

Q&A – Prof. John Hipp – 15th Feb 2024

1. "Given our electronic lives that we now lead, couldn't it be argued that we know our "neighbors" or "egohoods" on social media better than those within our physical space in which we live? How many people actually know more than 2-3 neighbors anymore? Can I really be a "capable guardian" of targets I don't know, or find unfamiliar?"

This is an empirical question, but my read on the literature so far is that this "issue" is somewhat overblown. There is even evidence that online social ties have a distance decay component to them. And, there is often overlap between online ties and in-person ties. If the world indeed moves in this direction of us not knowing our neighbors, then that may indeed imply weakened guardianship capability. But I don't think there is compelling evidence of that yet.

2. Hi Dr. Hipp, one question regarding the concept of blocks. In cities in Latin America, Europe and Asia, there are cities that (for different reasons) do not obey the quadricular urban layout of let's say Indianapolis or Midtown Manhattan. I think Becker makes an example of Paris illustrating the concept of conceptualization, discussing what a "block" can be. My question as a junior scholar, is it OK to use the "block" breakdown of the place we are studying (using the official 'cadaster' map of the city), disregarding size or layout of these 'blocks', or is it lazy? I ask because I'm trying to use marketing data and violent crime and the marketing data and the socio-economic data I have available are in this format. Thank you for any advice you could give me.

Ultimately, this is a theoretical question. If your theory makes claims about a very spatially localized process of crime, then the shape of these units may not be acceptable, and you cannot reasonably test your theory. But if you are trying to understand crime at a less localized spatial extent, then these units may be just fine. Anytime we have larger units than we prefer—or the wrong shape—we need to decide whether we can account for this mismatch in our model (perhaps by accounting for certain features of the units). There is no perfect data, so it is always a question of how "bad" is it for one's question. The researcher (and the reviewers) are the ultimate arbiters.

3. If there is no single spatial unit of analysis that is most appropriate, how do we address the modifiable areal unit problem?

We do so by not trying to aggregate our data to a single set of geographic units. If we can include variables that explicitly account for spatial mobility, then this is one way of trying to address MAUP. Other existing strategies use algorithms to flexibly aggregate to different-sized units in the same analyses—geographers have made some progress in this regard. My preference is to try to explicitly model the spatial movement, but that's just my preference.

4. What are some considerations we should have when choosing our unit of analysis?
I would consider your research question, and how you think the spatial process works. Are you interested in crime at precise spatial locations, or less precise locations? I'd keep in mind the spatial movement of people. My simulation in JCJ showed that even if you are aggregating to particular units, you can aggregate measures that themselves account for spatial movement.

5. What role does mass transit play?

Crime pattern theory would focus on transit stops as potential crime attractors. In my general theory of spatial crime patterns, I'm less concerned with how this would affect specific movement, as my focus on a distance decay pattern would not be concerned with the minor distortions this would cause for movement patterns.

6. Hello everybody Thanks for your good presentation. Although the electricity in our house was cut off due to lightning and I didn't get to see your entire presentation, but professor, isn't it time to present a new theory about crime and place?

I proposed the general theory of spatial crime patterns. That's somewhat new. But sure, there's plenty of room for new theories!

7. I had a student interested in studying professional sports teams and changes in crime rates over the past 4 decades....trying to determine if cities bring professional teams, do they also bring crime?

This is an interesting question as it also gets at the challenge I raised: do they cause more crime, or simply shift its location? Suppose one gets precise data and shows that crime increases at locations near stadiums when professional teams move in. However, we cannot say whether that actually causes more crime, or just shifts where it would otherwise have occurred. A challenge is that we cannot say where it might have occurred instead: for example, the literature testing displacement by testing whether crime would have instead happened in adjacent blocks is not based on any reasonable model of offender behavior. Furthermore, that doesn't hold here. You could instead test it at the city level: does crime go up in the city with the introduction of a team. But then you run the risk that it is confounded by crime patterns elsewhere. Perhaps modeling both spatial scales would provide more compelling evidence.

8. When discussing population/rates it's always drawn back to work of Sarah Boggs and what is appropriate denominator here. Residential (or ambient) population is probably more representative of neighborhoods (meso) and cities (macro) - more stable when examining micro level the residential population is possibly less useful But producing micro level population is costly/or requires simulation segmented by appropriate time units (eg commuter population, tourist population, night-time economy population). Should we be seeking to identify this micro level denominator of urban mobility - will it add value given cost to do etc. (big data can help). You suggest distance decay type approach as this tends to average out. So what meets 'good enough' approach here.

Yes, this is the crux of what my general theory of spatial crime patterns tries to capture. I create crime potentialities based on expected spatial movement of people, which is indeed the ambient population. My own view is that such detailed data on where people go (which is becoming increasingly available, at least at a cost) tend to simply reinforce the strong distance decay effect of where people go. So I'm not yet convinced that getting specific movement data on a city will appreciably improve the model, but I'm willing to be proven wrong on that.

9. It seems like if you had complete perfect mobility data (I know this is a strawman) you wouldn't need egohoods in the first place? Isn't it trying to approximate where people go and who visits? It seems to me like a methods problem, where mobility data would add an extra layer of precision to measure the constructs egohoods approximate.

Yes, egohoods in this case are an approximation, and if one had this precise data one would not need to use them. That said, some constructs from the communities and crime literature focuses on meso constructs—inequality, racial/ethnic mixing, etc—that would still need to be measured at a larger scale. I would argue that egohoods

would be better to use in this case. The mobility data might provide information on the ambient population for constructing such measures, but you would still need a unit to aggregate to, and egohoods might still be preferable over other choices.

10. It seems like public transit lines would be a good feature that could be used to transpose egohood circles into ellipses (you can imagine transit lines would push out the edge).

Interesting question. Yes, we could extend the egohood idea by including some buffer around the original radius. Then, for most egohoods most of those blocks would be weighted zero (and thus not contribute to the egohood), but in instances in which a nearby feature seemed "important" to include, one could adjust the weights for those blocks to be one (or at least nonzero, depending on one's preference). This would create the distortion you describe. A good direction for future research!

11. Maybe a basic question, but I wonder. Is the origin of where you measure the distance decay from always coming from where the offender live? Thus, meaning that people mainly commit crime where they live?

This is a question for the distance to crime literature, but yes, typically distance is measured from one's home. It is well known that one would like to measure distance from other key locations, such as one's place of employment, etc. Arguably, measuring distance from the home (and ignoring these other locations) simply flattens the distance decay effect for a person, and make it appear they commit crime further from where they live. But, of course, they do! So it is measuring what it is measuring. That said, there is also a distance decay for where people work, hang out, etc. So those locations aren't spatially random. If I'm trying to predict the location of a specific offender, I have to be very worried about this issue. If I am just trying to capture the general spatial pattern of offenders, I am counting on this issue averaging out across offenders.

12. Prof. Hipp, thank you very much for a very interesting presentation! A lot of times I face some of the issues you discussed today. I will only ask one question at this time. I would argue that we don't move linearly in space. Can maybe mobile data help us form more accurate egohoods? Are there any evidence that can motivate moving on that direction?

Perhaps. Egohoods are averaging out across people, and locations. And as much as they are capturing the movement of people who live in a particular block, they are also capturing the movement of people living in other blocks. So if I live in a block, and only have a very circumscribed pattern, this will capture where I am exposed to crime. But it does not account for the fact that others, including potential offenders, may travel to my block from locations that I do not visit. Finally, if I had such spatially precise information on movement, I'd probably not use egohoods (since they are approximating movement), but use another technique that actually builds this spatial information into the model directly.