EC117	Schedule
Jan 29	HW1
Feb 12	HW2.
Feb 24	Proposal
March 9	Exam 1
April 6	Draft due.
April 22	Exam 2.
April 27	Last class
May 7.	Pre.

Week 1. Intro.

— 书写技术 opposed to writing (new tech)

Plato documented it.

— Social Media, Robots / fake news manipulation

10 yrs ago, tech abused.

Web and internet (networks of computers)

↳ Berners-Lee : html.

- Contract for the web.

regulating

EU: General data protection regulation

(cookie ...)

— Social elements in economic decisions.

Interactions direct agent ⇔ agent.

Influences do not go through market

(not reflected by prices ....)

Firms ⇔ Firms	Goverment ⇔ G
- Dovartis ⇔ Brogen.	— Local, state, national
	e.g Amazon headquarter

National: Treaties, War ...

↳ COW MIDB dataset.
(war database)

- Nato. (1950+)
- WARSAW PACT.
- Trade

— Casual inference. about phenomena.

- A special case: Polarization in D.C.

1990 votes vs 2015 votes

— Setting: Agent i, decision Y_i.

X_i, vector of characteristics.

Neighboorhood. D_i

$Y_i = F(X_i, \text{Reference Group};)$

Individual effect.

Neighborhood. $\nu(i)$

$X_{\nu(i)}$: aggregates of characteristics.

Contextual effect

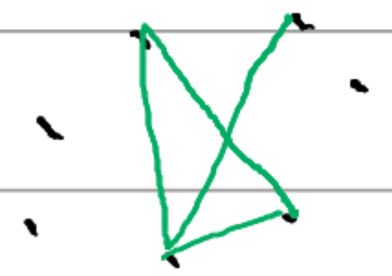
$Y_{\gamma(i)} \rightarrow$ Endogenous social effect.

e.g. GPAi = FC i's characteristics,

Neighborhoods are $\begin{cases} \text{exogenous.} \\ \text{endogenous.} \end{cases}$

- Social Networks

  - Social graph.



  - Algebraic representation.

Agent.	a	b	c
a	0	1	0
b	1	0	1
c	0	1	0

Sociomatrix.

Adjagering matrix.

Week 2. 20/01/22.

— Precise Technology.

Social Interactions vs. Social Network.

Y_i: X_i, $X_{g(i)}$, $Y_{g(i)}$

↑ own ↑ Neighbors community ↑ Decisions of Social contacts.

- QJE Sacerdote, Bruce (2001). Peer effect, dartmouth

GPA_i: ACA_i, ACA_j, GPA_j _ other factors...

ACA_j: other's academic standing.

$GPA_{g(i)}$

e.g dorm's GPA (average).

Assumption: (i, j) communicate (GPA_i, GPA_j)

are determined simultaneously..

$$GPA_i = \delta_i + \alpha ACA_i + \beta ACA_j + \gamma \cdot GPA_j$$

$$GPA_j = \delta_j + \beta ACA_i + \alpha ACA_j + \gamma GPA_i$$

$GPA_i, GPA_j = F(ACA_i, ACA_j)$

Variation of theory: Decision$_i$ depends on i's expectation of j's academic performance.

Y_i can be stuff like discreet variable ...

(Joining clubs ...)

