Placed-based interventions, police trust and crime

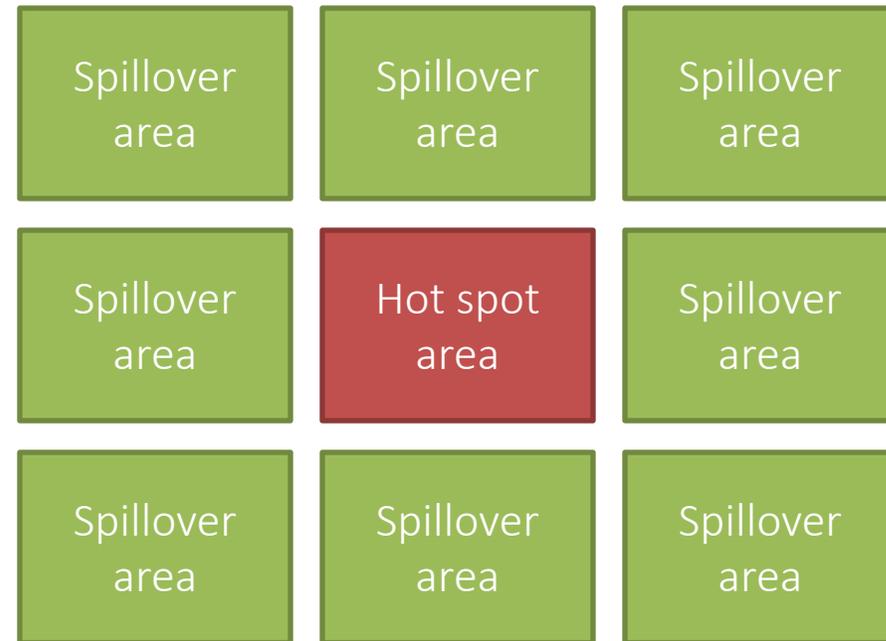Santiago Tobón

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Hot spots policing is designed to correct a misallocation of public services and security

- Most US based literature points to decreases in crime in treatment areas with no spillovers

  (e.g., Braga et al. 2014; Weisburd & Telep 2016)

