Volunteering to Be Taxed:

Business Improvement Districts and
the Extra-Governmental Provision of Public Safety

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Urban Areas Have Problems

- Urban areas have high crime − from 1993 to 1998, urban areas had almost 40% more crime than suburban areas

- The federal government spends a lot of money on these problems, but receives mixed or poor reviews

  - $\sim$ $5 billion per year on the Community Development Block Grant Program

  - $720 million in 2002 on Bill Clinton's COPS program put police officers on the street

- Are there better local solutions?

Research Question

- Can Business Improvement Districts reduce crime?

- Neighborhood property owners decide on borders, expenditures and the form of taxation

- If a majority of assessment-weighted votes are cast in favor, all commercial property owners in the district are compelled to pay the tax

- BIDs are small, both in terms of space and spending - can they do what federal and city programs cannot?

The Problem of Centralized Provision of Public Goods

- When the city resolves the free rider problem, it is usually legally and politically constrained to provide a uniform level of service city-wide

- This creates a market failure in neighborhoods that would like more of the public good

- In a heterogeneous city, some neighborhoods will be dissatisfied with the municipally-provided level of public goods

- Does this group have any recourse? And does it matter?

BIDs are One Method for Resolving Collective Action Problems

- There is a market failure at the local level, due to the free rider problem

- How can this market failure be resolved?
  - Build a mall
  - Use the power of eminent domain to lower the number of property owners
  - Use voluntary providers such as chambers of commerce
  - The Business Improvement District, which add to the municipally provided level of public goods

- BIDs are small in size and expenditure – are they too local to be meaningful?

Data

- Crime data: LAPD neighborhood data, 1990-2002

- BID data: Los Angeles city BIDs, 1994-2002

Estimating BIDs' Effect

- Must be able to address non-random assignment of BIDs

- Fixed effects

- To further control for endogenous adoption I use matching

  - Compare with Almost BIDs

  - Propensity score matching

  - Geographic matching

BIDs Cause Crime Decline

- BIDs are associated with a 5 to 9 percent crime decline across estimation strategies

- This crime decline is purchased very cheaply − $3,000 per averted crime, compared to the $35,000 social cost of a violent crime

- Decline cannot be attributed to wholesale capture of municipal services

- Decline not explained by shifting crime patterns

Plan

- BID background

- Data

- Estimation Motivation

- Estimation

  – Fixed effects strategy & results

  – Buttressing matching estimation strategies & results

  – Consider the efficiency of provision

- Validate estimation strategies

- Examine BIDs' impact on police enforcement levels

BID Structure

- Property owners in a neighborhood vote to assess themselves extra taxes, which are used to fund neighborhood improvements

- Each district sets its own taxation rules (frontage sq ft, building sq ft), and the shape and size of the district

- Once passed by an assessment-weighted majority, taxes are mandatory, and properties cannot be strangely carved out

- Predominant services are security, cleaning and marketing

BIDs in California

- 1943, first BID law

- 1989, modern merchant BID law

- 1994, first law allowing taxation of properties, not just merchants

- 1995, city of Los Angeles has first BID – key to later identification

HOLLYWOOD ENTERTAINMENT DISTRICT

BUSINESS IMPROVEMENT DISTRICT
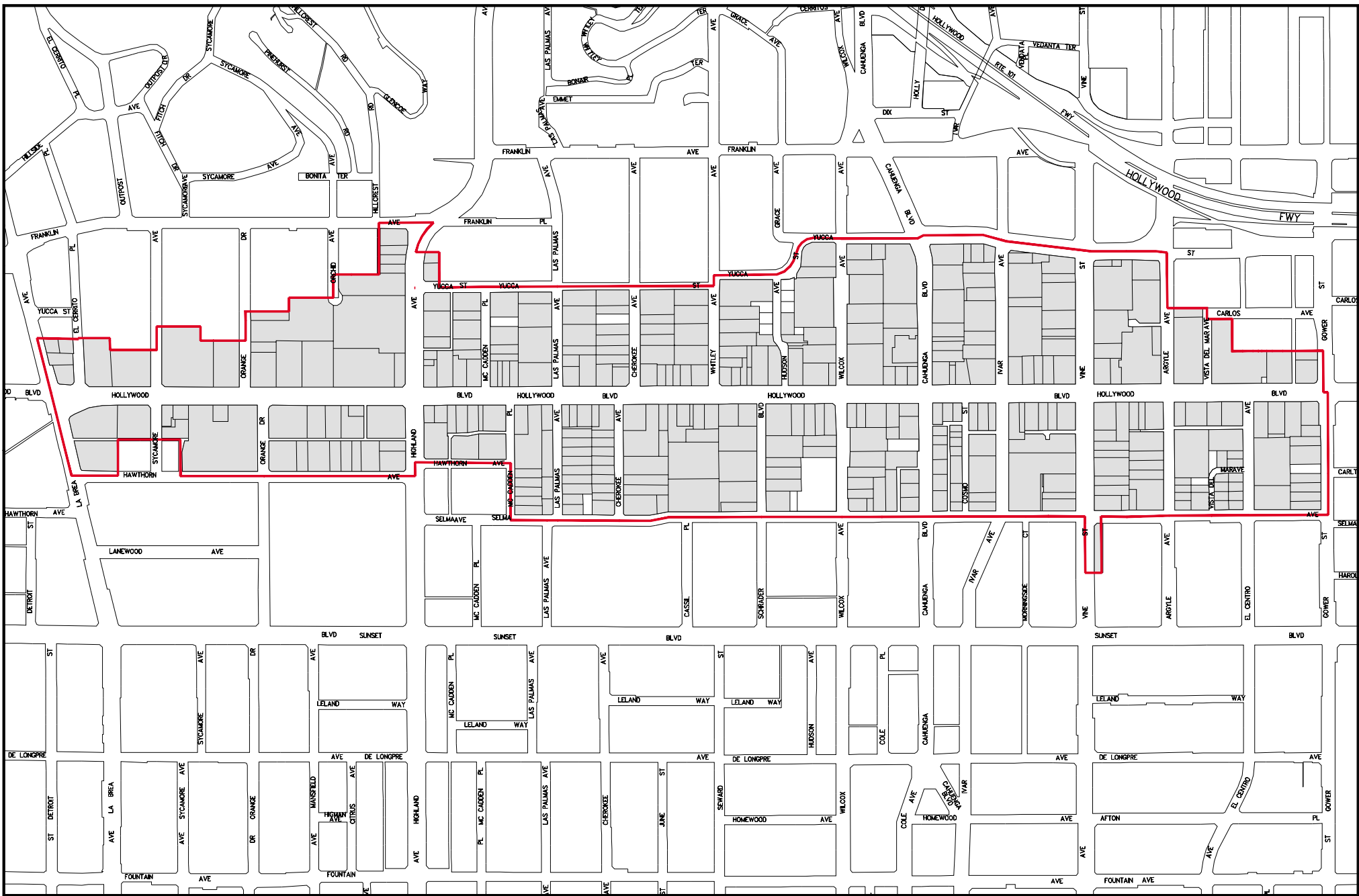
Legend:
- B.I.D. PROPERTIES (PROPERTY BASED)
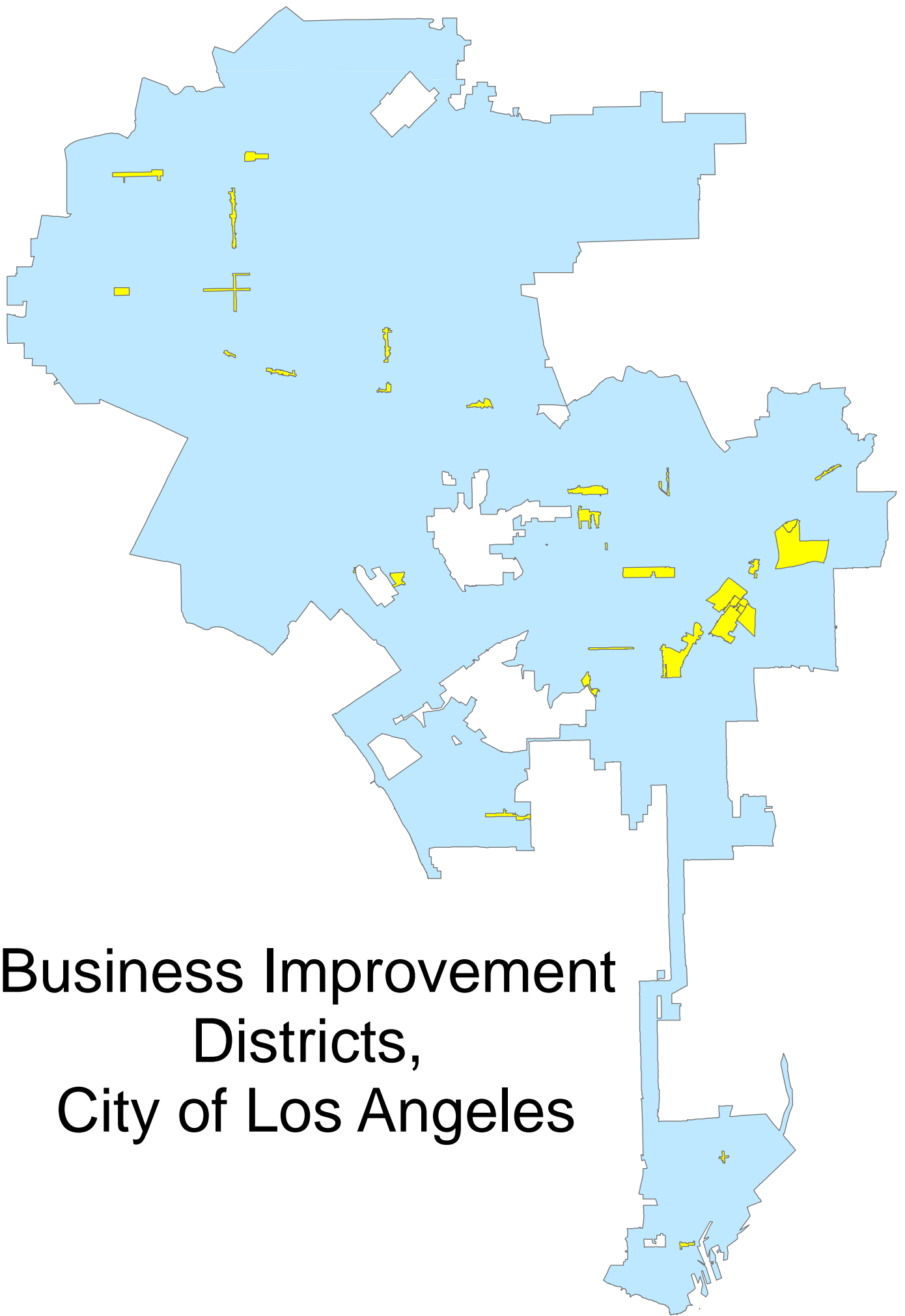- B.I.D. BOUNDARY

Ordinance 174250
Council File 00-1375

Mapped By: DEPARTMENT OF CITY PLANNING – GIS DIVISION

Not To Scale

hollentsm.aml   July 2003

Business Improvement
Districts,
City of Los Angeles

How Much Do BIDs Spend?

