Preview Questions

1. What is the importance of spatial concepts and techniques in sociology?
2. Why is mapping so powerful?
3. What insights can be derived from studying distance?
4. How do we measure distance?
5. What is the importance of distance in social networks?
6. What is the importance of spatial clusters?
7. What is spatial dependence?
8. How do we use spatial dependence?
9. What value does spatial dependence have for multilevel models?
10. What are spatial effects?
11. What is spatial scale?
12. What future contributions do we expect from spatial analysis?

Summary Notes

Introduction

* Sociologists are more interested in how spatial patterns translate into social relations than the spatial patterns themselves.
* Social facts are located in particular times and places.
* Location is an aspect of space.
* Spatial thinking is about where things are, where things happen, and where things are in relation to other things.
* Both people and places are spatial but people have agency (i.e., make decisions and take action that affect place characteristics).
* Space is place associated with attributes.
* Spatial data is place-level data with the relative locations of places as a major consideration in the analysis.
* Critical concepts to spatial thinking:
  + Distance
  + Proximity
  + Exposure
  + Access
* Location is a point identified by geographic coordinates or structures and events represented by them.
* Issues with non-single point locations (e.g., neighborhood, zone, territory, etc.)
  + What is the geographic scale?
  + Are the regions bounded?
* Boundaries can be thought of as sharp edges or zones of transition.
* Places are geographically located, material, and spatial.
* Spatial analysis 🡪 technical; spatial thinking 🡪 substantive

*Mapping*

* Maps are the simplest and most powerful spatial tool.
* Maps can provide layers of information.
* Maps provide objective representations that can ignite peoples’ imaginations.
* The utility of a map is dependent on the insightfulness of the analyst.
* Exploratory Spatial Data Analysis techniques facilitate the inspection of maps.
* Local Moran’s i – a measure of cluster of high or low values on a single variable.
* A map can have a rhetorical character.

*Distance*

* Distance is the location of something in relation to something else.
* Tobler’s First Law of Geography – everything is related, but near things are more related than distant things.
* Distance is often an indicator of access to other people or resources or exposure to harm.

*Measuring Distance*

* Euclidean distance versus how long it takes to get from point to point, which is dependent on mode of transportation.
* Band width – the limit beyond which more distant locations are irrelevant.
* Distance-decay function – evaluates how much more the nearer points matter in comparison to less near points.

*Distance and Social Networks*

* The spatial arrangement of actors influences the relationships among them.
* We are more likely to have contact with those who are closer to us in geographic location than those who are distant.
* Kinship and proximity are important.
* Spatial effects are sometimes interpreted in terms of social interaction.

*Spatial Clustering*

* Spatial clustering is the pattern of related things being found in proximity to one another.
* Questions about what distance means and how to measure it apply to spatial clustering.
* An application of cluster analysis is to identify natural areas (e.g., neighborhoods) based on the composition of smaller units.
* Boundaries of clusters tend to be fluid.

*Spatial Dependence as an Effect on Neighbors*

* Clustering is a form of spatial dependence.
* Spatial dependence is the tendency for similar things to be near one another.
* Spatial dependence can be used to identify diffusion across boundaries or impact on neighbors.
* Events in one place can influence later events in another place.

*Spatial Dependence in Multilevel Models*

* Multilevel models treat spatial dependence as a statistical problem.
* Contextual effects are the impacts that contexts (e.g., characteristics of places) have on actors within them.
* It is sometimes necessary to take into account spatial dependence of outcomes across nearby places when researching contextual effects.

*Spatial Effects and Spatial Scale*

* One issue in research is ensuring that the region of study is the right scale of analysis because artificial boundaries (e.g., census tracts) can affect results.
* It’s important to evaluate the appropriate scale for research.
* Sociologists should treat spatial scale as a research question and consider the linkages of processes across scales.

*Looking Forward*

* Growing demand for studies that explicitly take place and space into account.
* The ecological fallacy – one cannot infer processes that occur at the level of individuals from information about relationships at the level of places or other social contexts.
* The concept of spatial lag is new to most social scientists.

Additional Questions of Interest

1. None