- Relatively few evidence on the effects on trust and legitimacy

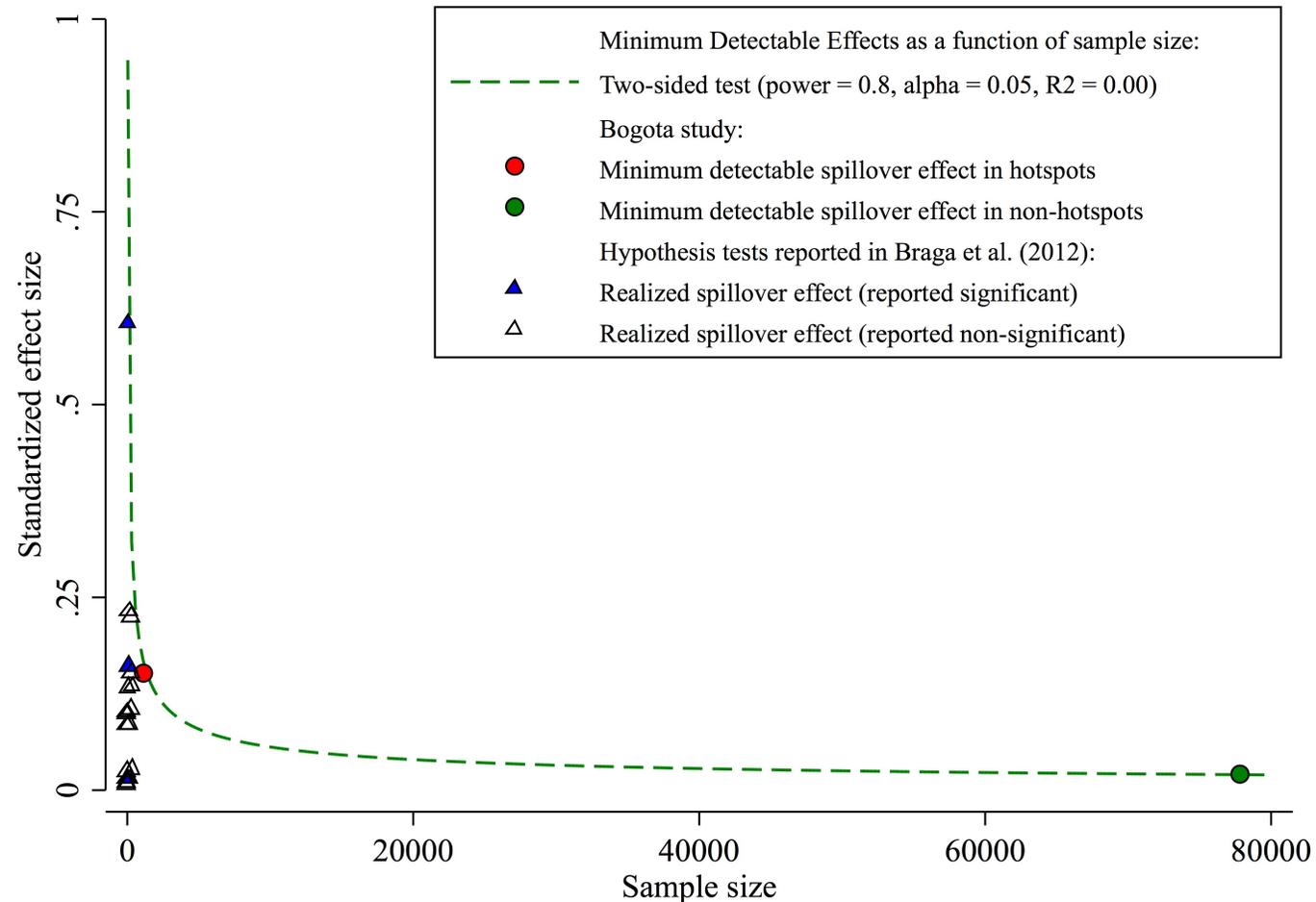 - The effects for crime and legitimacy are likely closely connected

One technical complication of placed-based interventions:
Spillovers are not a matter of average effects, but of the aggregation of those very small (and most likely undetectable) average effects

- One small illustration:
    - Hot spot area had 8 crimes on average
    - Direct treatment effects reduce all crimes
        - Point estimate is -8
    - Displacement is uniform, and all crime is displaced
        - Each spillover area receives one crime
        - Point estimate is -1
    - Spillover estimate more likely to be non-significant
        - Yet you have displacement with zero net effects

Spillover area	Spillover area	Spillover area
Spillover area	Hot spot area	Spillover area
Spillover area	Spillover area	Spillover area