- Average budget of the 30 BIDs is $630,000

- Of the 19 BIDs with positive security expenditures, average security expenditures are $340,000

- Downtown Center BID spends $1 million per sq km and increases the LAPD per square km expenditure on patrols by 25%

- Hollywood Entertainment BID spends $1.4 million per sq km and doubles LAPD expenditure

- Average size is less than 3/4 squared kilometer

Data: Measuring Crime and Neighborhoods

- BIDs: borders, adoption timing, and expenditures collected by me, from city council files and interviews

- Crime: LAPD provided 21 types of crimes and 27 types of arrests by reporting district (tract or smaller) from 1990-2002

- A geographically consistent series of 1009 neighborhoods over 13 years

- Properties: parcel-level data with commercial or residential designation and the year each structure was built
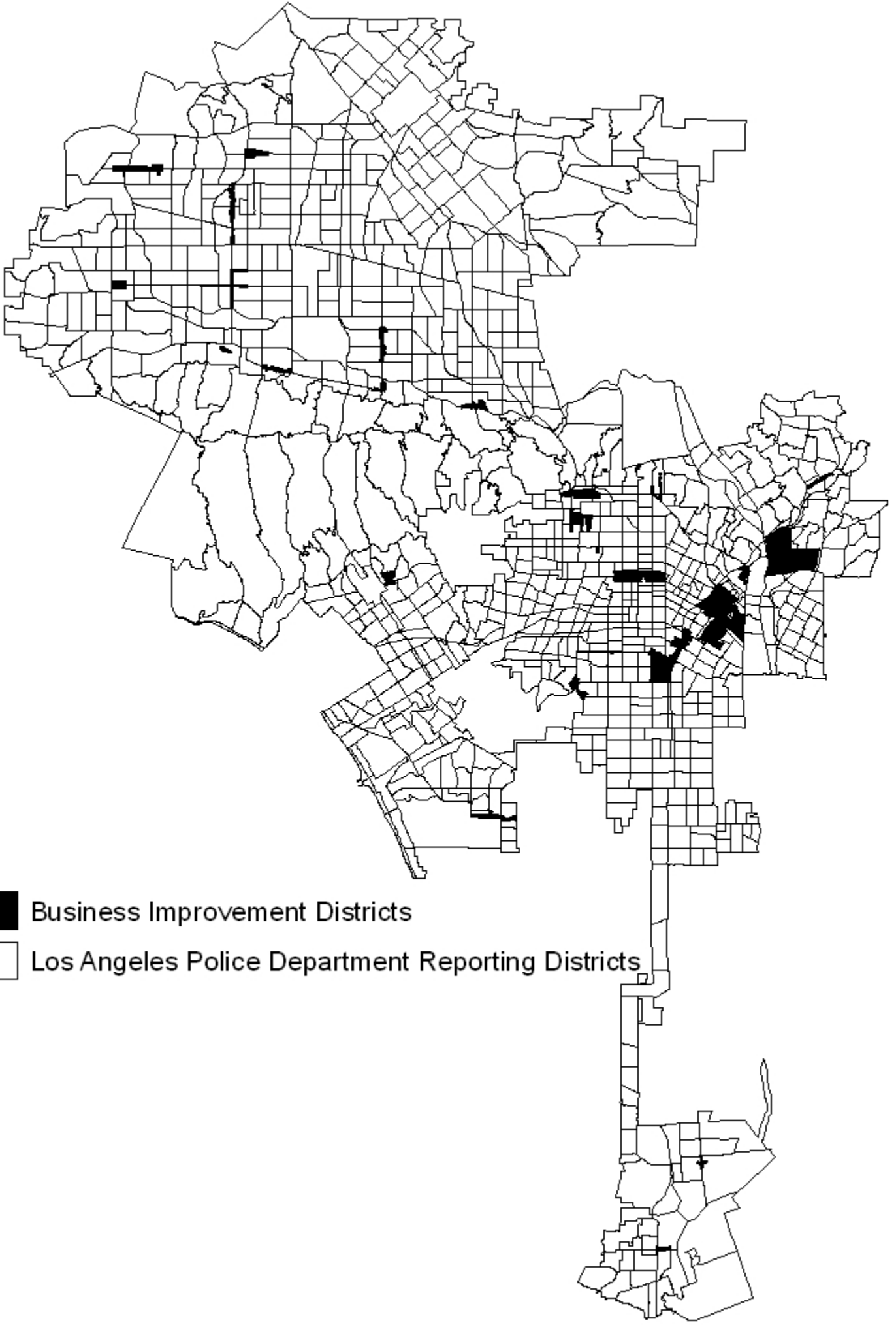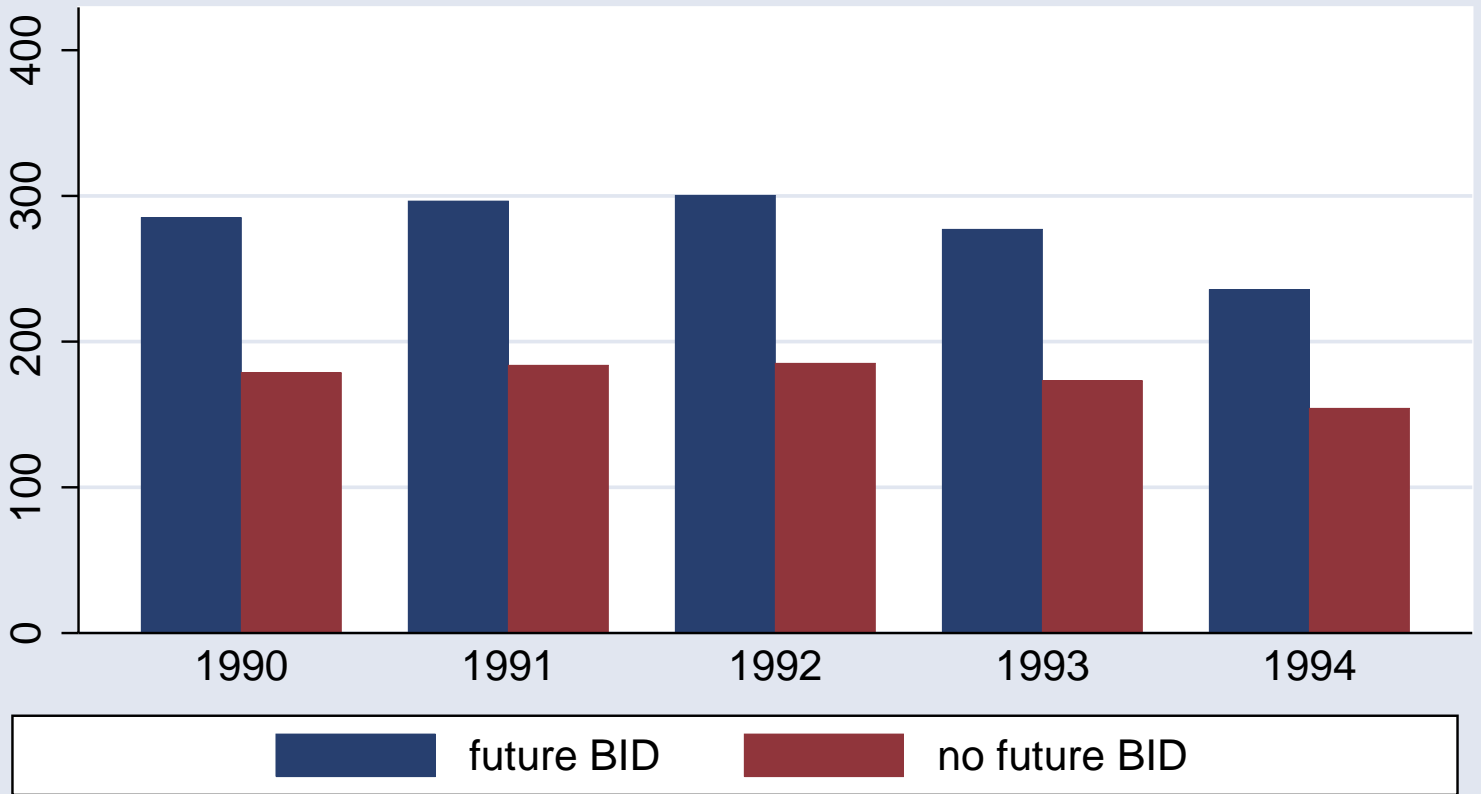
Business Improvement Districts

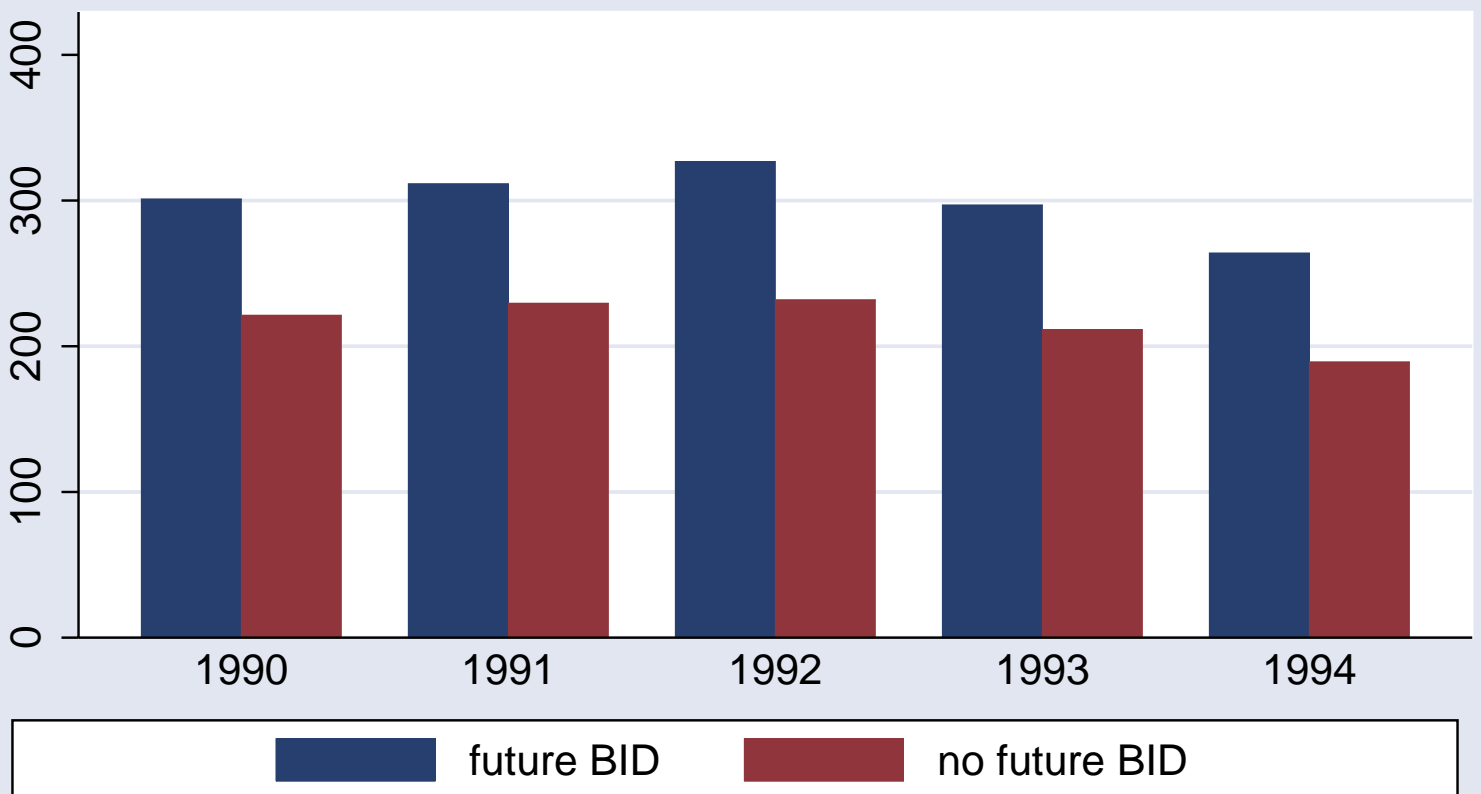Los Angeles Police Department Reporting Districts

Crime Facts

- Crime declined greatly in the 1990s, and has leveled off in the current decade

- For a good comparison, BIDs and non-BIDs should have similar pre-BID-law trends

