

Economics of Networks

Introduction

Evan Sadler

Massachusetts Institute of Technology

Network Economics

Second half of the course: economics of networks

- Apply network models to study human behavior

Human interactions are complex, heterogeneity in

- Geography
- Trading opportunities
- Access to information
- Influence

Network models give us a structured way to study this complexity

Traffic Congestion

Traffic congestion is a major problem in many cities

Cost of congestion in New York City is estimated at over \$20 billion per year

- Wasted time
- Excess fuel consumption
- Lost business revenue

One solution: congestion pricing

- (See NY Times, “London uses Congestion Pricing. Why Doesn’t New York?”)

How does one evaluate such a plan?

Traffic Congestion

Roads form a resource network, drivers minimize own costs

Questions:

- How will drivers respond to tolls?
- How will tolls affect travel times?
- What routes are most crucial?
- Where should we consider adding new roads?
- Will a new road always improve traffic? (hint: no)

Social Norms: Cooperation and Enforcement

Why do people cooperate?

Lots of opportunities to “cheat”

- Dine and dash
- Slack on the job or inflate hours worked
- Fail to deliver goods as agreed

Many interactions rely on informal enforcement

Clear why this works in long-term relationships, but this doesn't cover all cases

Social Norms: Cooperation and Enforcement

One idea: reputation

- “Word gets around”

Literature on “community enforcement”

What social structures best promote cooperation?

What’s the best way to punish defectors?

Diffusion of Innovations

People often learn about new products or innovations from a friend

Example: the diffusion of microfinance in rural India

In a famous study, Banerjee et al. (2013) disentangle the role of several factors:

- “Pure” information transmission
- Opinion sharing
- Peer effects

Diffusion of Innovations

How can we encourage the spread of a helpful product or innovation?

A couple ideas:

- Targeted seeding
- Referral programs

How should we design interventions?

How do different influence mechanisms affect our answer?

Social Learning

People often imitate one another

- Fashions and fads
- Financial markets

Why?

One idea: people learn from the choices of others

Herd behavior can be both individually rational and collectively inefficient

Social Learning

Lots of opportunities to learn from others

- Social media posts
- Online reviews

Relevant to choices from what we buy to how we vote

Is social learning efficient? When?

Whose opinions or experiences are most influential?

Will people conform or maintain diverse choices?

The Field of Network Economics

Insights touch on all areas of economic research

- How do people learn about jobs? (labor)
- What factors influence technology adoption decisions? (development, healthcare)
- How do beliefs and opinions spread? (political economy)
- How do financial or productivity shocks propagate? (finance, macroeconomics)

Goals for second half:

- Understand how networks change our perspective on economic problems
- Identify different types of economic networks, characteristic phenomena
- Learn to apply network insights

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