Solution is to improve sample size by all means possible, and aggregate out spillover effects
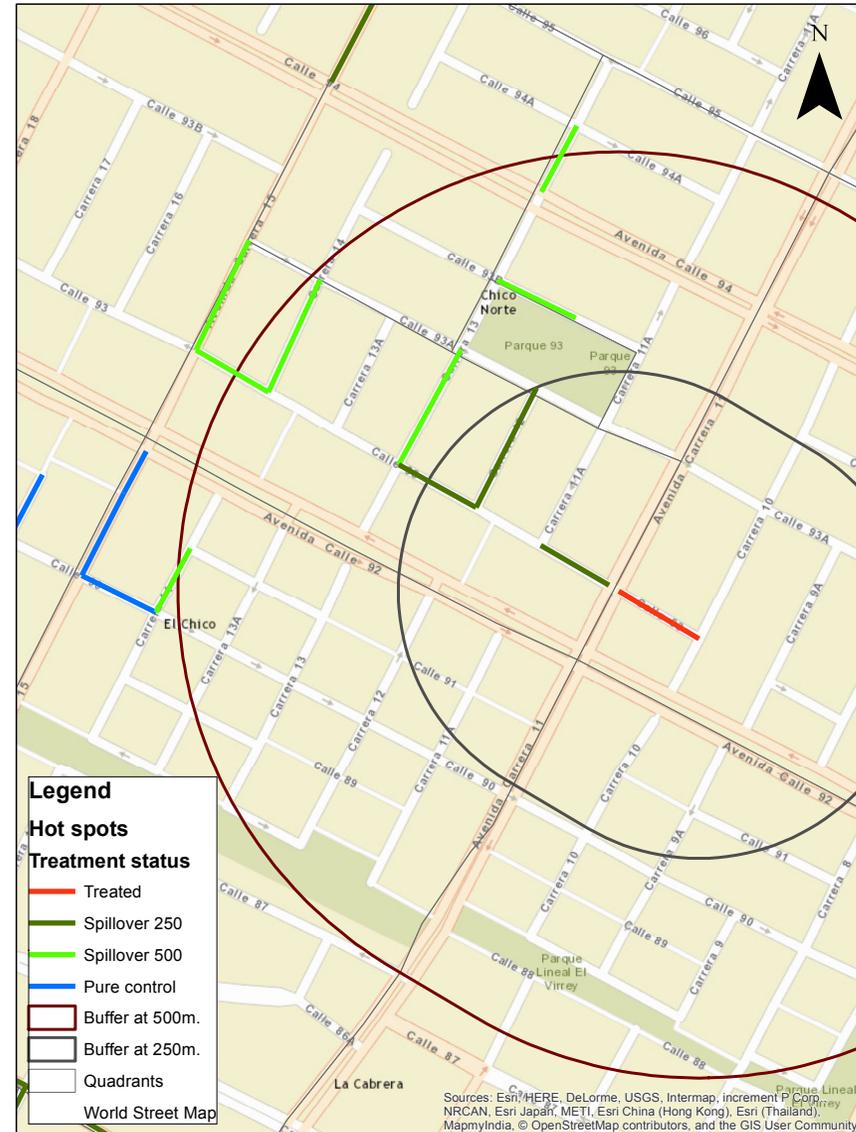
Realized spillover effects for previous studies, minimum detectable effects for the Bogotá experiment