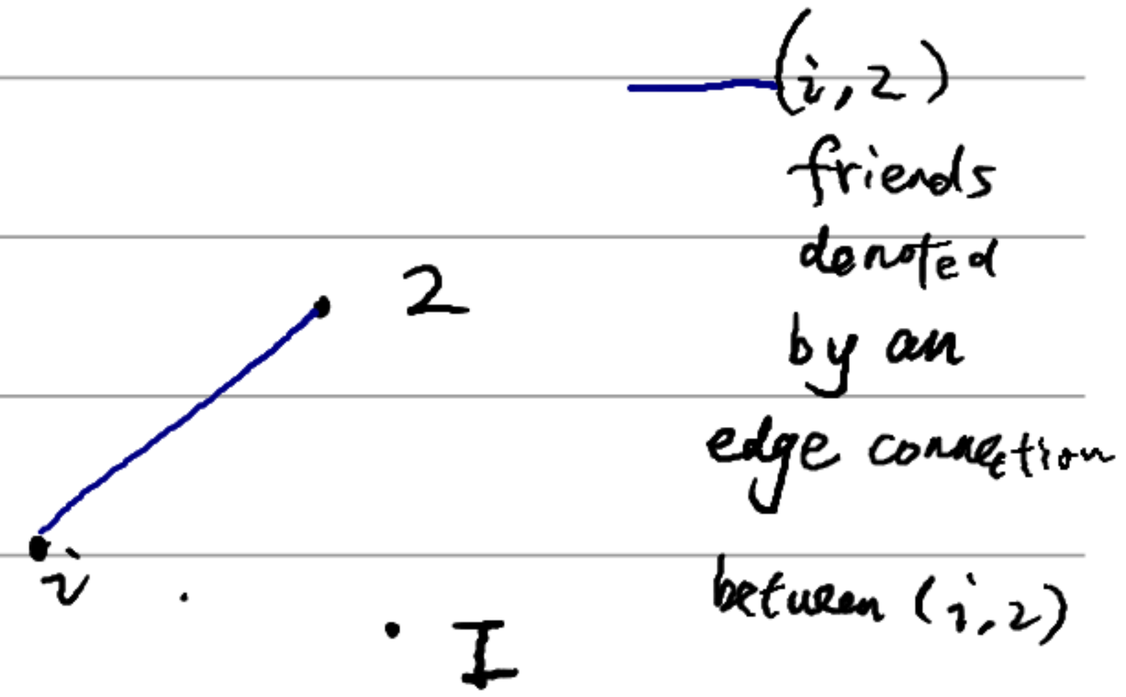
- Reference Group: Exogenous / Endogenous.
  - Endogeneity in Empirical Economics. identification!

- Social Network = Decisions depend on specific economic agents.
  - Graphs, networks. (Königsberg Bridge problem
    Euler.: 7 bridges.
    ↳ Eulerian Path)
  - Diffusion of Microfinance in India. To expose villages to microfinance, they need a way

to get the word out of influencers.

(Castes.

$I = \{1, 2, 3 \dots\}$



$[A]: I \times I$ ① $a_{ij} = 1$ if (i, j) friends communicate.

{ Social Matrix 0 otherwise.

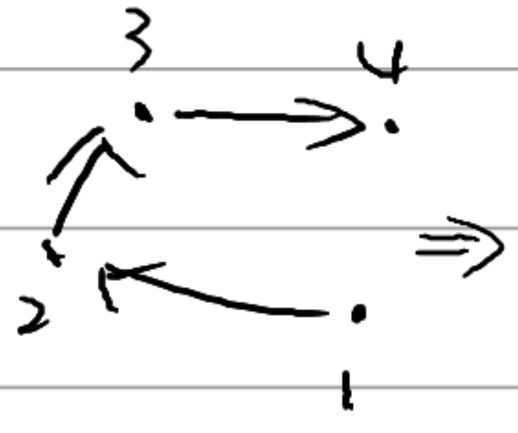
{ Adjacent Matrix. ② a_{ij}: weight, not necessarily $\{0, 1\}$.

Weighted graph.

③ unsymmetric (like follower..)

i follow $j \Rightarrow a_{ij} = 1$, $a_{ji} = 0$.

e.g Adhealth dataset.



	1	2	3	4
1	0	0	0	0
2	1	0	0	0
3	0	1	0	0
4	0	0	1	0

Looking up / following someone else is a choose.

Graphy not symmetric.

e.g. Web graph is fundamentally a directional and weighted graph.

