THE SPREAD OF OBESITY IN A LARGE SOCIAL NETWORK OVER 32 YEARS

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Introduction

- Obesity prevalence has increased over the recent past. Almost a third of adults in the US are obese.
- Based on the spread of other phenomena among social networks, researchers examined whether obesity spread from person to person.
  - Does weight gain in one person influence weight gain in others with whom he/she has social contact?
- Evaluation of existing data on over 12,000 adults collected over a 32 year period.
Methods

- Framingham Heart Study
- Defined social relationships
  - Family, friend (directional), spouse, neighbor
- Three explanations for clustering of obese individuals
  - Homophily, confounding, induction
- Longitudinal logistic-regression models
- Geographic component to measure distance effects
- Obesity status as a function of ego’s age, sex, education level, prior obesity status and alter’s current and prior obesity status.
  - Additional models included smoking behavior and geographic distance measures.
Social Network Subcomponent, 2000
Changes over time, 1975-2000
Results

- Related increases in probability of obesity persist through three degrees of separation.
- Spread of obesity depended on type and ‘direction’ of relationship.
- Geographic distance does not seem to play the same role as social distance.
Results (continued)

- **Directional results:**
  - A mutual friendship exerted the strongest effect on probability.

- **Gender results:**
  - Same-sex friends (and siblings) have a larger impact than opposite-sex friends.
    - Female to female friends’ spread of obesity was not significant!

- **Spouse results:**
  - Husbands and wives effect their spouses similarly.
Discussion

- Social distance is more important than geographic distance.
- People are influenced more by those they resemble than by those they do not.
- Effects might come from changes in norms, leading to changes in behavior, or a combination.
- If obesity can spread through social networks, can the same networks be used to slow the spread?
- Hopeful implications for cost effectiveness of anti-obesity programs.
Comments and Critiques

- How does pregnancy figure into this model?
- Now that overweight and obesity are more common than normal weight, should we be spending more effort investigating what types of network effects keep the healthy weight people healthy?
- Explanation for removing confounding effects is not entirely convincing.
- This research still doesn’t fully help to find where (why) increases in obesity rates originated.
Context and Further Applications

- The concept of a social multiplier effect.
- Social networking is currently being used in models to explain a myriad of phenomena.
- Social network research is complicated by the common cause/social influence problem.
- The ideas behind methodologies employing social networking frameworks and spatial econometrics exhibit many similarities.
- Results based on social network research are easily translated into a policy and implementation context.