Can network ties help women in pursuing entrepreneurship?

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- In this paper we combine entrepreneurship and network position

Background : Baseline networks



Figure – Women with and without a business

Measuring networks

- In October 2021, we conducted a baseline survey and network elicitation in 30 villages in Nepal.
 - Who do you take advice, borrow money from, seek help during emergencies, spend time with
- Demographic Outcomes, Existing Businesses, Willingness to Open Businesses, Risk Aversion, and Aspirations.

Out of the 2840 women we sampled, 22% had opened a business already

- Out of the 78% that did not have a business, 42% were interested in opening one
- Main barrier-> Lack of skills and capability
- Therefore we designed a 3 day entrepreneurship training program

Why think about peer effect in entrepreneurship?

- We know pairing matters in entrepreneurship training (Field et al. 2016)
 - Training with a friend peer improves financial outcomes

In our paper, we randomly pair individuals stratified by varying centrality and social distance

We use novel network data to pair individuals randomly in groups of two to attend a three day entrepreneurship training program



Figure – Training with a peer vs alone

We focus on why pairing matters to facilitate entrepreneurship : Introduce a connection module to tease out various mechanisms

Using network to solve low take up of entrepreneurial activities despite large number of skill and entrepreneurship development programs.

- Why does pairing matter for training : is delivered to local central (friends) v/s global central in network members who set goals together ?
 - Exchange of information about entrepreneurs
 - Creation of extra link provides greater insurance against risk (contacts)
- Does having a connection module improve outcomes?

Data

Networks

- Main Networks : Whom an individual borrows money from, spends time with, or seek advice from.
- Aspirations Networks : Potential role models who inspire them as they are perceived to be financially independent.
- Opularity : People perceived to be popular in the village.
- Gossip : People perceived to spread information fast.

Example of a Village Network



(a) Main Network

We randomize at two different levels :

- Some communities randomized to get some treatment
- Who within the treatment community gets the program is randomized at individual level
- This is an effective way to measure spillovers

We stratify women by their centrality in the network

Experimental Design

Out of the 30 villages we have

- T0 : 5 Control villages
- T1 : 25 Treatment villages.
 - T1.0 : No Training
 - T1.1 : Training without Peers
 - T1.2 : Training + Matching with Partner
 - T1.3 : Training + Matching with Partner+ connection module

A three day training course that focuses on the following components :

- Day 1 : Business intro + Game I
- 2 Day 2 : Macro Micro selection
- Oay 3 : Business Plan

What is the connection module?



- Highlight how pairs could potential help each through
 - Information
 - Complimentary in skills
 - Financial risk sharing and advice

Two variables of interest : d_{ij} distance between participants and the centralities of the pair i.e. ϕ_i and ϕ_j .

Consider the following utility function where agent i chooses the level of effort e_i (savings, business effort etc) depending on private and social returns.

$$U(e_i) = \theta_0 e_i - c(e_i) + \underbrace{\theta_1 \alpha(d_{ij})(e_i e_j)}_{peer \ effort} + \underbrace{\beta_0 \phi_j e_i}_{peer \ centrality} + \underbrace{\beta_1 f(\phi_i - \phi_j) e_i}_{centrality \ gap} + \underbrace{\theta_1 \alpha(d_{ij})(e_i e_j)}_{centrality \ gap} + \underbrace{\theta_1 \alpha(d_$$

 $\underbrace{\lambda\alpha(d_{ij})f(\phi_i - \phi_j)e_i}_{k}$

 $distance \ interaction$

Identification Strategy

$$Y_{iv} = \alpha + \beta_1 T 1_i + \beta_2 T 2_i + \beta_3 T 3_i + \epsilon_v$$

where T_i is the treatment status of the individuals

Identification strategy : Heterogeneity

• In addition to treatment effects, we are interested in looking at heterogeneity as a function of network position

$$\mathsf{Y}_{iv} = \alpha_v + \beta_1 d_{ij} + \beta_4 T 2_i + \beta_5 T 2_i d_{ij} + \beta_7 T 3_i + \beta_8 T 3_i d_{ij} + \epsilon_v$$

where ϕ_j is centrality and d_{ij} is distance between individuals

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$$\mathsf{Y}_{iv} = \alpha_v + \beta_2 \phi_j + \beta_4 T 2_i + \beta_6 T 2_i \phi_j + \beta_7 T 3_i + \beta_9 T 3_i \phi_j + \epsilon_v$$

Results : On Takeup

We measure takeup of business related services

Impact of takeup



No difference across treatments

Distance heterogeneity



Degree heterogeneity



Results : Business Outcomes

Willingness to open a business

Impact on Business outcome



No significant impact of the treatments on an average

Distance heterogeneity



Degree heterogeneity



Results : On Aspiration

We measure aspiration on agricultural activity, non agricultural business, income and savings

Standardize aspiration

Drawing from the literature Tanguy et al (2015)

$$(a_i)^{std} = \frac{a_i^k - \mu_k}{\sigma_k}$$

where k is the attribute, μ_k is mean in the village and σ_k is the standard deviation

Impact on Aspiration



No significant impact of the treatments on an average

Distance heterogeneity



Income aspirations and self efficacy higher when paired with close friends

Degree heterogeneity



No significant impact of degree centrality across the pairs

Conclusion and more to come

- Pairs matter in particular with distance <=2
- Comparing T2 and T3, the story seems to be less about risk sharing, more about support (more evidence to come)
- There is heterogeneity in treatment effect as a function of social distance and degree centrality