- Trends are not the same at the city level

- But trends are insignificantly different at the LAPD area level

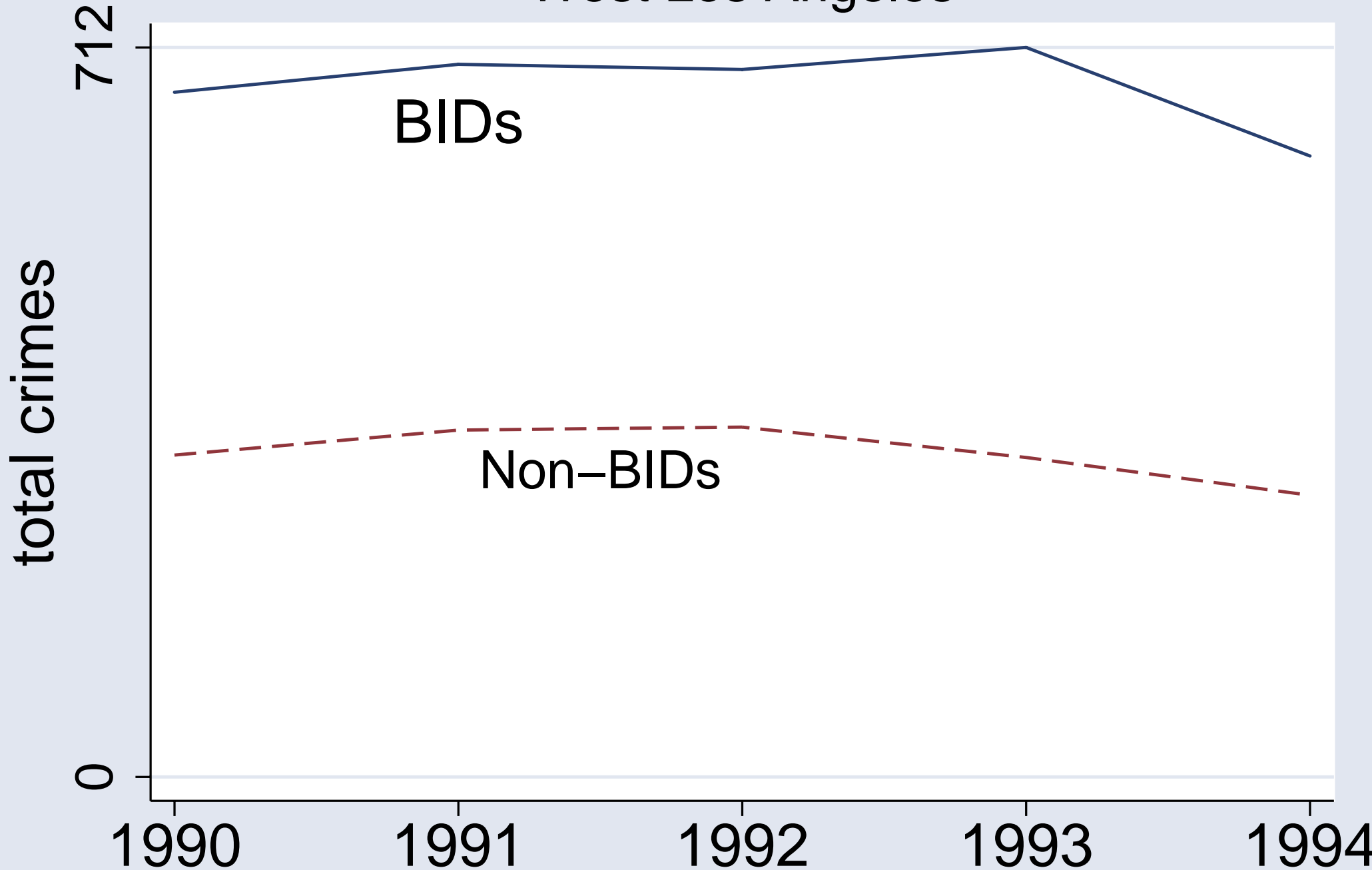# Crime Levels in BIDs are High

Serious Crime

Less Serious Crime

DEVONSHIRE

FOOTHILL

WEST VALLEY

VAN NUYS

NORTH HOLLYWOOD

HOLLYWOOD

NORTHEAST

HOLLENBECK

WEST LOS ANGELES

WILSHIRE

RAMPART

CENTRAL

SOUTHWEST

NEWTON STREET

PACIFIC

77TH STREET

SOUTHEAST

LAPD Areas

HARBOR

Trends Are Similar at the Area Level
West Los Angeles

712

total crimes

BIDs

Non–BIDs

0

1990　1991　1992　1993　1994

Translating This Into An Estimation Framework

- Control for year effects

- Control for trends at the area level

- Control for crime levels

Controlling for Long-Standing Demand Factors

- BIDs adoption is determined by long-standing neighborhood characteristics (Brooks 2004) − why?

- Because there is a fixed cost to making a BID

- And because BIDs are adopted in neighborhoods with persistent problems

  − High levels of crime

  − Built-in collective action problems from age

- Neighborhood level fixed effects are a good start to address the bias in OLS estimates, and BID effect is identified from timing: $BID_i * after_{i,t}$

Fixed Effects: Basic Estimation Framework

- In addition to neighborhood fixed effects, model also includes year effects and area-level trends

$$\text{crime}_{i,a,t} = \beta_0 + \beta_1 \text{BID}_i * \text{after}_{i,t} + \beta_{2,t}\text{year}_t + \\ \beta_{3,i}\text{rd}_i + \beta_{4,a}\text{area trend}_{a,t} + \epsilon_{i,a,t}$$
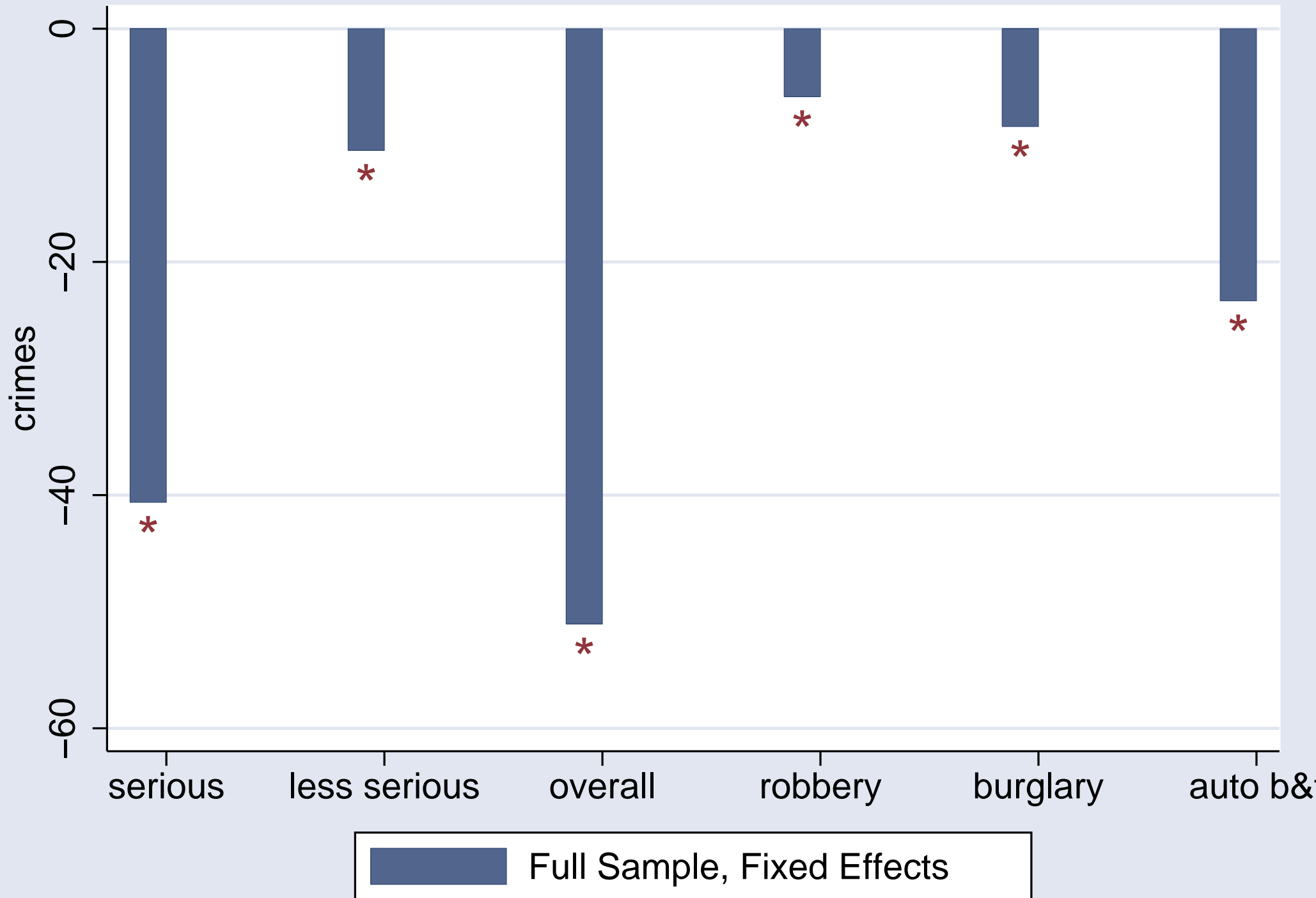
- If BIDs are associated with crime decline, β_1 will be negative
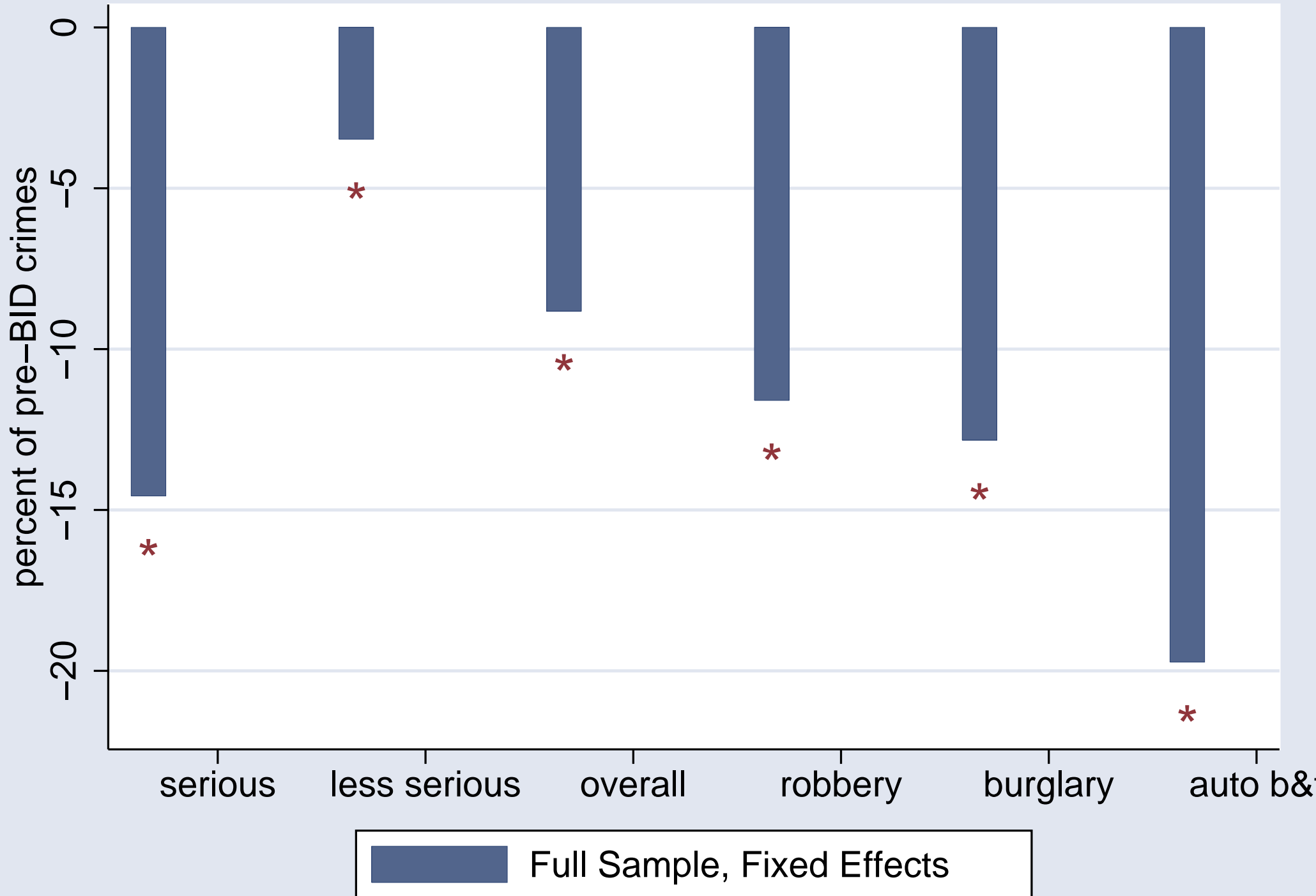
23

Crime Declines After BID Adoption

	totals		
	serious	less serious	overall
$BID_i*after_{i,t}$	-40.62	-10.43	-51.05
	8.01**	5.28*	11.10**
year fixed effects	x	x	x
area level trends	x	x	x
reporting district level FE	x	x	x
Observations	13,117	13,117	13,117
R-squared	0.87	0.91	0.91

	serious crimes		
	robbery	burglary	auto burglary and theft
$BID_i*after_{i,t}$	-5.82	-8.39	-23.34
	1.33**	1.88**	5.14**
year fixed effects	x	x	x
area level trends	x	x	x
reporting district level FE	x	x	x
Observations	13,117	13,117	13,117
R-squared	0.85	0.79	0.80

Fixed Effects Show Crime Decline

Bar chart with y-axis labeled "crimes" ranging from -60 to 0. Categories along the x-axis: serious, less serious, overall, robbery, burglary, auto b&t. Each bar has a red asterisk (*) marker. Legend: Full Sample, Fixed Effects.

Fixed Effects Show Crime Decline

Bar chart with y-axis labeled "percent of pre–BID crimes" ranging from 0 to -20, and x-axis categories: serious, less serious, overall, robbery, burglary, auto b&t. Legend: Full Sample, Fixed Effects.

