Shifting forces: the effect of interregional police force transfers

BAWRY presentation

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Outline

Background

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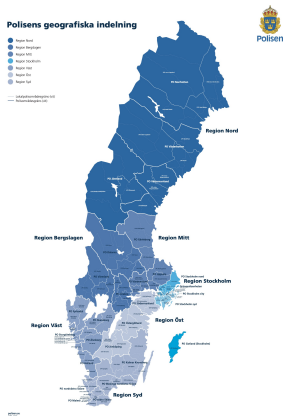
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- To be able to study the actual effect that deployment of police one would wish for a setting where police forces are shifted by some exogenous event.
- **Research question:** How does the number of police affect crime? Further question: Is the allocation of police in Sweden optimal?
- To be able to answer these question, we will make use of the 2015 Swedish police reform.
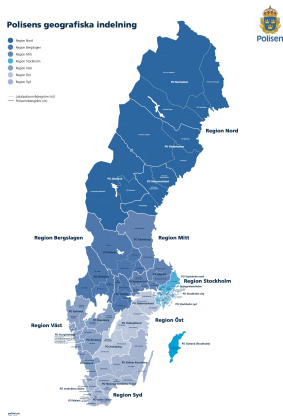
Institutional setting 1/2

Figure: Geographical division of the Swedish police authority

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- Along with this reform came also the possibility for the national police authority (NOA) to make decisions on directing police resources to specific parts of the country.

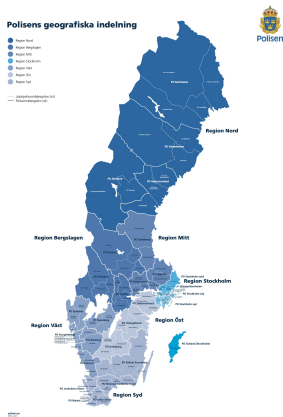# Institutional setting 1/2

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- Along with this reform came also the possibility for the national police authority (NOA) to make decisions on directing police resources to specific parts of the country.

- In the toolbox of the Swedish police there exists a formalized way of transferring police resources when needed. It is called NSH.

Institutional setting 2/2

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- In response to a serious events (for example riots, natural disaster, terror attacks) the police authority can initialize an NSH in order to be able to draw resources from other parts of the country to cover for the need. (RiR 2023:5)
- The key aspect of these NSH:s is that we might believe that above mentioned events that trigger them might be entirely exogenous from the crime situation in the place from which the police resources are drawn.

Literature

Earlier studies: Multiple studies have tried to find the causal effect of policing on crime.

- Levitt (AER, 1997) - First paper to try to solve endogeneity problem with mayoral/gubernatorial elections. Results later econometrically proven to be insignificant. 2SLS.
- DiTella and Schargrodsky (AER, 2004) - DiD approach Using terror attack on Jewish Center in Argentina to study effect on car theft. Dramatic but local effect.
- Draca et al. (AER, 2011) - Also terror as the shock. Wider study with more data and estimate an elasticity of -0.3. 6 week "experiment". DiD.
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This study: Differs from earlier literature due to the possibility of studying a global effect on an entire country instead of local effects of specific interventions. Opens up the possibility for discussing an efficiency and global optimum aspect.

Data

- In Sweden there are 7 police regions, 27 PO:s and 95 LPO:s.
- In the process of getting access to data. So far only for 1 out of 7 police regions. We will extend the request as soon as we know that the data is promising. What we have been promised is:
    - Data on police resources, both patrolling and office personnel, on daily basis, within each LPO.
    - Dates for NSH:s that have induced transfers of police forces between LPO:s/PO:s/regions.
    - Crime statistics, crime clearance statistics and pass through time with same time resolution.

RiR report on NSH:s states that there were 1 556 NSH:s during the period 2015-2021. Not all were related to resource reallocations.

Method proposal 1/2

Central regression

$$y_{it} = \beta_i x_{it} + \delta_i + \gamma_t + \varepsilon_{it}$$

- y_{it}: Outcome variable on the police district level. Number of crimes, number of finished investigations, pass through time
- x_{it}: Police force on police district level
- δ_t : Time fixed effects
- γ_i : Region fixed effects

How to use the NSH's as instruments? Exclusion restriction: Decision to implement a resource transfer does not correlate with crime on a local level outside the area to which police are sent.

Method proposal 2/2

Instrument: Shift-share instrument à la Borusyak et al. (2025) in the following fashion

$$z_{it} = \sum_r s_{irt} g_{rt} \tag{1}$$

Where s_{irt} is the share of police officers that is typically sent from region i to region r in period t and g_{rt} is the number of police requested by region r in period t as a part of an NSH. The weights s_{irt} will be calculated as follows

$$s_{irt} = \frac{g_{irt}}{\sum_i g_{irt}} \tag{2}$$

where g_{irt} is the number of police sent from region i to region r in time t. We need to include $S_{it} = \sum_r s_{irt}$ as a control so as not to make the treatment correlate with the shares.

Addendum: However, if one really believes that the decisions to transfer police resources are truly exogenous, one would perhaps not even need the shift-share method and one could just straightforwardly use the NSH's directly to isolate exogenous changes in the police force variable x_{it}.

Summarizing and going forward

Summing up: Interesting exogenous shocks to policing that probably will be possible to use to study the effect of policing on a national level.

Steps forward:

- Gather all the data
- Interesting outcomes to study - please come with suggestions!
- Police value added
- Optimal allocation of police
- Refine the empirical strategy.