

Economics of Networks

Introduction

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Network Economics

Second half of the course: economics of networks

- Apply network models to study human behavior

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Human interactions are complex, heterogeneity in

- Geography
- Trading opportunities
- Access to information
- Influence

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Network models give us a structured way to study this complexity

Traffic Congestion

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How does one evaluate such a plan?

Traffic Congestion

Roads form a resource network, drivers minimize own costs

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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?

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Lots of opportunities to “cheat”

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

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

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One idea: reputation

- “Word gets around”

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Literature on “community enforcement”

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What social structures best promote cooperation?

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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

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Example: the diffusion of microfinance in rural India

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

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

Diffusion of Innovations

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- Referral programs

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How should we design interventions?

How do different influence mechanisms affect our answer?

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- Fashions and fads
- Financial markets

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Herd behavior can be both individually rational and collectively inefficient

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- Online reviews

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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)

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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

Lecture Plan

- Lectures 13 - 14: Intro to Game Theory
- Lecture 15: Traffic and Congestion Games
- Lectures 16 - 17: Network Effects
- Lecture 18: Repeated Games and Cooperation
- Lecture 19: Networked Markets
- Lectures 20 - 21: Bayesian Games and Social Learning
- Lectures 22 - 23: Diffusion
- Lecture 24: Network Formation

My Office: E19 - 271

Introductions

- Name?
- Major?
- Why are you here?
- Economics background?