How Big are These Results?

- BIDs account for an additional 25% of the overall drop in violent crime (40%) over the 1990s (Levitt 2003)

- Roughly the same size as a Minneapolis experiment (6% to 13% decreases) that increased police attention to hot spots (Sherman and Weisburd 1995)

- In line with targeted gang injunction strategy (Grogger 2002)

Using Matching to Address Further Concerns

1. Correct for time-varying causes of BID consideration: compare with Almost BIDs

2. Evaluate crime declines relative to other high-crime neighborhoods: propensity score matching

3. Control for wider-neighborhood causes of BID adoption: compare BIDs to neighbors

Pre−BID Characteristics of Matched Groups
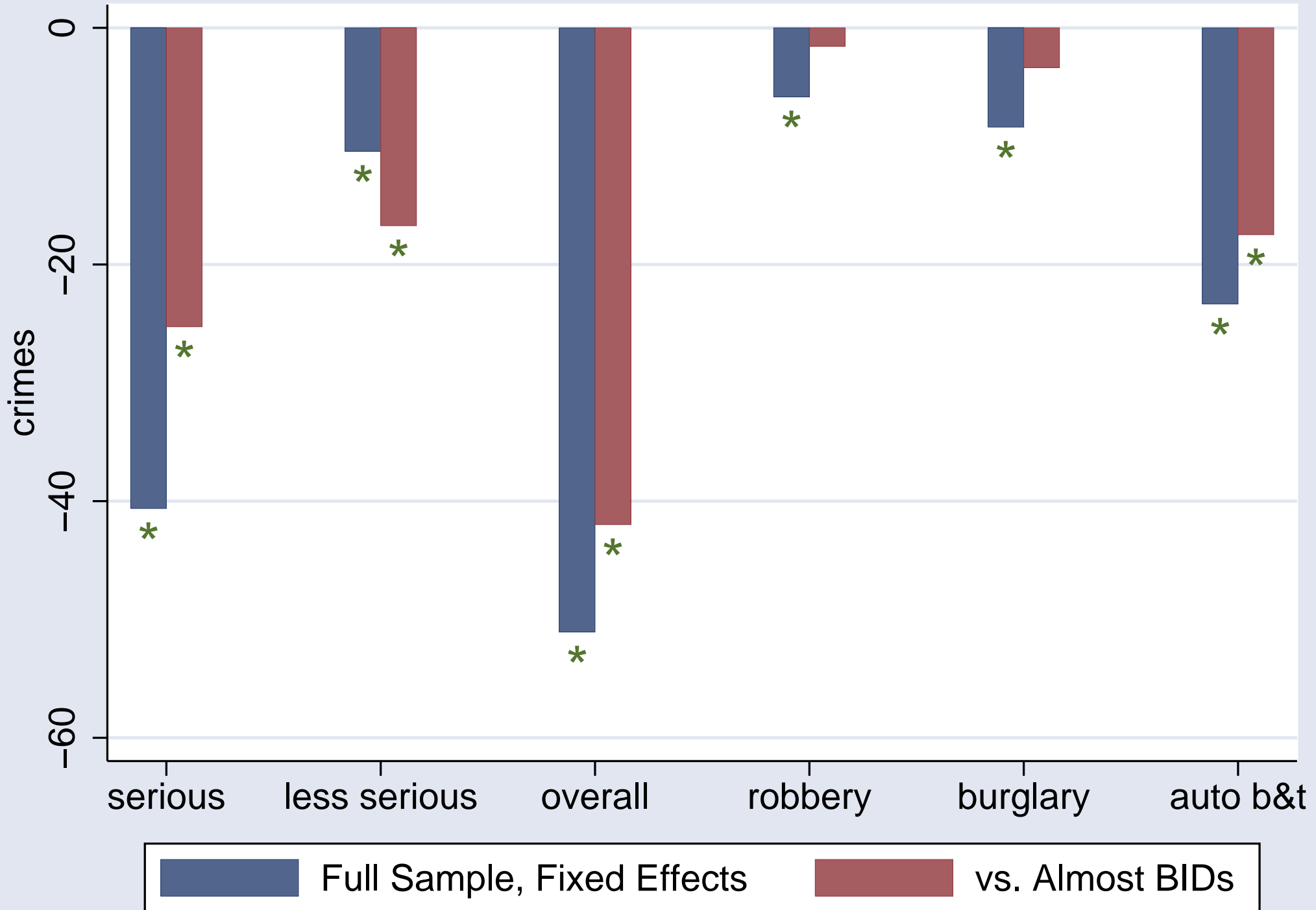
Pre−BID Crime Levels
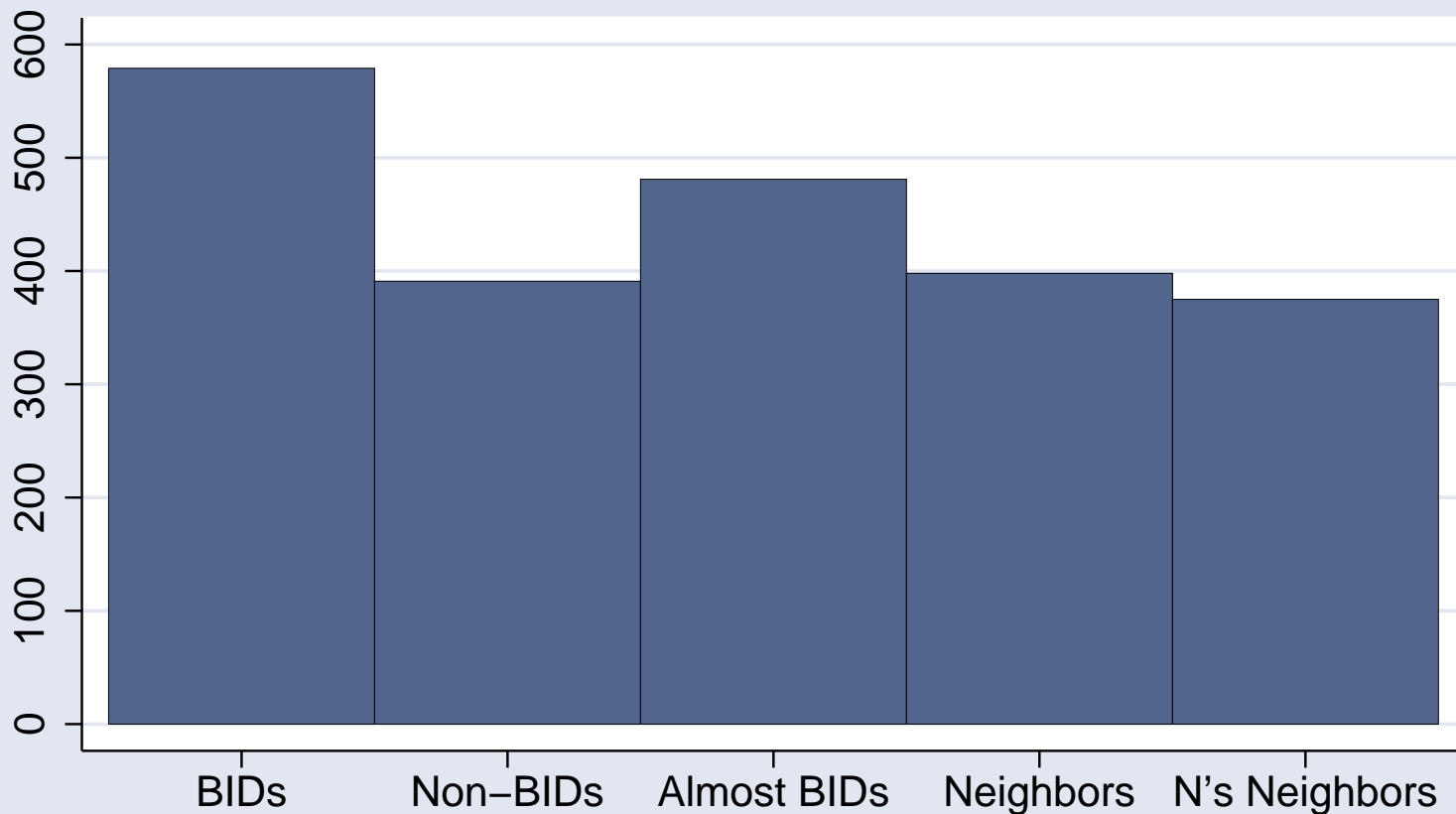
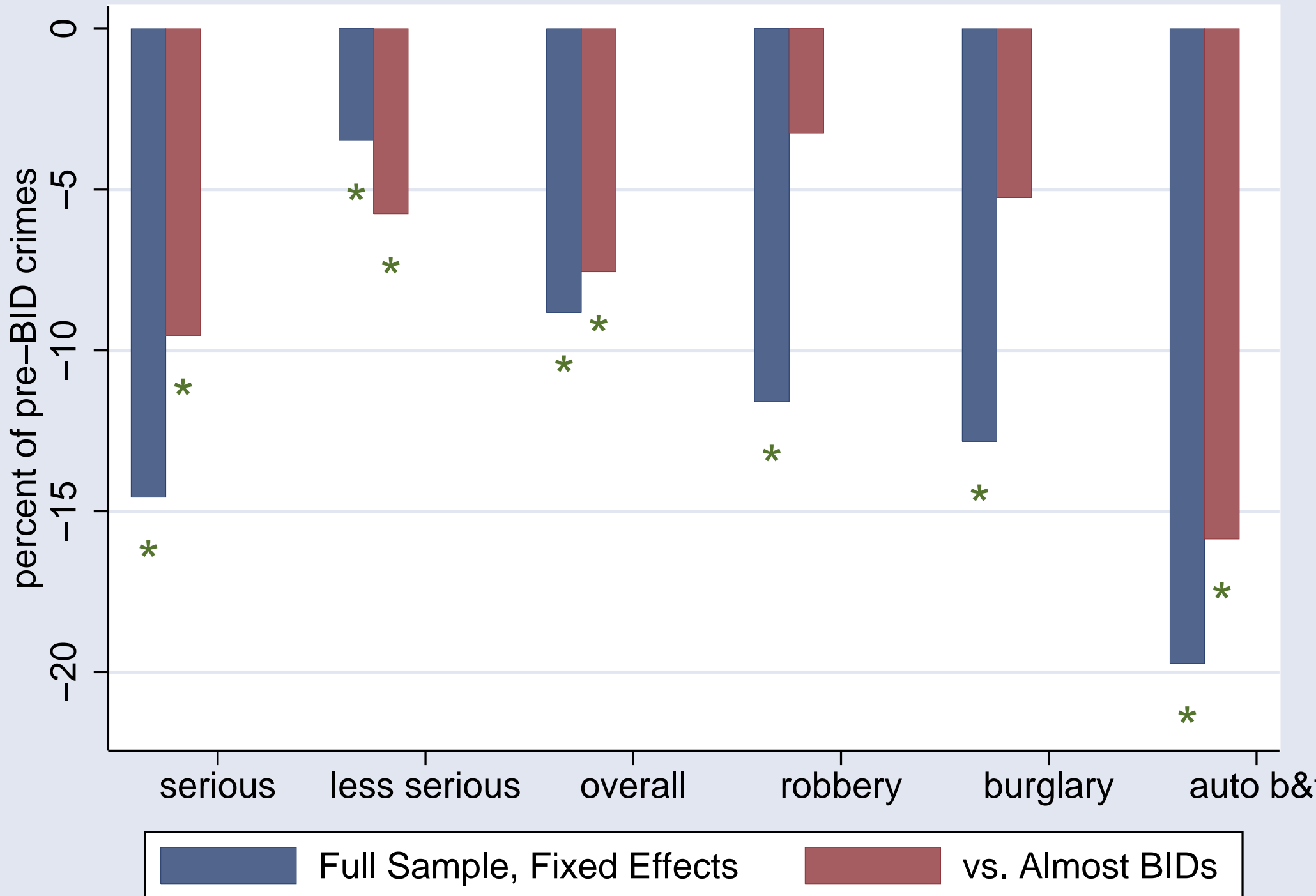## Age of Neighborhood Development
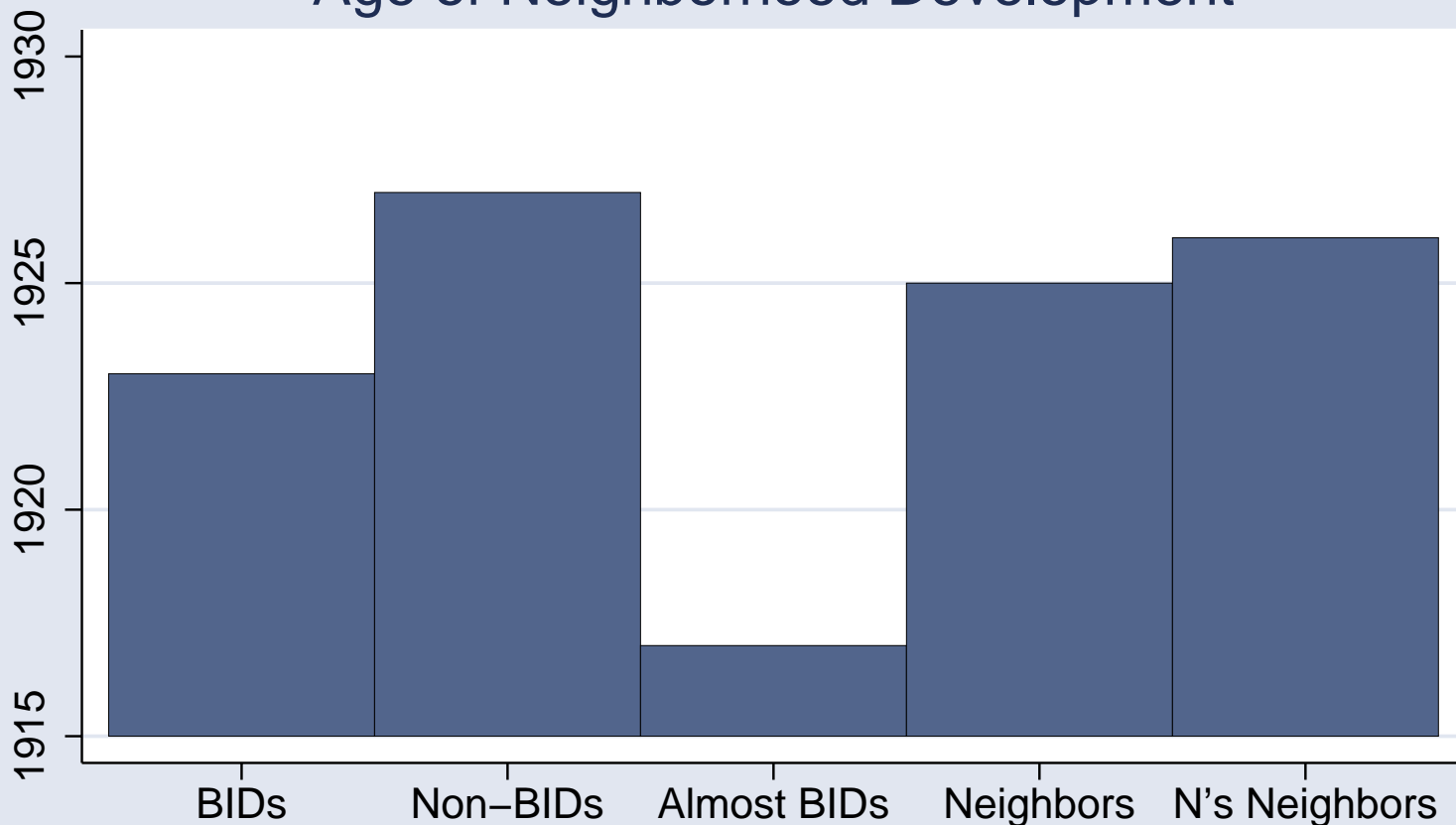
MM1: The Almost BID Strategy

