Paper Replication

The Effects of Social Networks on Employment and Inequality

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We develop a model where agents obtain information about job opportunities through an explicitly modeled network of social contacts. We show that employment is positively correlated across time and agents. Moreover, unemployment exhibits duration dependence: the probability of obtaining a job decreases in the length of time that an agent has been unemployed. Finally, we examine inequality between two groups. If staying in the labor market is costly and one group starts with a worse employment status, then that group's drop-out rate will be higher and their employment prospects will be persistently below that of the other group. (*JEL* A14, J64, J31, J70)

Simple networks for job transmission

The Model

What do we want to confirm?

Figure 1

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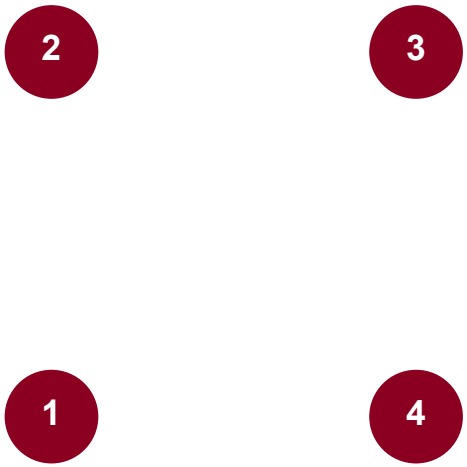

Figure 1

Necessary Functionality

- Read in arbitrary graphs
- Implement for job creation, transmission, and loss mechanisms
  - Save each agent's employment record for study
- Calculate employment rates
- Calculate correlations among agents
- Calculate minimum distance between agents

A Computational Shortcut

- Normally, the variance is $\sigma^2 = E[X^2] - E[X]^2$.
- But we have only two states (0 and 1), and $x = x^2$ for both of them.
- In that case, defining $\mu \equiv \overline{X}$,

$$\sigma^2 = \mu - \mu^2.$$

- As a reminder, the correlation is

$$\rho_{XY} = E[(X - \mu_X)(Y - \mu_X)]/(\sigma_X \sigma_Y).$$