But increasing sample size brings another complication

- No longer possible to isolate treatment units to avoid contamination

- In the presence of displacement, direct treatment effects are overestimated

- Solution is to follow a design based approach

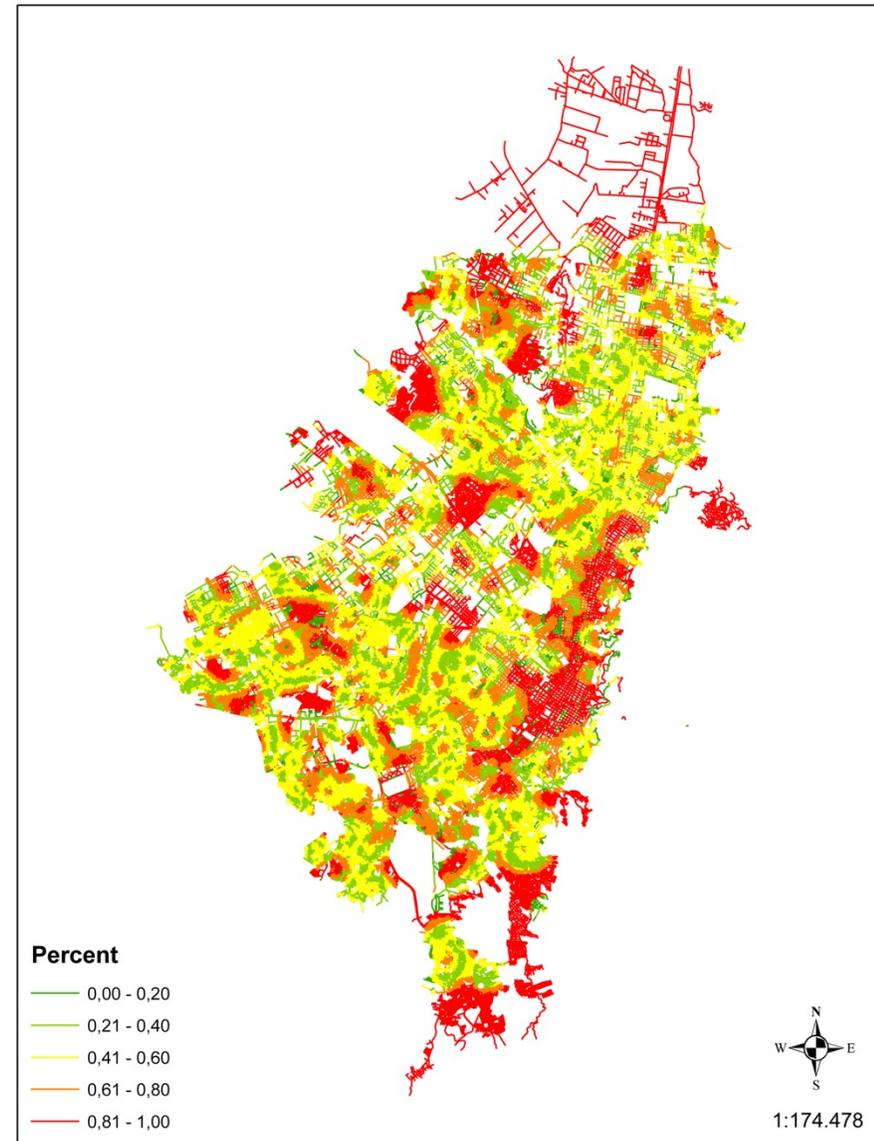Illustration from the Bogotá hot spots experiment

Legend

Hot spots
Treatment status

— Treated
— Spillover 250
— Spillover 500
— Pure control
⬭ Buffer at 500m.
○ Buffer at 250m.
☐ Quadrants
World Street Map

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp, NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Then comes yet another complication: "Fuzzy clustering"
(Abadie et al. 2016)

- Spillover streets cluster together in most randomizations because of spatial distribution of crime
  - In most randomizations, streets that are close have a high chance of being in the same condition
  - No easy-to-model unit of analysis

- If not accounted for:
  - You overestimate precision of both direct and spillover effects

P(segments within 500m have the same treatment assignment as you)
Bogotá hot spots experiment