- $Y_{\tilde{v}} = (X_{\tilde{v}}, X_{\gamma(\tilde{v})}, Y_{\gamma(\tilde{v})})$ ← or $E(Y_{\gamma(\tilde{v})})$
  - ↳ Classical interaction setting
- Social Network, we specify influences to (from) specific other individual.

Week3 2020/01/27

— Sacerdote(2001): Dartmouth, randomly assigned roommates, social multiplier. (policy).

- Implication: How to group students? By ability or ....
- Emperical: Dartmouth 1997_1998 #2000 ↘#1589

Pretreatment: Parrell assumption

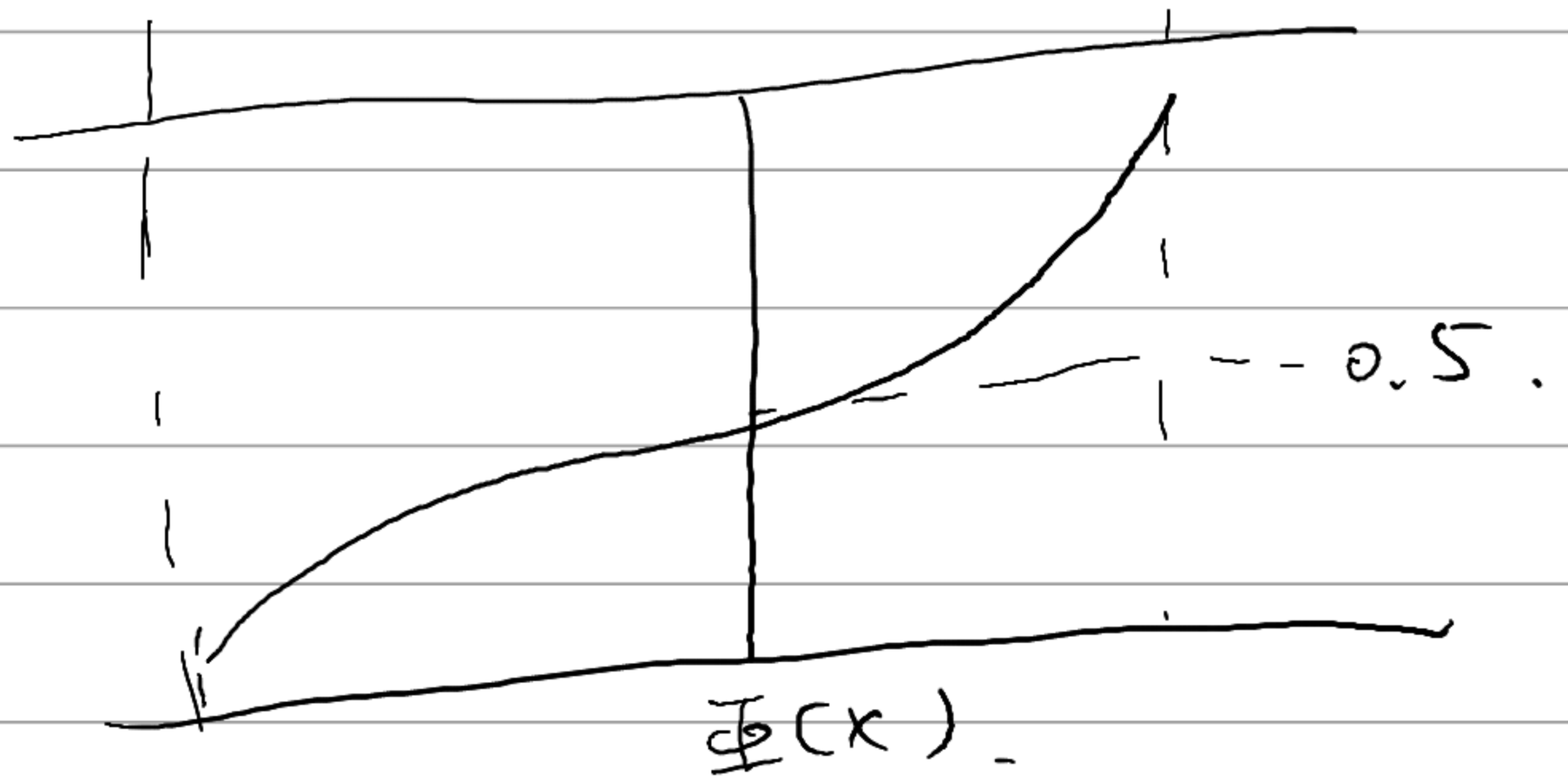
③ 小王 + Mailman形象 + evil.

