%</th>
<th>Network 1st round take-up%</th>
<th>Insurance Take-up (1 = Yes, 0 = No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Default</td>
<td>0.121***</td>
<td></td>
<td>0.0711</td>
</tr>
<tr>
<td></td>
<td>(0.0326)</td>
<td>(0.0593)</td>
<td>(0.430)</td>
</tr>
<tr>
<td>Default * % Network in 1st Round Sessions</td>
<td>0.308***</td>
<td></td>
<td>0.460</td>
</tr>
<tr>
<td></td>
<td>(0.0326)</td>
<td></td>
<td>(0.790)</td>
</tr>
<tr>
<td>1st Round Overall Take-up Rate (Village level)</td>
<td></td>
<td></td>
<td>0.0996</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.252)</td>
</tr>
<tr>
<td>1st Round Network’s Take-up Rate</td>
<td></td>
<td></td>
<td>0.969**</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(0.383)</td>
</tr>
<tr>
<td>No. of Observation</td>
<td>2,137</td>
<td>1,643</td>
<td>920</td>
</tr>
<tr>
<td>Village FE and Household Characteristics</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
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<tr>
<td>R-Squared</td>
<td>0.120</td>
<td>0.163</td>
<td>0.115</td>
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II.4 Mechanisms: Diffusion of Peers’ Decisions

- Friends’ decisions do not have a significant effect if this info is not explicitly revealed. But if it is revealed, its effect becomes significant.
- Only 9% of the households knew at least one of their friends’ decisions
  - Reason 1: It takes time for decisions to be diffused

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<td></td>
<td>0.0711 (0.430)</td>
</tr>
<tr>
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<td></td>
<td>0.0996 (0.252)</td>
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</table>
II.4 Mechanisms: Diffusion of Peers’ Decisions

- Friends’ decisions do not have a significant effect if this info is not explicitly revealed. But if it is revealed, its effect becomes significant.
- Only 9% of the households knew at least one of their friends’ decisions
  - Reason 1: It takes time for decisions to be diffused
  - Reason 2: Disclosing purchase decisions carries the risk of ”losing face” (Brown et al 2011; Qian et al 2007; Zhao et al 2005)

### Table 9. Effect of Peers' Decisions in 1st Round Sessions on 2nd Round Take-up (IV), Year One

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>First Stage:</th>
<th>Insurance Take-up (1 = Yes, 0 = No)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1st round overall take-up%</td>
<td>Network 1st round take-up%</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
</tr>
<tr>
<td>Default</td>
<td>0.121***</td>
<td>0.308***</td>
</tr>
<tr>
<td></td>
<td>(0.0326)</td>
<td>(0.0593)</td>
</tr>
<tr>
<td>Default * % Network in 1st Round Sessions</td>
<td>0.308***</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(0.0593)</td>
<td></td>
</tr>
<tr>
<td>1st Round Overall Take-up Rate (Village level)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st Round Network's Take-up Rate</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of Observation</td>
<td>2,137</td>
<td>1,643</td>
</tr>
<tr>
<td>Village FE and Household Characteristics</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.120</td>
<td>0.163</td>
</tr>
</tbody>
</table>
II.4 Mechanisms: Conclusion

There is something special about social networks in rural communities:
- They do not convey each other’s purchase decisions, even though people do care about such information.
- They do effectively convey what other people know.

Diagram:
- Social Network Effect
  - Insurance Knowledge
  - Purchase Decisions
    - Scale Effects
    - Imitation
    - Informal Risk Sharing
Social interactions have a large and significant effect on short-run demand for insurance
II. Year One: Conclusion

- Social interactions have a large and significant effect on short-run demand for insurance

- The effect is mainly driven by social learning about insurance benefits, as opposed to scale effects, imitation, or informal risk-sharing
The development of insurance markets requires two conditions:

1. Good initial participation rate
2. Maintaining good take-up rates over time even with less subsidies

I study the role of social networks in influencing insurance demand over time by following sample households one year after
Followed a subsample (72 out of 185 villages, around 2000 households) of 1st year households
III. Year Two: Experimental Design

- Followed a subsample (72 out of 185 villages, around 2000 households) of 1st year households
- Randomization: household level of subsidy
  8 different prices with subsidies ranging from 40% to 90%
  In each village, gather farmers with the same prices and hold meetings for different price groups simultaneously
  During the meeting:
  Briefly repeat the contract
  Announce the payout list
  Request purchase decisions individually after meeting
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- During the meeting:
  - Briefly repeat the contract
  - Announce the payout list
  - Request purchase decisions individually after meeting.
III. Year Two: Estimation Strategies

- Social network effect over time:

\[ \text{Takeup}_{ij2} = \sigma_0 + \sigma_1 \text{Price}_{ij2} + \sigma_2 \text{NetworkTakeup}_{ij1} \]

\[ + \sigma_3 \text{Price}_{ij2} \times \text{NetworkTakeup}_{ij1} + \sigma_4 X_{ij} + \eta_j + \epsilon_{ij} \]  \hspace{1cm} (14)

IV for social network take-up rate:

1. Default × %Network in 1\(^{st}\) round sessions
2. %network in 1\(^{st}\) round intensive session
III. Year Two: Estimation Strategies

- Social network effect over time:

\[ \text{Takeup}_{ij2} = \sigma_0 + \sigma_1 \text{Price}_{ij2} + \sigma_2 \text{NetworkTakeup}_{ij1} + \sigma_3 \text{Price}_{ij2} \times \text{NetworkTakeup}_{ij1} + \sigma_4 X_{ij} + \eta_j + \epsilon_{ij} \] (14)

IV for social network take-up rate:
1. Default × %Network in 1\(^{st}\) round sessions
2. %network in 1\(^{st}\) round intensive session

- Social learning of friend’s experience:

\[ \text{Takeup}_{ij2} = \psi_0 + \psi_1 \text{Price}_{ij2} + \psi_2 \text{NetworkPayoutHigh}_{ij1} + \psi_3 \text{Price}_{ij2} \times \text{NetworkPayoutHigh}_{ij1} + \psi_4 X_{ij} + \eta_j + \epsilon_{ij} \] (16)
Households’ take-up decisions over time are not influenced by their friends’ behaviors in previous years.

Table 10. Effect of Friends' Take-up Decisions in Year One on Second Year Insurance Demand Curve

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>1st Stage: %Network Take-up (Year one)</th>
<th>2nd Stage: Insurance Take-up (Year two, 1 = Yes, 0 = No)</th>
</tr>
</thead>
<tbody>
<tr>
<td>% Network in 1st Round Sessions * Default (Year One)</td>
<td>0.148*** (Year One)</td>
<td>(0.0346) (0.0797)</td>
</tr>
<tr>
<td>% Network Receiving 1st Round Financial Education (Year One)</td>
<td>0.241*** (Year One)</td>
<td>(0.0623) (0.0797)</td>
</tr>
<tr>
<td>Price</td>
<td>-0.0539*** (Year One)</td>
<td>-0.00487 (Year One)</td>
</tr>
<tr>
<td>% Network Take-up in Year One</td>
<td>0.125 (Year One)</td>
<td>0.636* (Year One)</td>
</tr>
<tr>
<td>Price * % Network Take-up in Year One</td>
<td>(0.165) (Year One)</td>
<td>(0.299) (Year One)</td>
</tr>
</tbody>
</table>

Observations: 1,783 1,741 1,741
Village Fixed Effects and Household Characteristics: Yes Yes Yes
R-Squared: 0.142 0.130 0.120
In the second year, observing an above-median share of friends receiving payouts improves insurance demand significantly.

The effect is equal to 54% of the impact of receiving payouts directly, and is equivalent to reducing the average insurance premium by 35%.

Table 12. Effect of Observing Friends Receiving Payouts on Second Year Insurance Demand Curve

<table>
<thead>
<tr>
<th>VARIABLES</th>
<th>Insurance Take-up (Year two, 1 = Yes, 0 = No)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All Sample</td>
</tr>
<tr>
<td></td>
<td>(1)</td>
</tr>
<tr>
<td>Price</td>
<td>-0.0499***</td>
</tr>
<tr>
<td></td>
<td>(0.00815)</td>
</tr>
<tr>
<td>%NetworkPayout_High</td>
<td>0.217***</td>
</tr>
<tr>
<td>(= 1 if % &gt; median, and 0 otherwise)</td>
<td>(0.0266)</td>
</tr>
<tr>
<td>Price * %NetworkPayout_High</td>
<td>0.0300**</td>
</tr>
<tr>
<td></td>
<td>(0.0107)</td>
</tr>
<tr>
<td>Observations</td>
<td>1,642</td>
</tr>
<tr>
<td>Village FE and Household Characteristics</td>
<td>Yes</td>
</tr>
<tr>
<td>R-Squared</td>
<td>0.158</td>
</tr>
</tbody>
</table>
Social networks play important roles in improving insurance take-up.
IV. Conclusion

- Social networks play important roles in improving insurance take-up

- The main channel through which social networks affect insurance take-up is social learning about insurance benefits (learning from others) and learning from friends’ experience (learning by witnessing)
Social networks play important roles in improving insurance take-up.

The main channel through which social networks affect insurance take-up is social learning about insurance benefits (learning from others) and learning from friends’ experience (learning by witnessing).

Potential policy interventions to improve take-up:
Social networks play important roles in improving insurance take-up.

The main channel through which social networks affect insurance take-up is social learning about insurance benefits (learning from others) and learning from friends’ experience (learning by witnessing).

Potential policy interventions to improve take-up:

- Combining subsidy policies with dissemination of peers’ decisions.
IV. Conclusion

- Social networks play important roles in improving insurance take-up

- The main channel through which social networks affect insurance take-up is social learning about insurance benefits (learning from others) and learning from friends’ experience (learning by witnessing)

- Potential policy interventions to improve take-up:
  - Combining subsidy policies with dissemination of peers’ decisions
  - Providing financial education to a subset of farmers and relying on social networks to multiply its effect on others
  - Disseminating information on payouts when they are made
Thank You!