Percent
— 0,00 - 0,20
— 0,21 - 0,40
— 0,41 - 0,60
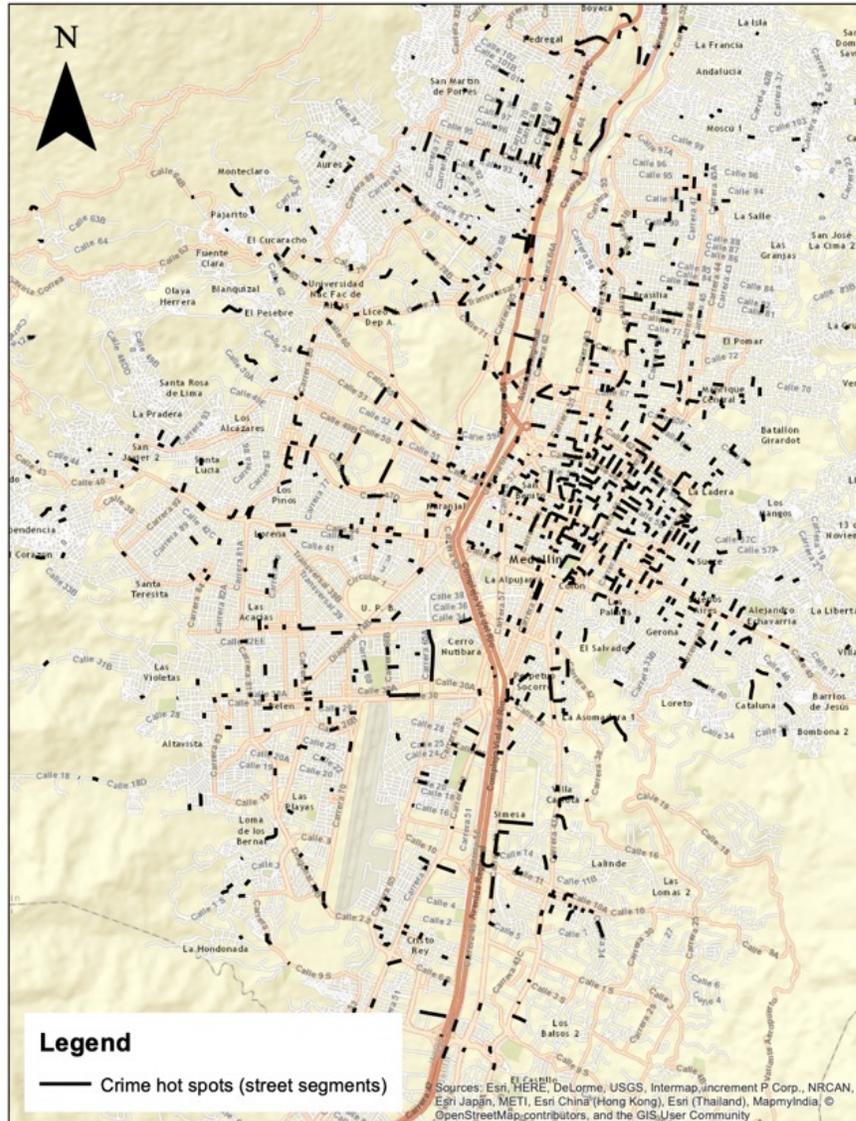— 0,61 - 0,80
— 0,81 - 1,00

1:174.478

Two experiments to evaluate hot spots policing in Colombia, at a large scale

- In Bogotá:
  - 2% of 137,000 streets accounted for all murders and 25% of all crimes between 2012 and 15
  - Those streets accounted only for 10% of total patrolling time