④ + drink + postal + cigaretts.

⑤ zombie + running people.

— Production of GPAs: academic ability, rigor of teaching, time spent, infrastructure, health, social influence, peers.

- Dummy - treatment group, control group.
- Social outcome: Frat/Sor. Discreet Choice (Probit/Logic)



① Social Influence is present

but we do not know its nature.

② Proximity due to living in a dorm

matters, does not exclude roommm → room

influence

③ Social effects in social outcomes are more.

volative.

Week 4. 20/02/03

Review: Arcidiacono & Nicholson 2006.

1) Students were chosen, did not choose one another (matching)

2) Positive peer effects

- MCAT → board score
  - school
  (fixed controlled)

⇒ Own effects are present. School peer effects vanish when school fix effects are included.

- Groups of peers: race based, gender based,

  Fix ✓, MCAT verbal × female.

- Peer effects on specialty.

  Female, high income specialty.

- 1997, 1998, two waves / cohorts

- Keeping up the Joneses.
- Data, American Housing Survey.
  - Dwelling units.
  - Neighborhood : Clusters.
  - 1985, sampled the same cluster in 1989, 1993.
  - Spatial, time info
    ↳ longitudinal.

- Ioannides (2013), Ch.2. P14-17
  - Canonical Terminology of Manski (1993).

$$y_v = \alpha_0 + \alpha X_i + \theta Z_{r(i)} + \beta E(\text{Neighbors' maintenance})$$

(Neighborhood's chars.)

$r(i)$: Neighbor of i.

$E[y_i \mid r(i)]$ ↗

$$\Rightarrow y_i = \alpha_0 + \alpha X_i + \theta Z_{r(i)} + \beta E[y_j \mid r(i)] + \varepsilon_i$$

$E(y_j)$, $j \in r(i)$ are consistent with own decisions, that at equilibrium.

$$\Rightarrow E[y_i] = \alpha_0 + \alpha X_{r(i)} + \theta Z_{r(i)} + \beta E[y_i]$$

$$(1-\beta)\ E(y_i) = \alpha_0 + \alpha X_{\gamma(i)} + \theta Z_{\gamma(i)}$$

$$E(y_i) = \frac{\alpha_0}{1-\beta} + \frac{\alpha}{1-\beta} X_{\gamma(i)} + \underbrace{\theta \frac{Z_{\gamma(i)}}{1-\beta}}$$

Contextual effect

People used to assume that $X_{\gamma(i)}$: Neigh/D average of chars. $\equiv Z_{\gamma(i)}$.

$$E(y_i) = \frac{\alpha_0}{1-\beta} + \frac{\alpha+\theta}{1-\beta} \bar{Z}_{\gamma(i)}. \quad \star$$

$$y_i = \alpha_0 + \alpha X_i + \frac{\beta\alpha+\theta}{1-\beta} X_{\gamma(i)} + \varepsilon_i$$

(from rational expectation)

β : coefficient of Neighbors' actions endogenous social effect.

Suppose : $\beta = 0$ (No neighbors' effect).

if $\frac{\beta\alpha+\theta}{1-\beta} \neq 0 \Rightarrow$ ✓.