- Control for time-varying causes of BID demand by comparing BIDs with neighborhoods that considered forming BIDs

- Cannot do this by voting record, as no BIDs have lost at the voting stage

- But it is possible to identify 26 neighborhoods that seriously consider BID adoption through their appearance in the public record

- Used records and made phone calls to ascertain borders

- Re-estimate previous equation with this restricted sample

Almost BIDs Results Similar to Fixed Effects

crimes

| | serious | less serious | overall | robbery | burglary | auto b&t |

Full Sample, Fixed Effects   vs. Almost BIDs

Almost BIDs Results Similar to Fixed Effects

percent of pre–BID crimes

Categories (x-axis): serious, less serious, overall, robbery, burglary, auto b&t

Legend:
Full Sample, Fixed Effects
vs. Almost BIDs

MM2: Does BID Crime Decline Relative to Other High Crime Neighborhoods? Use Propensity Score Matching

- Suppose that the marginal cost of crime reduction is cheaper at higher levels of crime − it is easier to reduce crime when there is more of it

- So compare BIDs to similarly high-crime neighborhoods using propensity score matching

- My specification controls for non-linear trends, levels and types of crime pre-BID

- Additionally, add era of neighborhood development to the propensity score

Assembling the Propensity Score

- putting pre-BID crime levels and era of neighborhood development together, propensity score is
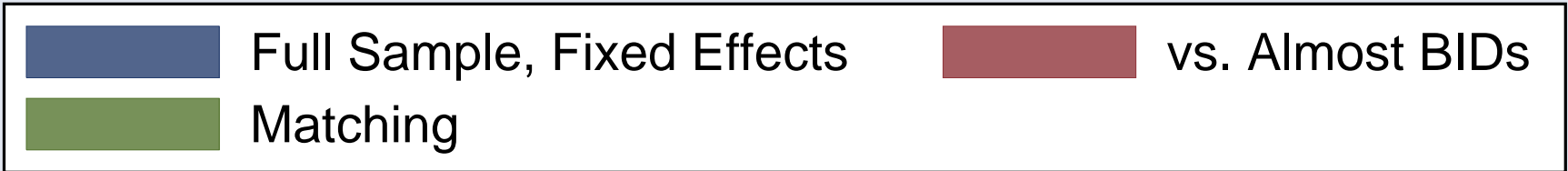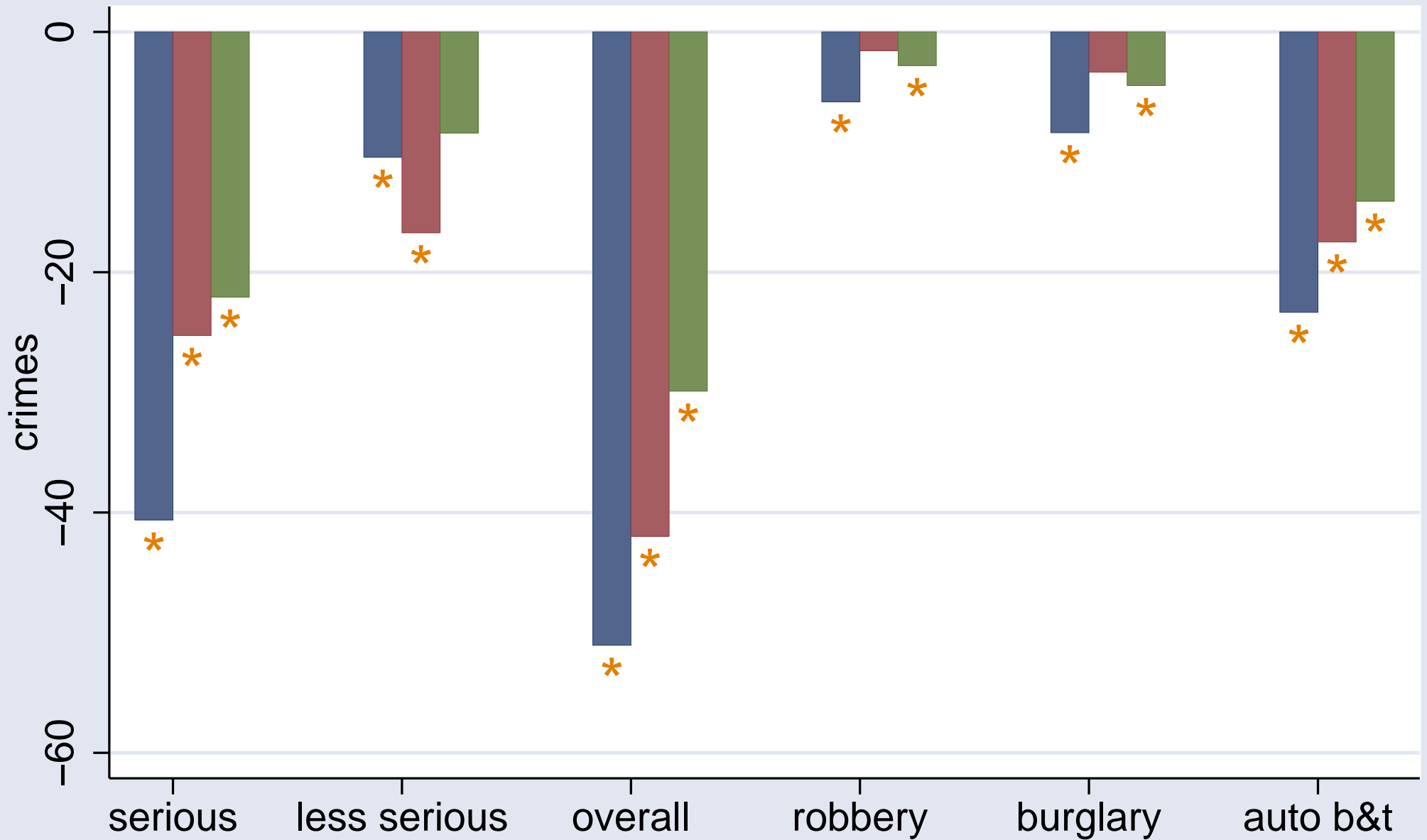
$$\Pr(\text{BID}_i = 1) = f \quad (\text{constant},$$
$$\text{serious crime}_{i,90}, \dots, \text{serious crime}_{i,94},$$
$$\text{less serious crime}_{i,90}, \dots, \text{less serious crime}_{i,94},$$
$$\text{era}_i)$$

- use Imbens' matching (2004) with regression technique, where regression weights are
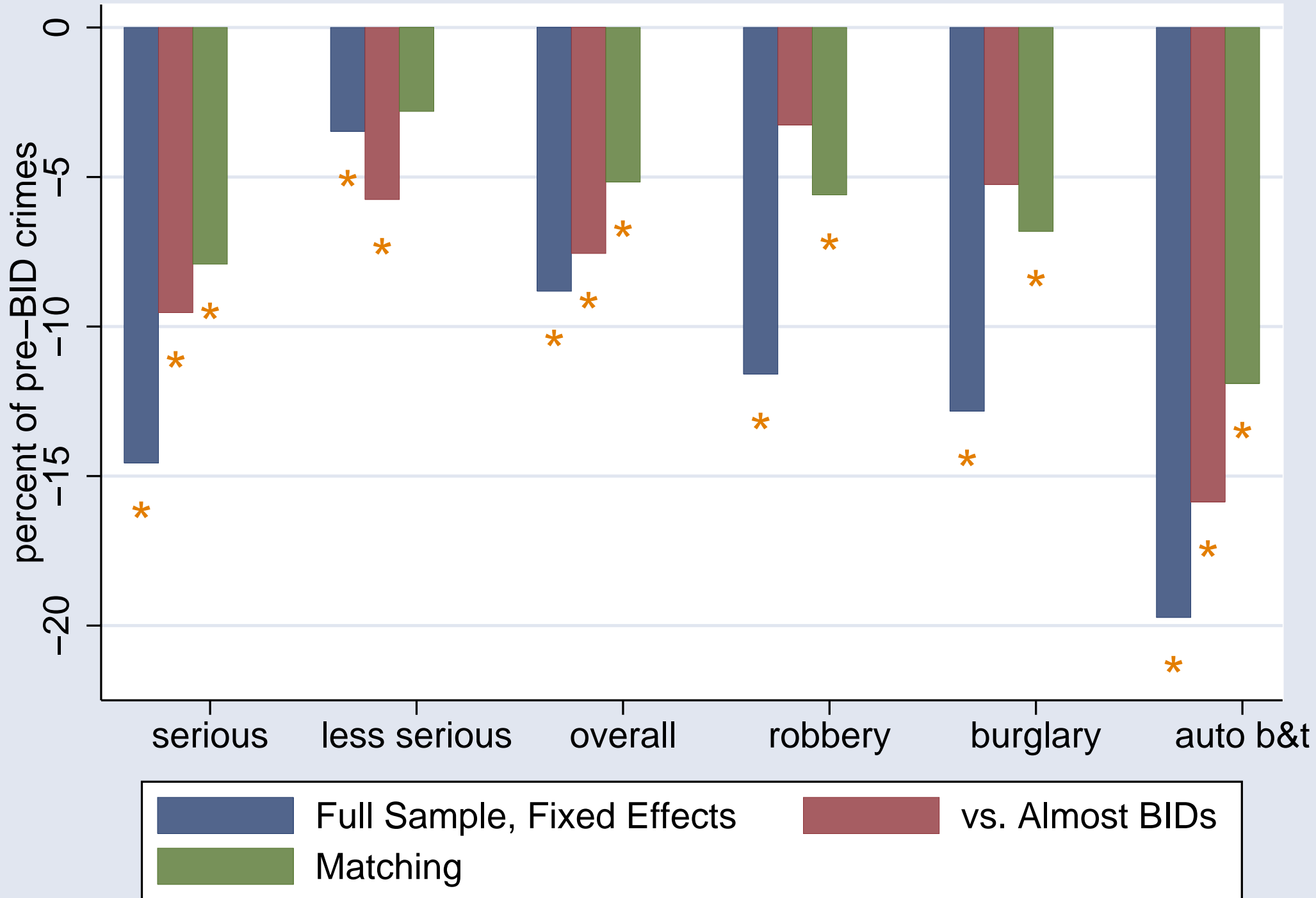
$$\lambda_i = \sqrt{\frac{\text{BID}_i}{e(X_i)} + \frac{1 - \text{BID}_i}{1 - e(X_i)}}$$