- In Medellín:
  - 3% of 37,000 streets accounted for all murders and 50% of all crimes between 2012 and 14
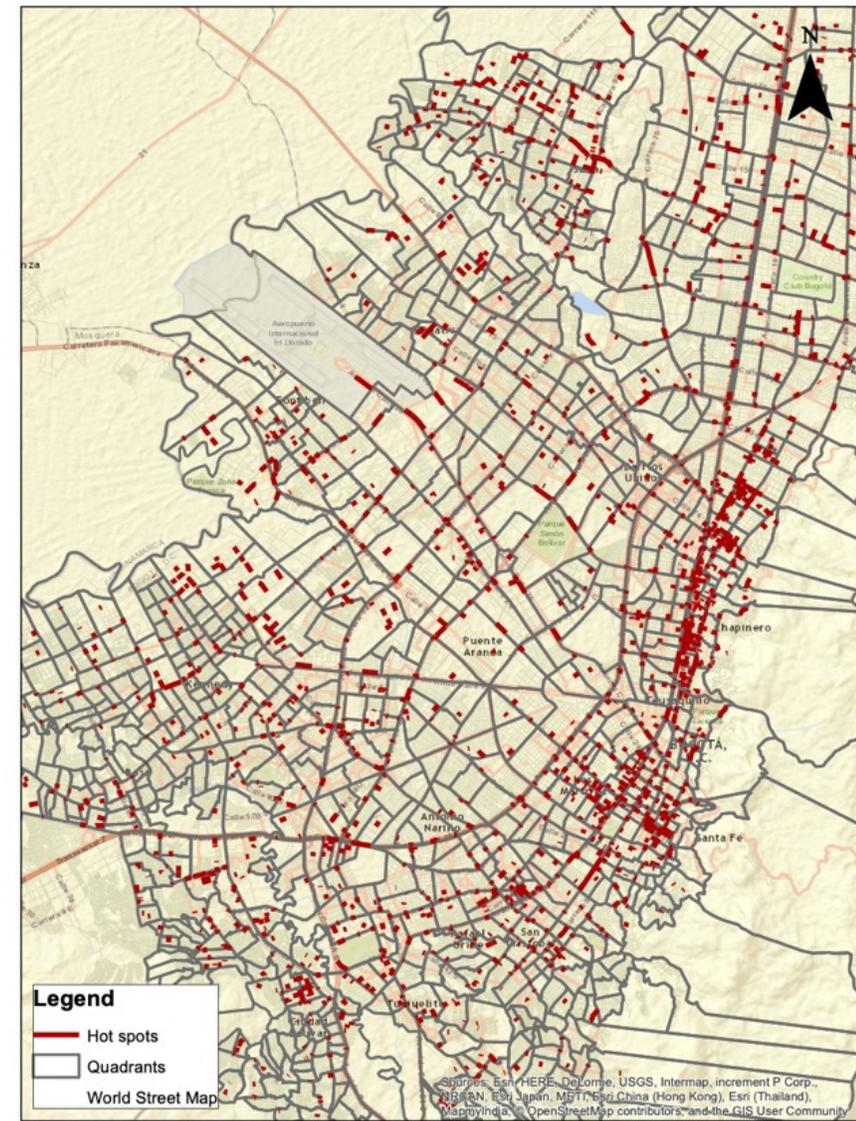 - Those streets accounted for only 9% of total patrolling time

The Medellín intervention 2015:
Hot spots policing
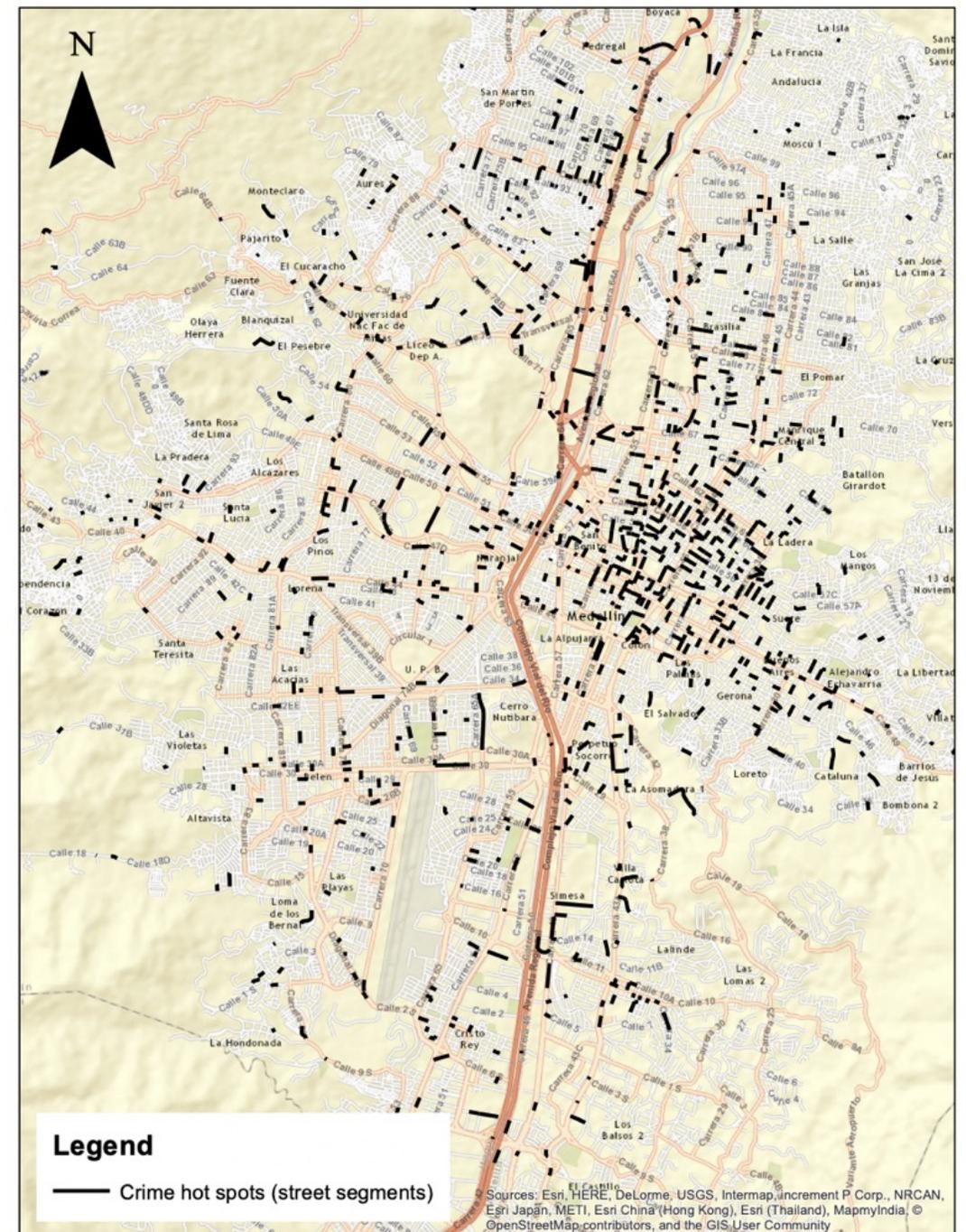(Collazos, García, Mejía, Ortega & Tobón, 2021)