(log Maintenance Expense $= \alpha_0 +$ location + degree (weather) + % ownership + # household white + Pred mean + # vacant + Quality index + Housing's chars. + occupants' chars.

220. actual / Simple.

① Food pic
variable
emoji
actual

icon → Total carb. → replaced by OO.
→ sugar
→ protein → percentage by weight
→ Fat → oil
→ sodium

② icon
Food
var
light bulb.
icon

Season.
Food

③ Var
Food

→ happy

→ effect → sweet
Food
Fat
size
protein
salt

Green, yellow, red

○ or ✓, !!, ✗

A representative food?

① By size ⟺ weight

② Size ⟹ one day percentage.

③

Week 5. L1

- Back to Networks.

  - Jackson 2019 P32-40
  - Autor et al 2014 P661-666.
  - Epidemic Shiller : narrative economics

- Jackson P32-40

  - Diffusion. Centrality

    Medici Banking & Finance

    Why successful
    - skilled
    - economic relationship & political connections.
    - key connector.

    Power of centrality

  - Quantitative measures.

- Autor et 2014 RCT.

  - Randomisias
  - Natural Experiments.
  - Unanticipated removal of rent control

- Mechanism : direct & indirect effects.

Two types of Properties, controled/Never cont.

Rent control : disincentive to landlords to maintain,

Turnover change.

- Units : houses / condos / cooperative.

Accessment of Housing Values for taxes.

- In MA, local government run school not county government.

- Model. Value = $f($; Amandities $)$

1) How well maintained properties are.

2) upper income line nearby.

$y_n = C_n + P_n h_n$.

Cobb-Douglas.

$C_n = (1-\alpha) y_n \quad 0<\alpha<1$

$P_n h_n = \alpha y_n$

$U = A C^{1-\alpha} h^{\alpha}$

Indirect utility function,

$$U_{ID} = A_n (1-\alpha)^{1-\alpha} y_n^{1-\alpha} (\alpha y_n)^{\alpha} \cdot P_n^{-\alpha}$$

$$= A_n (1-\alpha)^{1-\alpha} \cdot \alpha^{\alpha} y_n P_n^{-\alpha}$$

$$= A_n \cdot \alpha^{*} y_n P_n^{-\alpha}$$

$$\overline{U} = A_n \alpha^* y_n p_n^{-\alpha} \quad \Rightarrow \text{equilibrium}$$

$$\ln \overline{U} = \ln A_n + \ln \alpha^* + \ln y_n - \alpha \ln p_n .$$

$$\Rightarrow \ln p_n = \frac{1}{\alpha} \left(\ln A_n + \ln \alpha^{\alpha} + \ln y_n \right)$$

Week 6. 20/02/20.

- Personnel Economics. ↗ ICPSR UofM
- 1960's Panel Study of Income Dynamics.
  - longeidinal / pannel
  - Attrition
  - Marital, Labor .....
  - Geocodes. Tract / county / state.
    ↳ 3K - 5K people
  - Census Tract Data (10 yrs).
  - Moving decisions (what factors affect this)
    self-selected
    People with children (chars)
    Composition of neighborhoods.
    Context

* zoning: Restrictions on land use, Density, Building ...
* Sorting / filtering.
* How do people interact with neighbors?
* Mobility. Flexibility

* Survey — self identity → Productivity outcome.

female

under discrimination

Me! activity

Week 6. 21 Feb 2020 Thursday.

1. Literature Review.

- Annual reviews.

Oxford Bibliographies. (high level explanation)

Dissertation Search.

- { key word searching
  { citation searching

- Zotero. Citation manager.

