**Police use-of-force**

The crux of your proposal is to figure out how to measure the network or peer linkages, and how to measure its influence.  I read this as the core of your proposal:

One common way to see peer effects is in the reduction of the variance of a group with regard to the full sample (since they pull together).  But you have a situation where some beats may really be more dangerous, and so you need to assess, in some sense, the multiplier.  So as I understand it, you'll have to make a huge assumption that there's some (linear??) "normal" mapping from crime to use of force.

So I think the challenge of your this project be figuring out the base rates that each group is exposed to, and linking that to "expected" and observed rates of UF.  In other words, there are two questions:

(1) What is the relationship of crime to use of force?

(2) Does that relationship vary by patrol/organization, with individual officers behavior reinforced by their colleagues behavior?

I think (1) is sort of implicit in your proposal, but it's already a tough question.  For 2, you'd need to establish:

(a) This is the base rate of crime that a group of officers deals with.

(b) Given this base rate of crime \*\*a fixed fraction\*\* (?? - big assumption!!) of which we expect to get dangerous or stressful for an officer, we see some other rate of use of force.

For Indianapolis, the beat is almost never filled in on the use of force csv; it is reliably there for the UCR file.  The districts from the UF files does not seem to match up with the beat names (i.e., I can't find any "East District" -- ED??, in the UCR).  That's a shame, since Indianapolis gives an officer unique ID; if there was a reliable grouping, you could just ask about the variance of the officers and the groups, per above.  But I don't see how to do that.

For Austin, as Mika and I already discussed, there is no information on the officer organization at the standard incident file -- the best you could do is look to the at the Council District or merge with this map to get the sector name (first part of the officer organization description):

<https://data.austintexas.gov/Locations-and-Maps/Austin-Police-Sectors-and-Districts/bh6h-vpxb>

I would suggest that it might already be a big task to just locate the crime and see how use of force scales with crime rates and local demographic characteristics.  You could start with just the raw plots per sector, and impose the structure (the linear model for a regression) afterwards.

If you want to talk about how to do a spatial merge (since that will come a bit later in the classs), please stop me or see here:

[geopandas.org/mergingdata.html#spatial-joins](http://geopandas.org/mergingdata.html#spatial-joins)

* + <https://news.uchicago.edu/article/2016/08/25/using-data-science-confront-policing-challenges>
  + <http://voices.uchicago.edu/201702busn3910001/2017/04/21/algorithms-to-predict-police-misconduct/>

## Need to locate behavioral datasets regarding the below, preferably from cops

## Potential behavioral datasets

### Does susceptibility to formidability judgement bias correlate with other predictors of officer use-of-force and decision-making?

* The environment can prime biases in formidability judgements and perceptions. When primed with a dangerous situation, people view the actor in it as larger than he really is (Dario’s lecture- probably Fessler or something)
* Relevant articles
  + [Weapons Make the Man (Larger): Formidability Is Represented as Size and Strength in Humans](http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0032751)
  + [Sizing up the threat: the envisioned physical formidability of terrorists tracks their leaders' failures and successes.](https://www.ncbi.nlm.nih.gov/pubmed/23333835)
  + Status increases formidability perception, studies reviewed in:
    - Higham PA, Carment DW (1992) The rise and fall of politicians: The judged heights of Broadbent, Mulroney and Turner before and after the 1988 Canadian federal election. Can J Behav Sci 24: 404–409.PA HighamDW Carment1992The rise and fall of politicians: The judged heights of Broadbent, Mulroney and Turner before and after the 1988 Canadian federal election.Can J Behav Sci24404409
* Potentially relevant articles
  + Wilson PR (1968) Perceptual distortion of height as a function of ascribed academic status. J Soc Psychol 74: 97–102.PR Wilson1968Perceptual distortion of height as a function of ascribed academic status.J Soc Psychol7497102
  + Marsh AA, Yu HH, Schechter JC, Blair RJR (2009) Larger than life: Humans' nonverbal status cues alter perceived size. PLoS ONE 4: e5707.AA MarshHH YuJC SchechterRJR Blair2009Larger than life: Humans' nonverbal status cues alter perceived size.PLoS ONE4e5707
  + Duguid MM, Goncalo JA (2012) Living large: The powerful overestimate their own height. Psych Sci 23: 36–40.MM DuguidJA Goncalo2012Living large: The powerful overestimate their own height. Psych Sci233640