- X_i are covariates, and $e(X_i)$ is the propensity score

Relative to High Crime Neighborhoods Crime Declines

Legend:
- Full Sample, Fixed Effects
- vs. Almost BIDs
- Matching

y-axis: crimes

x-axis categories: serious, less serious, overall, robbery, burglary, auto b&t

Relative to High Crime Neighborhoods Crime Declines

y-axis: percent of pre–BID crimes

x-axis categories: serious, less serious, overall, robbery, burglary, auto b&t

*Legend:* Full Sample, Fixed Effects | vs. Almost BIDs | Matching

MM3: Controlling for Wider-Neighborhood Forces

- Assess impact of the BID relative other nearby neighborhoods

- Wider-neighborhood level-constant factors include changing preferences of the city council member, or changes in the quality of the local police administration

- Using a neighbors-only sample can control for these time-varying factors − both location and timing

Neighbors Address Geographic Spillovers

- Suppose that BIDs push crime out of BIDs and into surrounding neighborhoods

- If so, estimates relative to neighbors should be large than those relative to the city as a whole

- Negative spillovers within the reporting district biases results toward zero

- Because BIDs raise the cost of crime, it is unreasonable to believe that they avert crime
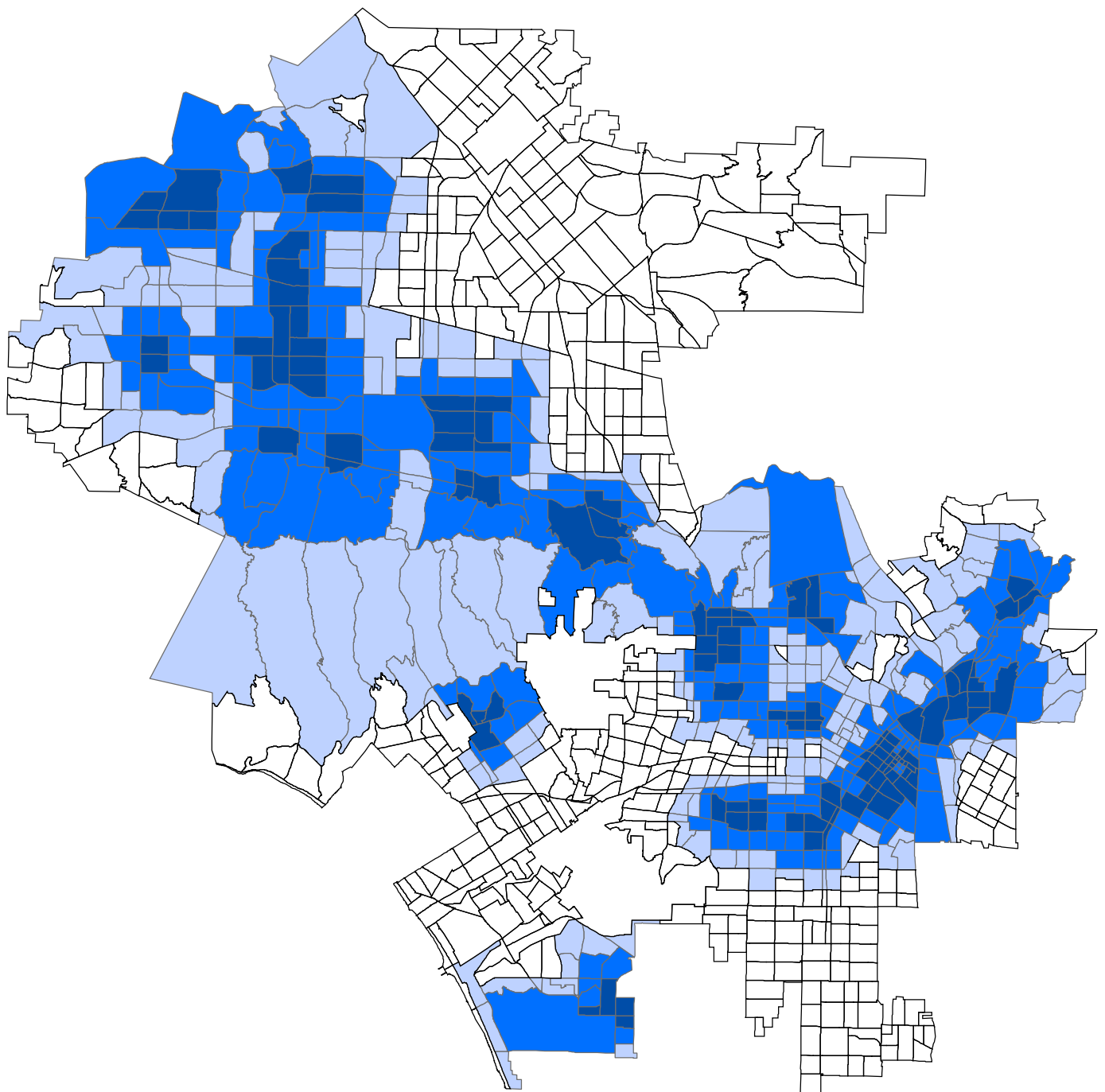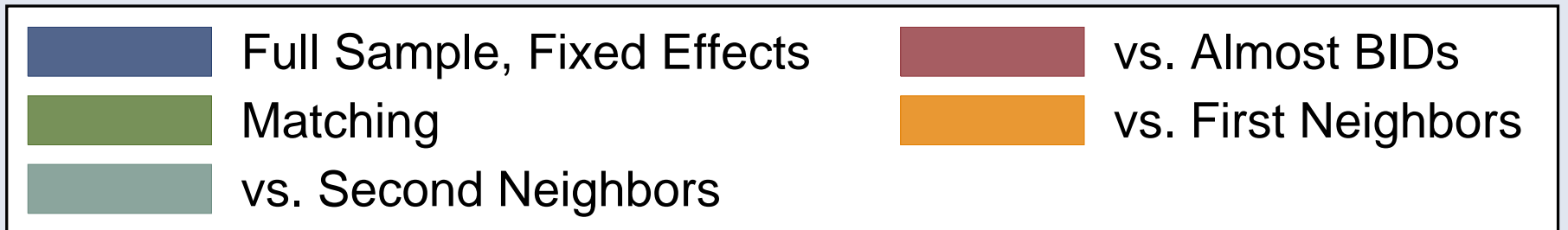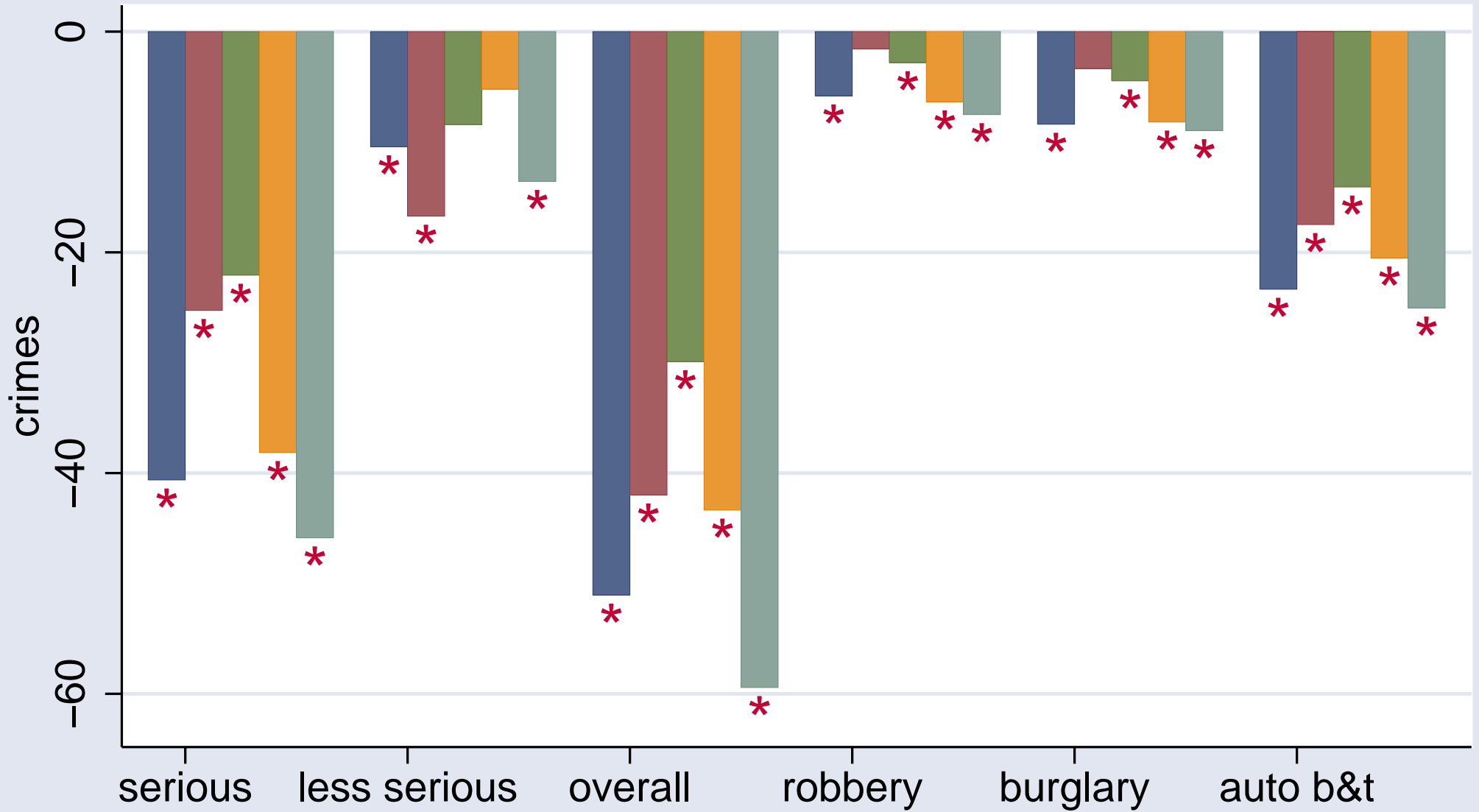
BIDs and Neighbors

Reporting Districts

▢	all others
▨	BID
▨	first neighbor
▨	second neighbor
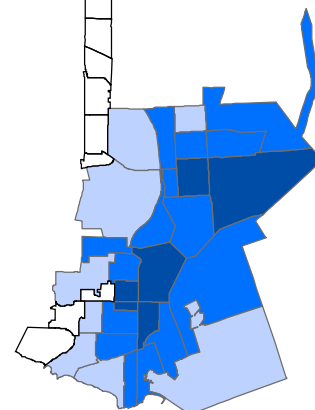
Estimating Framework