The Bogotá intervention 2016:
Hot spots policing + municipal services
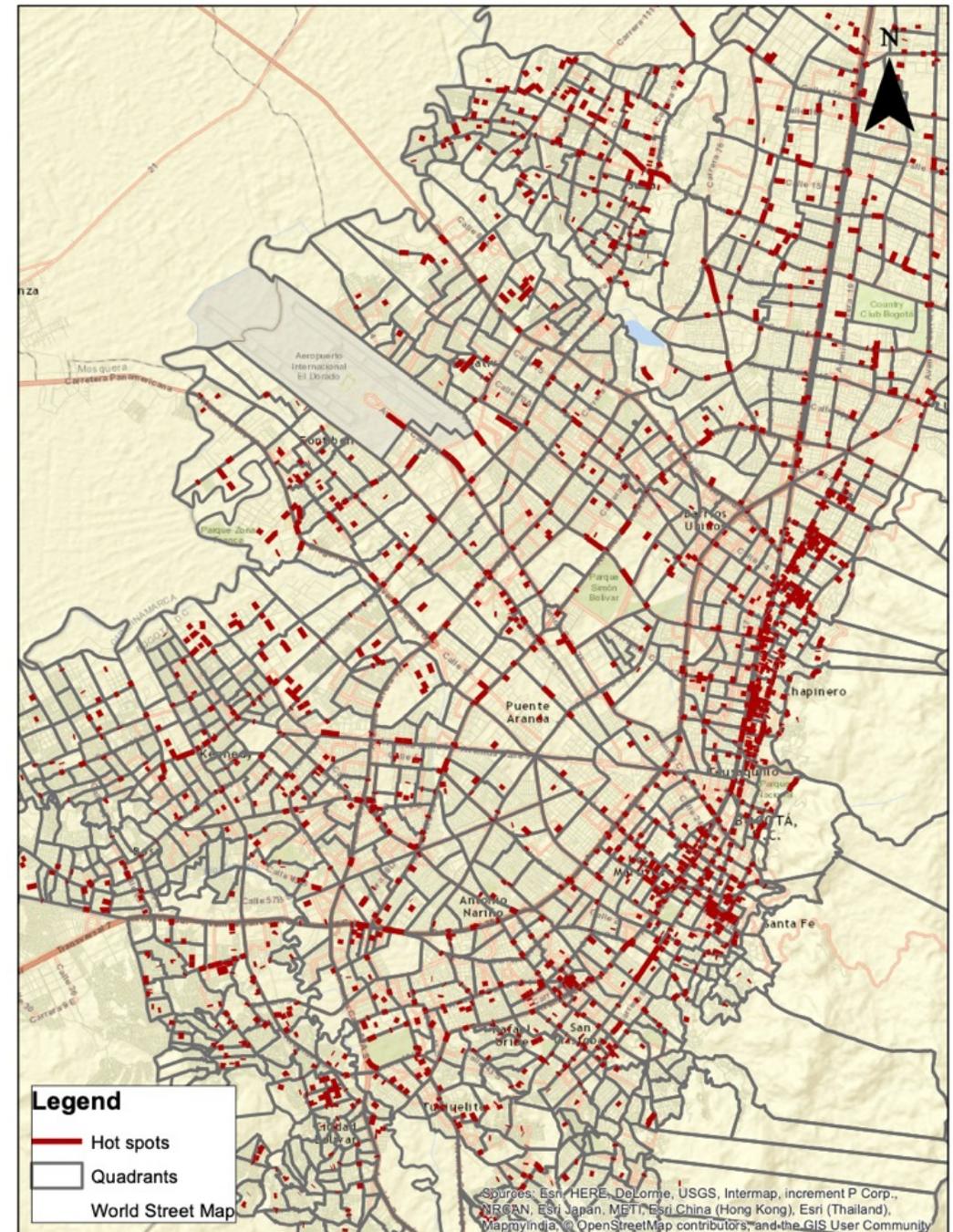(Blattman, Green, Ortega & Tobón, 2021)

