

# Social Networks and Non-market Valuations

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# Motivation and Research Purpose

- Several non-market goods are often consumed in groups
  - e.g. beaches, parks, hiking trails, rivers, etc
- An agent's valuation of a non-market good may be a function of another agent's valuation of the good
  - e.g. Jack likes the beach. Especially when Rose is having a good time

This paper builds a network model of non-market goods to investigate the influence of social structure on non-market valuation.

# Building a Network Model

- Additively separable utility:

$$V_i(x_i, g) = x_i + v_i(g)$$

- $v$  has two components:

$$v_i(g) = (1 - \lambda_i)u_i(g) + \lambda_i(a_{i1}v_1(g) + \dots + a_{in}v_n(g))$$

$$\mathbf{v} = (\mathbf{I} - \mathbf{\Lambda})\mathbf{u} + \mathbf{\Lambda A v}$$

$$\mathbf{v} = (\mathbf{I} - \mathbf{\Lambda A})^{-1}(\mathbf{I} - \mathbf{\Lambda})\mathbf{u}$$

$$v_i(g) = w_{i1}u_1(g) + \dots + w_{ij}u_j(g) + \dots + w_{in}u_n(g)$$

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# Results

## Network Neutrality

Traditional compensating measures (based on agent's private utility  $u(g)$ ) provide correct assessment if

- All agents are socially isolated, or
- All agents have the same private utility ( $u(g)$ )

# Implications

- First, if agents are myopic in the sense that responses to surveys reflect changes in  $u(g)$  then...
  - estimates are potentially biased because they do not account for the influence of other agents' direct utility on the overall valuation
- Second, if responses to surveys reflect changes in  $v(g)$  then...
  - for internal validity, econometric models should consider social network characteristics to avoid omitted variable bias
  - external validity of estimates can be questioned since valuation is affected by the social network of that specific environment