- subset to BIDs and first neighbors
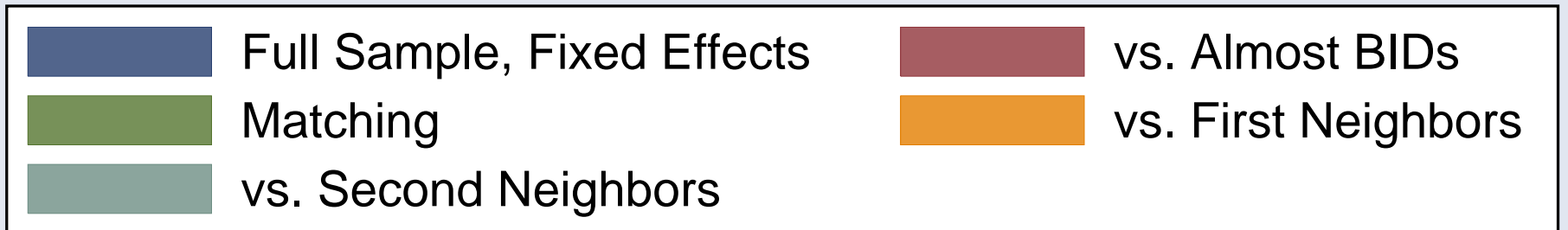
- difference-in-difference estimate is
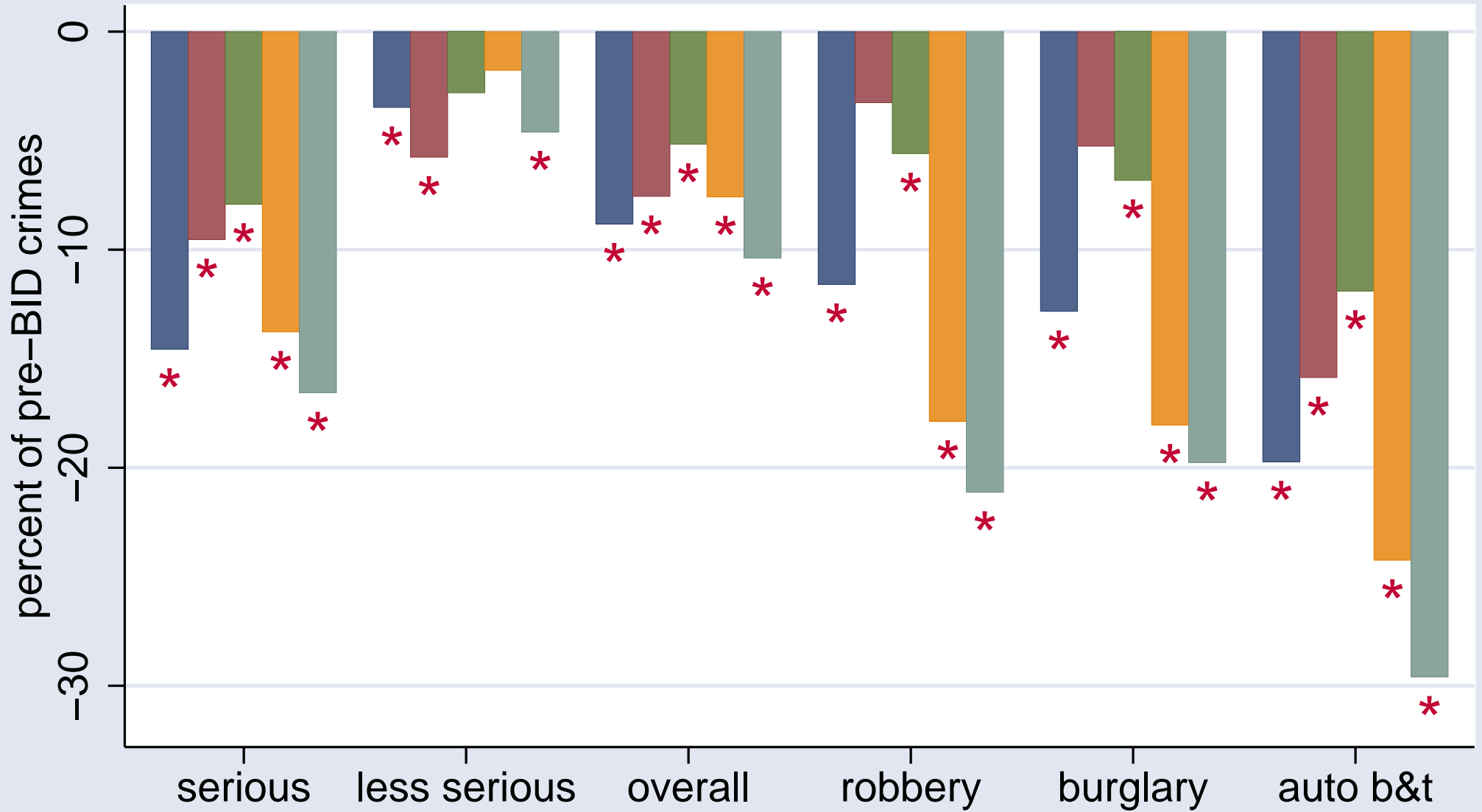
$$\text{crime}_{i,a,t} = \quad \beta_0 + \beta_1 \text{BID}_i * \text{after}_{i,t} + \beta_2 \text{after}_{i,t} + $$
$$\beta_{3,t} \text{year}_t + \beta_{4,i} \text{rd}_i + \beta_{5,a} \text{area trend}_{a,t} + \epsilon_{i,a,t}$$

- $\text{after}_{i,t}$ controls for shocks that simultaneously impact the BID and its neighbors

- again expect $\beta_1 < 0$ if BIDs deliver declines in crime

BIDs Improve Relative to Neighbors

Legend:
- Full Sample, Fixed Effects
- vs. Almost BIDs
- Matching
- vs. First Neighbors
- vs. Second Neighbors

Categories: serious, less serious, overall, robbery, burglary, auto b&t

BIDs Improve Relative to Neighbors

Legend:
- Full Sample, Fixed Effects
- Matching
- vs. Second Neighbors
- vs. Almost BIDs
- vs. First Neighbors

Y-axis: percent of pre–BID crimes

X-axis categories: serious, less serious, overall, robbery, burglary, auto b&t

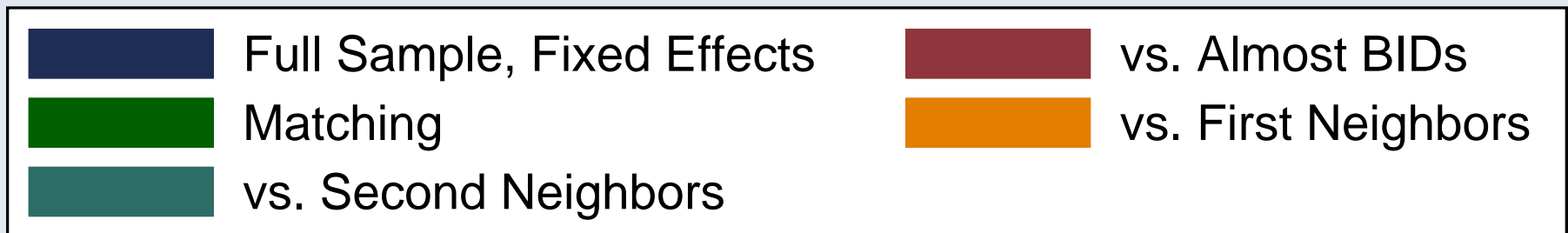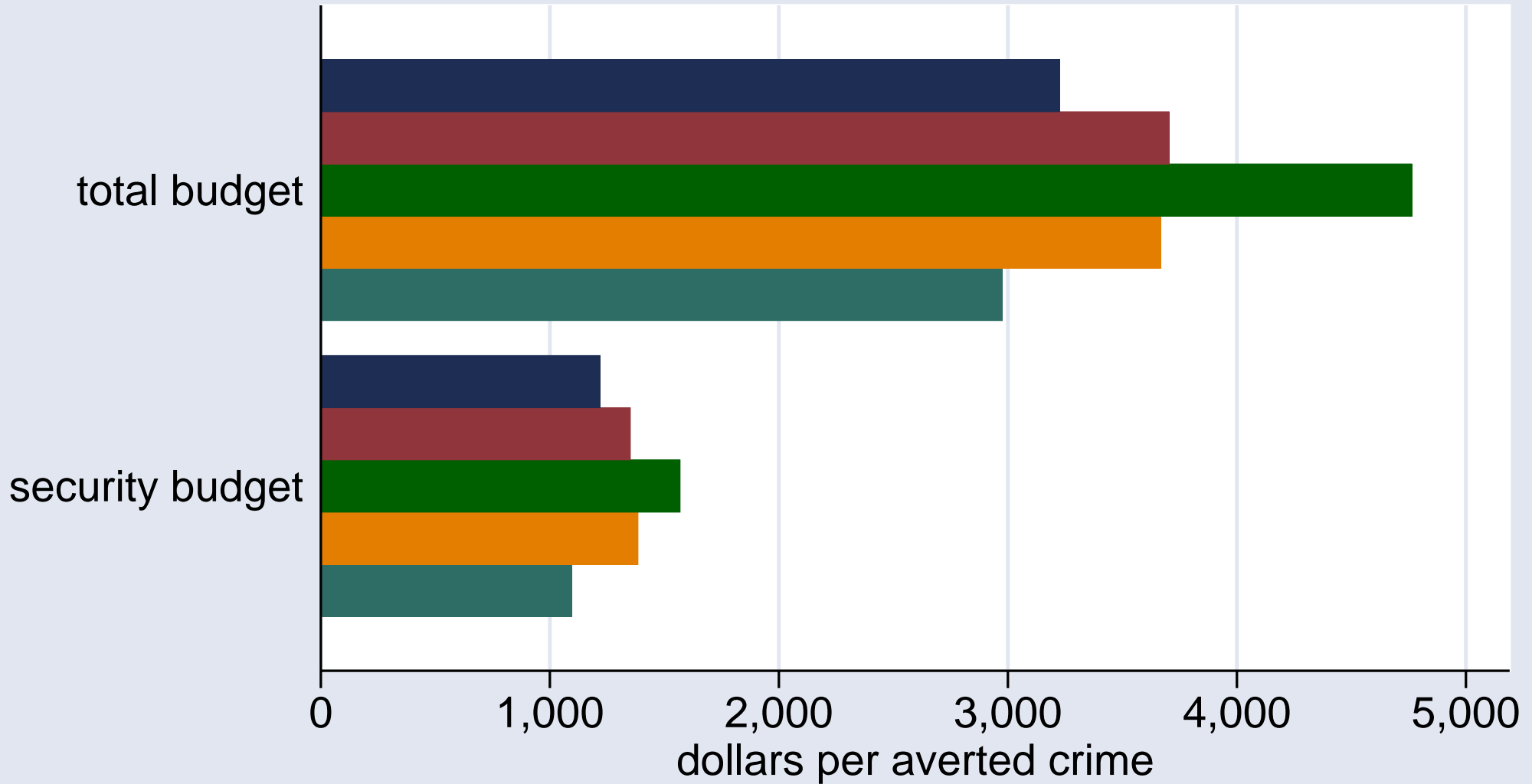**What about the Bang for the Buck, aka Efficiency?**

- BIDs are associated with large crime declines

- Use BID expenditures to get a dollar per crime averted figure:

$$\text{crime}_{i,a,t} = \beta_0 + \beta_1 \text{BID expenditures}_{i,t} + \beta_{2,t}\text{year}_t +$$
$$\beta_{3,i}\text{rd}_i + \beta_{4,a}\text{area trend}_{a,t} + \epsilon_{i,a,t}$$

- Use both total and safety expenditures

BID Crime Decline is Inexpensive

as a function of

Legend:
- Full Sample, Fixed Effects
- Matching
- vs. Second Neighbors
- vs. Almost BIDs
- vs. First Neighbors

X-axis: dollars per averted crime (0 to 5,000)

Categories: total budget, security budget

Using Expenditures, BIDs are Efficient

- Average cost per crime averted is $3,000

- Social cost of violent crime is at least $35,000 (Miller 1996)