Results from the Medellín intervention

- We see a reduction in car thefts of about 56%
  - But no direct effects on other crimes

- We find no evidence of crime displacement
  - Rather, we see a decrease in car thefts in nearby hot spots

- We estimate that car thefts decreased citywide by about 11%

- No effect on trust and legitimacy outcomes
  - Likely need more time to be observed

Legend

—— Crime hot spots (street segments)

Sources: Esri, HERE, DeLorme, USGS, Intermap, increment P Corp., NRCAN, Esri Japan, METI, Esri China (Hong Kong), Esri (Thailand), MapmyIndia, © OpenStreetMap contributors, and the GIS User Community

Results from the Bogotá interventions

- Intensifying state presence in Bogotá had modest but imprecise direct effects (~13%)
  - Both treatments simultaneously led to a decrease of about 57%

- We find that crime displaced nearby, especially property crimes

- Overall, we can rule out total reductions in crime of more than 2–3%
  - But evidence suggests that homicides and rapes decreased 5% citywide

- No effect on trust and legitimacy outcomes

How can we reconcile the findings from Bogotá and Medellín?

Local crime patters and context	Probable effects of hot spots policing	For example...
Crimes do not have a sustained motive (not instrumental)	Crime decreases and not expected to displace	Homicides in Bogotá
Crimes have a sustained motive and criminal rents are highly concentrated	Crime decreases and not expected to displace	Car theft in Medellín
Crimes have a sustained motive and criminal rents are not concentrated	Crime decreases in treated places but moves around the corner	Property crimes in Bogotá

And also…

- Police capability was constant across both our studies

- But it differs from context to context:
    - Compliance with instructions
    - Overall skills
    - Corruption and accountability
    - Interaction with other parts of the criminal justice system

A few takeaways…

- There is a vast diversity of policing styles and practices across contexts

- Also, there is a huge range of security issues across contexts

- Hence, we should recognize that the solution has to fit the problem
  - This implies limitations on transferring policies from one context to another