Red Light, Green Light: The Emergent Geography of Crime

Abigail B. Brown and Omar Wasow
Question

• Why is crime unevenly distributed?
Theories

- Sorting effects
- Peer effects
- State effects
- Ecological effects
- Feedback effects
Objective: Maximize current wage
Initial Setup: People

- Civilians
  - honesty productivity
  - criminal productivity
- Cops
  - policing productivity
Initial Setup: Places

• Neighborhood
• Honest wages
• Criminal wages
• Placement of people
• Civilians randomly scattered
• Police placed in a lattice
Order of Play

- Calculate wages
- Choose work
- Choose whether to move
Rules

- Calculate wages (honest, criminal)
- peer effect * policing effect * individual effect * baseline wage
- Choose work
- Max (honest wage, criminal wage)
Rules

- Move
  - Pick patch randomly
  - Calculate new neighborhood wages
  - Choose neighborhood with max wage
Rules

• Neighborhood honest wage
  
  base wage \times (1 + \text{police effect}) \times (1 - \% \text{criminal})

• Neighborhood criminal wage
  
  base wage \times (1 - \text{police effect}) \times (1 + \% \text{criminal})
Results

- Neighborhoods specialize
- Peer and police effects overwhelm personal character
Results

- Scenarios:
  - Crash of civilization
  - “Green zone”
  - Checkerboard
  - Red light district
  - Utopia
Conclusions

• Model supports interaction of effects