2. Datasets.

Census. (social explorer). dataverse

- IPUMS. (microdata)
- ICPSR (researcher data)

3. Policy map (visualization).

02/26 Wednesday

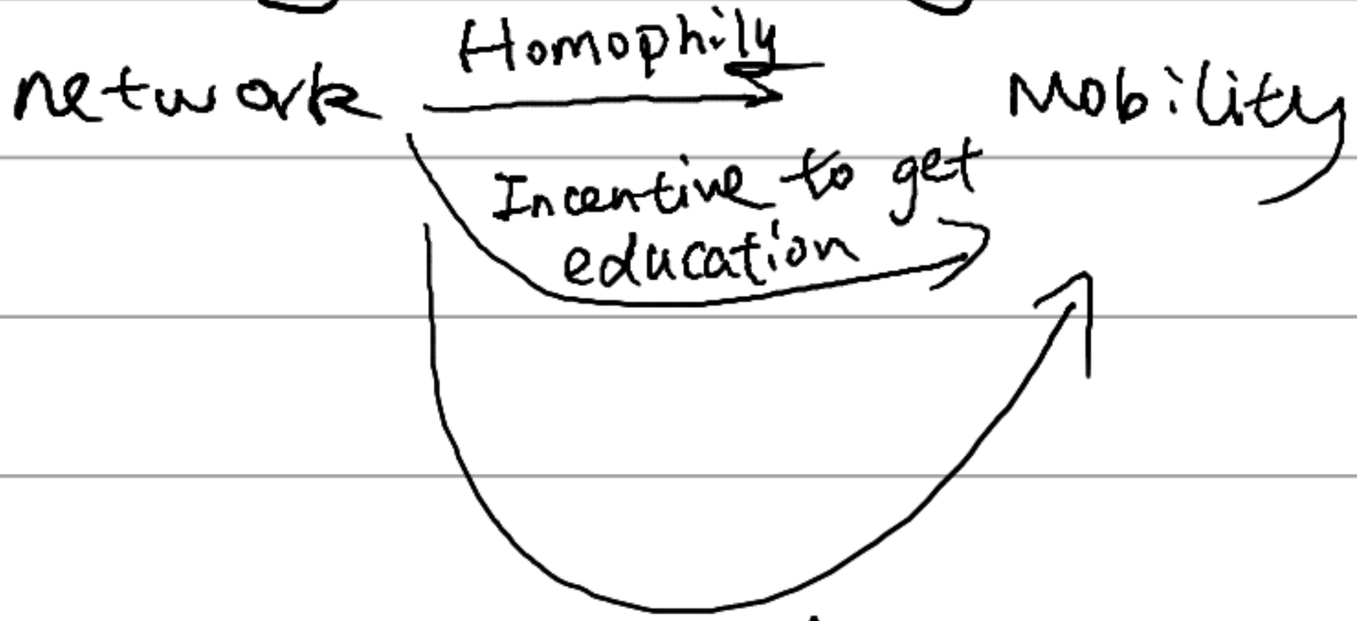
- Patacchini & Zenou (2011) (sorting / neighborhood

  - Reading to children (7-31 yrs)
    ↳ Entire cohort.
    13 yrs of tracking
  - 2500 children

    4900 parents.
  - Council House = Public House.
  - Questionaire

- Jackson Book.

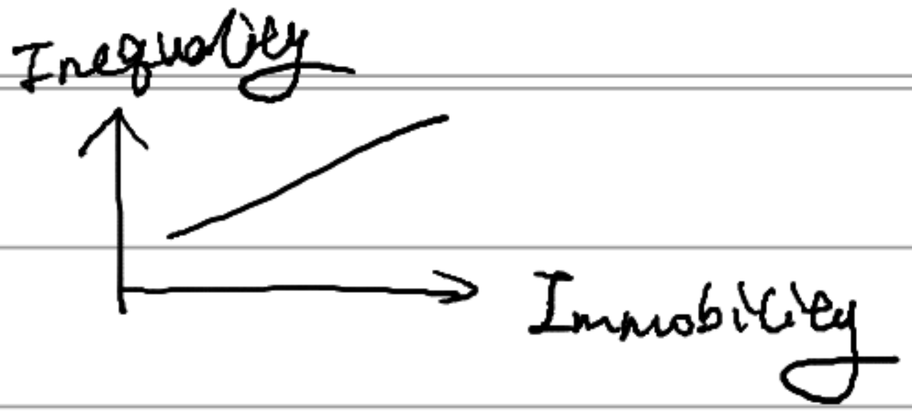
  - Mobility & Equality



  - Intergenerational income elasticity / earning

Raj Chetty on intergenerational Mobility

- Gatsby Curve



interwined.