### How do the social networks of police officers affect use-of-force?

* Officers on the same or overlapping ‘beats’
  + Create networks of these and correlate w/use of force
  + It could be interesting to use an officer's 'beat' or their normal shift as a proxy for group affiliation in a network analysis. So, Officers A and B, who typically work the graveyard shift in Bloomington, (probably) have stronger network connectivity than Officer C who typically works the early-bird shift (even if he is cited for Use of Force while working a graveyard shift) . So, if we control for time the crime is committed, is there a relationship between one's likelihood of using force and the likelihoods of using force from the company one keeps? That's just one idea. The Indianapolis stuff seems to have the data we'd need for this (Use of Force, officer/subject demographics including mental illness, and officer beat).
  + Indianapolis
    - <https://www.projectcomport.org/department/IMPD/schema/useofforce/>
    - Includes
      * Mental health writ (ArrestCharges)
      * Officer District (network analysis)
      * Officer Shift (network analysis)
    - Also includes a new beat in Indianapolis PD, Behavioral Health Services – “pairing specially trained officers with mental health experts to find people in crisis and divert them to appropriate programs and services”
      * <http://www.washingtontimes.com/news/2016/jun/26/indianapolis-police-create-behavioral-health-units/>
      * Few incidents involving BHS reported in this dataset, but article implies there are other datasets
  + Austin
    - <https://data.austintexas.gov/Public-Safety/R2R-2015/iydp-s2cf>
    - Includes
      * Mental health suspicions
      * Officer Organization (network analysis)
        + E.g. Adam 300 Reg II Patrol
      * Date (also handy for network analysis)

### Does PD intergroup connectivity (communication between different [ethnic] groups) correlate with Use of Force in departments?

* + Generate social networks (by ethnicity), changing probabilities of interaction between different ethnic groups within police dept.
  + Black, White, Hispanic etc.
  + Parameters to manipulate:
  + Intergroup connectivity

### Groups with differing levels of dominance

* + Generate social networks w/different individual levels of dominance.
  + Groups of individuals with similar levels of dominance
  + ‘leaders’
  + e.g. there’s probably a different average dom for leaders than civilians
  + Police
  + Normal civilians
  + Will need to research dominance scores associated with these groups and tailor parameters per group to those

## Demographic Datasets

* + <https://www.policedatainitiative.org/datasets/>
  + Henderson: <http://cityofhenderson.com/police/police-data-initiative>

Use of Force

* + Officer Demographics
  + Austin, TX: <https://data.austintexas.gov/Public-Safety/R2R-2015/iydp-s2cf>
  + Use of force (includes notes on mentally ill)
  + Bedford: <http://www.bedfordva.gov/1177/Police-Data>
  + Use of force & officer demographics (\*may include mentally ill? n = 2…) in same dataset
    - Currently lacks info for network analysis. Would require finding data on the officers’ implicated in the incidents (report #s are provided)
  + Bloomington:
  + Employee demographics: <https://data.bloomington.in.gov/dataset/bloomington-police-department-employee-demographics>
  + Use of force, officer demographics, mentally ill in same dataset: <https://data.bloomington.in.gov/dataset/use-of-force-data>
  + Indianapolis: <https://www.projectcomport.org/department/IMPD/schema/useofforce/>
  + Use of force, officer demographics, beat, and mentally ill in same dataset

Questions

* If a UoF incident happens in Location A, is a future UoF incident more likely to happen in Location B which is close to A?
* What demographic, SES etc. variables predict an individual offficer’s proclivity to use force?
* Given a certain condition (e.g. time of day, if a crime happened in this location recently), what is the likelihood that an individual officer will commit this crime?

Dataset: Austin

Process

1. **Review datasets (Austin 2015)**
2. **Read through Identifying Police Officers at Risk of Adverse Events**
   1. Look for:
      1. Models mentioned
      2. Predictive variables
3. **Determine UoF frequency and variance**
   1. Base rate
      1. Mean & Median
   2. Where is there significant variation from the mean?
      1. Why is there significant variation in the mean?
         1. What variables could explain why this location has more UoF than the base rate?
4. **Look at other variables in the same locations using Jamie’s code:**
   1. e.g. officer commission date, officer rank, neighborhood SES etc.
5. **Determine outliers**
   1. Is there a certain crime that is driving overall crime rates and/or UoF?
      1. E.g. Is the majority of crime something trivial?
   2. Consider dropping these
6. If a UoF incident happens in Location A, is a future UoF incident more likely to happen in Location B which is close to A?

Variables of Interest

SES of locations

Crime

Crime Location

Use of Force (UoF)

UoF Location

Officer Years of Service

Need to figure out how long an officer has been with the department/org that their UoF incident occurred in

Officer Commission Date

Officer Rank

Datasets needed

Census