- 1 out of every 7 crimes BIDs reduce is a violent one
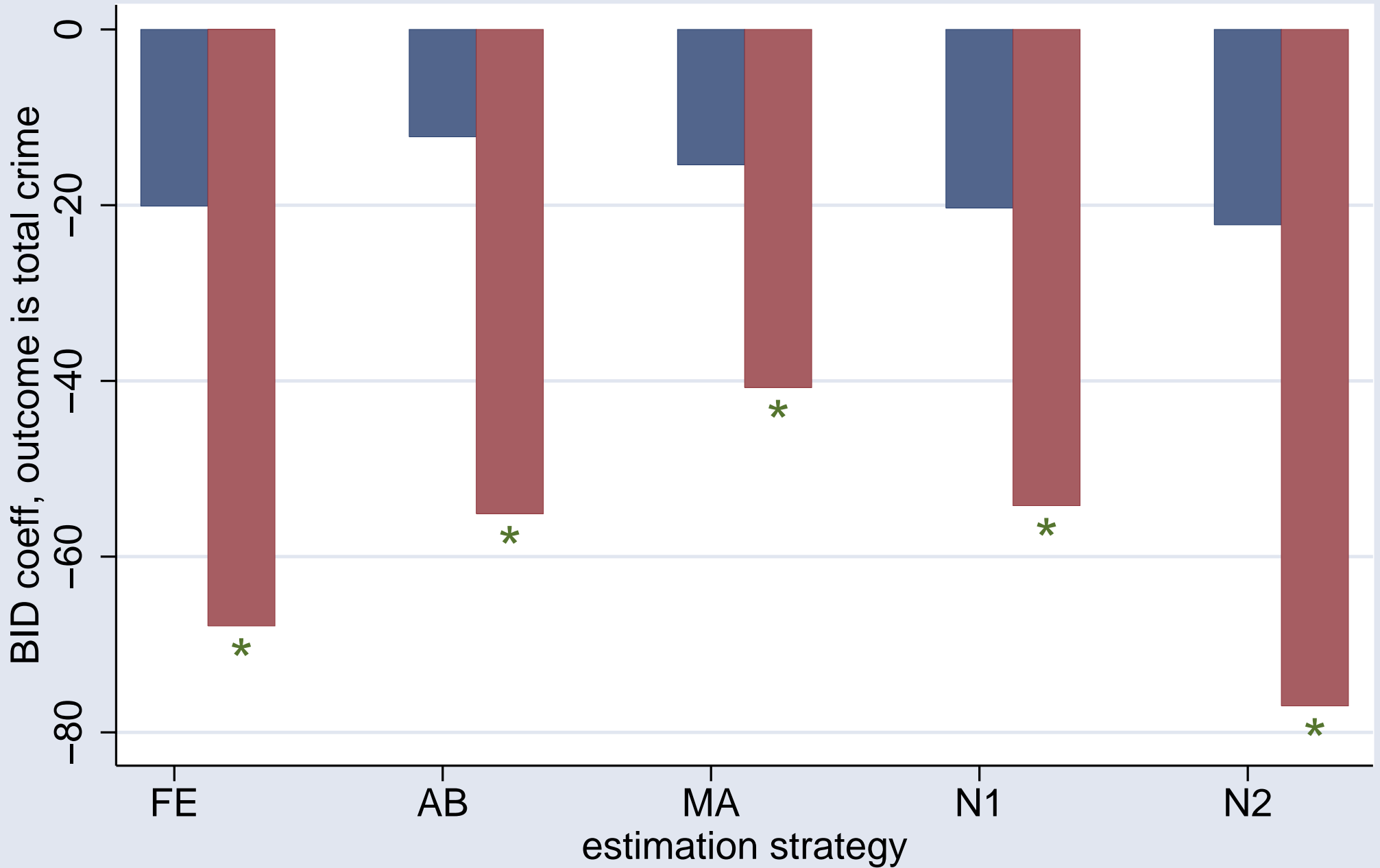
- LAPD spends $5,000 of operating budget per crime

Pushing the Results

- Examine BID effect by type of BID provider

- Consider BID effect by type of crime

Does Institutional Structure Matter Among BIDs?

- There are 2 type of BIDs in Los Angeles:

  - Merchant-based BIDs, 10 out of 30

  - Property-based BIDs, 20 out of 30

- Economic theory suggests that property owners − the residual claimants to the land − have more to gain than merchants if there is a fixed cost to making a BID

- Institutional arrangements also favor property BIDs − longer tenure before renewal, and better tax collection

- Do the property BIDs reduce crime more? Allow for separate MBID and PBID effects
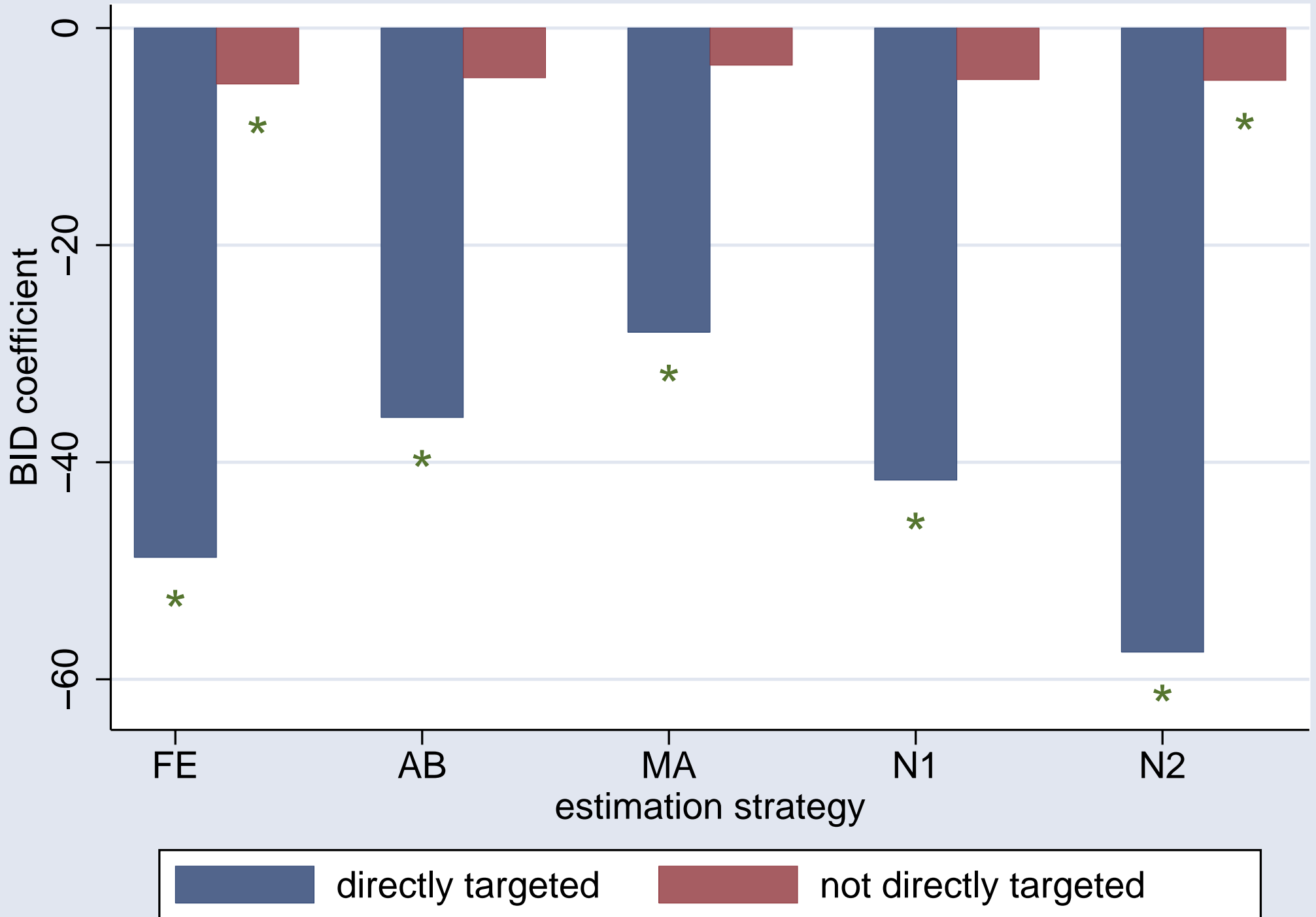
Property BID Effect Dominates

Chart showing BID coeff, outcome is total crime (y-axis) by estimation strategy (x-axis: FE, AB, MA, N1, N2) for merchant BIDs and property BIDs.

Do BIDs Affect Crimes Beyond Those They Target?

- We know that BID address particular types of crimes

- Do they spillover and effect those they do not address?

- Test by dividing crimes into BID-affecting and non-BID affecting

Slight BID Effect on Non−Targeted Crimes

A bar chart showing BID coefficient on the y-axis (ranging from −60 to 0) and estimation strategy on the x-axis (FE, AB, MA, N1, N2). Each strategy has two bars: "directly targeted" (dark blue) and "not directly targeted" (dark red), with green asterisks marking values.

But How Do BIDs Reduce Crime?

- Theory suggests that BID crowd out of municipal services is very unlikely − why pay extra for something you were already getting?

- Anecdotal evidence suggests that BIDs may instead grab a greater share of municipal services, here police enforcement

- Some arrests are less discretionary − burglary and vehicle theft − than others − drunkenness

- If BIDs capture municipal services, then the more discretionary arrests (drunkness) should decline less than the less discretionary ones (burglary, vehicle theft)

BID Effect Varies by Type of Arrest
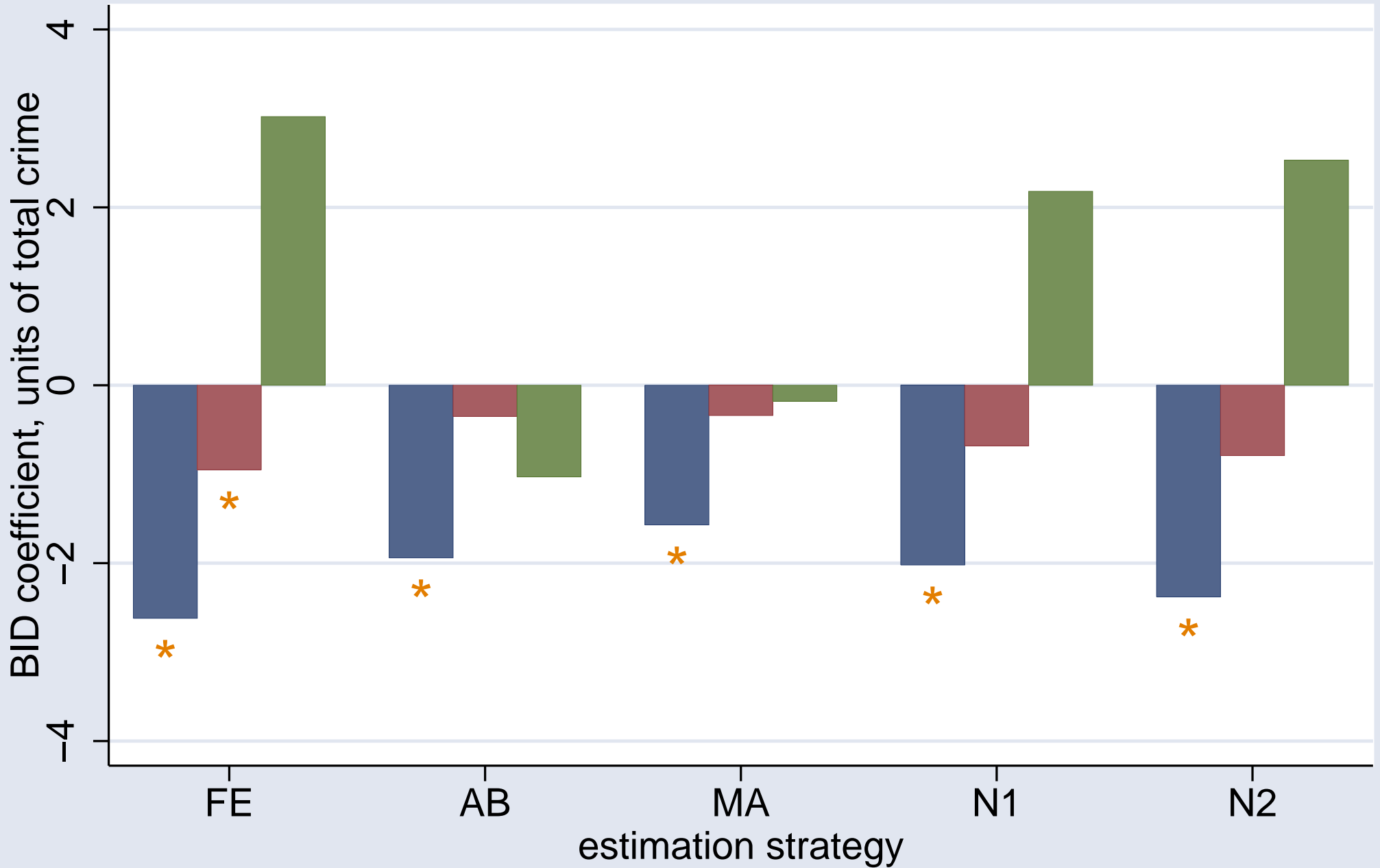
BID Impacts, In Sum

- BIDs arise to solve a collective action problem

- They cause substantial declines in crime

- Very cheaply

- Only modest, if any, capture of municipal services

- Non-BID cities should benefit from BID laws

Conclusion

- The inability to act collectively was a serious and substantial impediment to local public goods provision

- Local public goods are very important to neighborhood health

- The design of institutions to provide local public goods is essential for economic development