spatial inequalities.

- Measure inequality.
  1) Gini coefficient.
  2) US Employment by sector, service sector ↔ tech
  3) Percentage of Children earning more than their parents.
- Education.
  1) late 20s, 70% Asian 50% white, 30% black, 20% Hispan
  2) Parents read to babies (# of words, huge gaps)
  3) 20% Parents does not knows whether they have an impact on the development of children.
  4) Social Capital, pass down to parents Human Capital, resources. (lower skilled industry, connections to get jobs)
  5) Strong Tie / Weak Tie. Reverse Casuality, Self selection.
  6) Moving to opportunities Program.

- u: unemployment rate.

  v: vacancy rate. (opening).

  s: # of contact an individual has.

$(1-u)\cdot v$ Prob of getting info about an opening

$1-(1-u)\cdot v$ Don't pass info.

Prob that none of s contact pass info

$$(1-(1-u)\cdot v)^s$$

Prob at least one - - - -

$$1-(1-(1-u)\cdot v)^s$$

$s\uparrow$, Prob $\uparrow$

$v\uparrow$, Prob $\uparrow$

$u\uparrow$ Prob $\downarrow$

* s = degree of the network.

20/03/02 Mon.

- Laura Gee 'Social Tie'

⛤ · Social network → better job match

· weak / strong tie. → ↑ productivity

→ shared friends.

→ new info. Subjective report.

Granovetter (1973). Sociologist

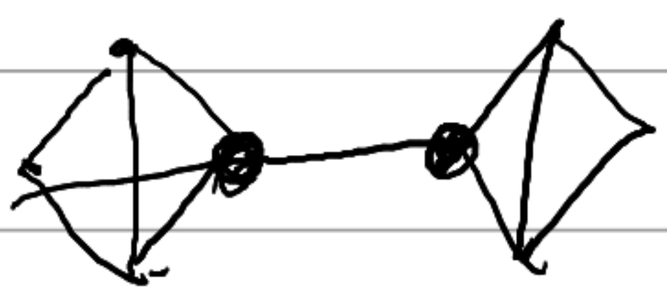
· 90% ties are weak / 90% jobs through a weak tie.

Prob job ↑ as tie strength ↑

· Novel information

· Identification. (causality)

- Structure based ties / Contact based ties.



- Different Measures of Tie Strength.

Overlaps / Contacts / tag

- Causality - unobservables.

individual (extrovert)

↳ User i's fix effect.

Dyad level

↳ more educated? Go to the same school? ....

Week 7. Wednes 03 / March / 2020

- NLSY (US data) Heckman's use of NLSY
- Intermediary.

- Tradeoff → intermediaries { find job / Pay a some percentage of wage.

- Cyclicality in Method of Search.

$$y_i = \alpha_0 + X_i\alpha + \beta \cdot E[Y_{\gamma(i)}] + Z_{\gamma(i)}\theta + \varepsilon_i$$

↓ neighborhood effect ↘ Contextual effect.

If $\bar{X}_{\gamma(i)} \equiv Z_{\gamma(i)}$, , Reflection Problem

↓ Neighboring Average of individual characteristics.

- Heckman selection term $E[\varepsilon_i \mid \gamma_i = \text{Downtown}]$

→ No longer a reflection problem. ↳ self selected.

Correct self-selection