SPEA
Lead for the Greater Good

Nonprofit Spending and Government Provision of Public Services: Testing Theories of Government-Nonprofit Relationships

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Indiana University Bloomington

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Motivation

- A surge of scholarly interest in cross-sector collaboration and government-nonprofit relationships *(Bryson, Crosby & Stone, 2006; Kettl, 2006; Salamon, 2002).*

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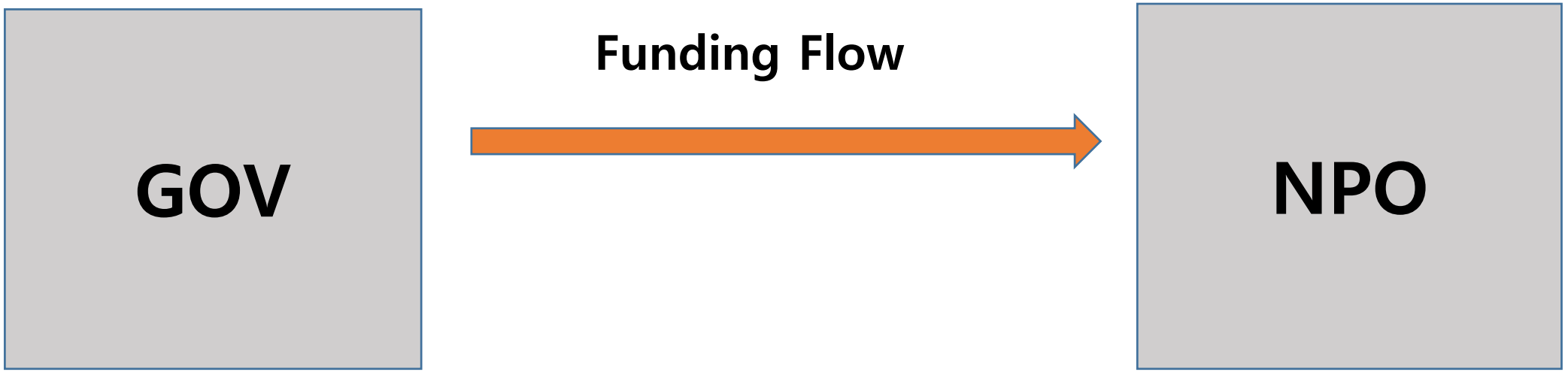
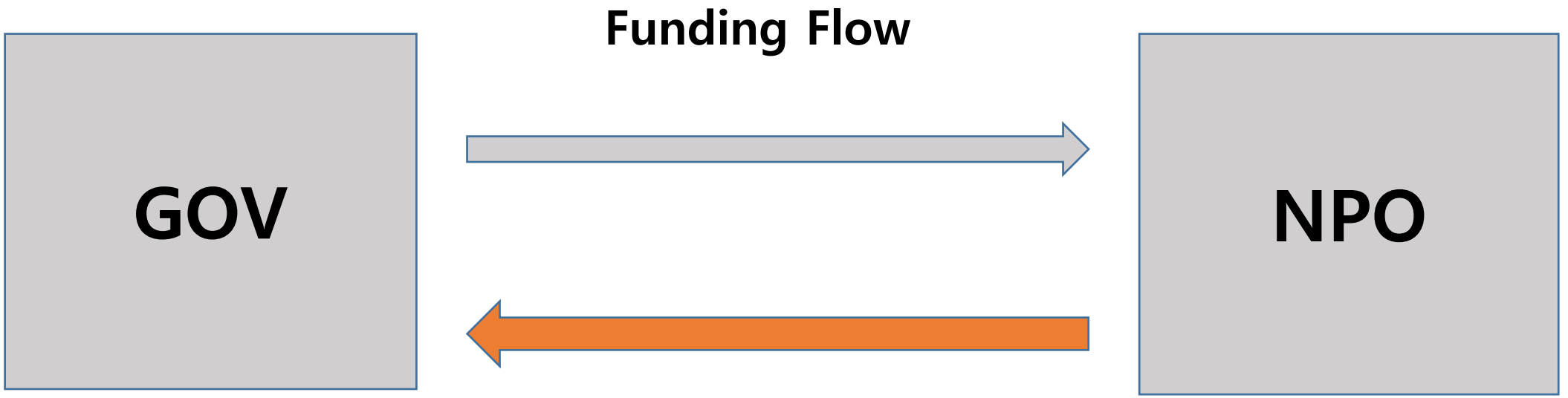
- A unidirectional funding flow from governments to nonprofit organizations is assumed in the literature *(Lecy & Van Slyke, 2013; Milward & Provan, 2000; Smith & Lipsky, 1993).*



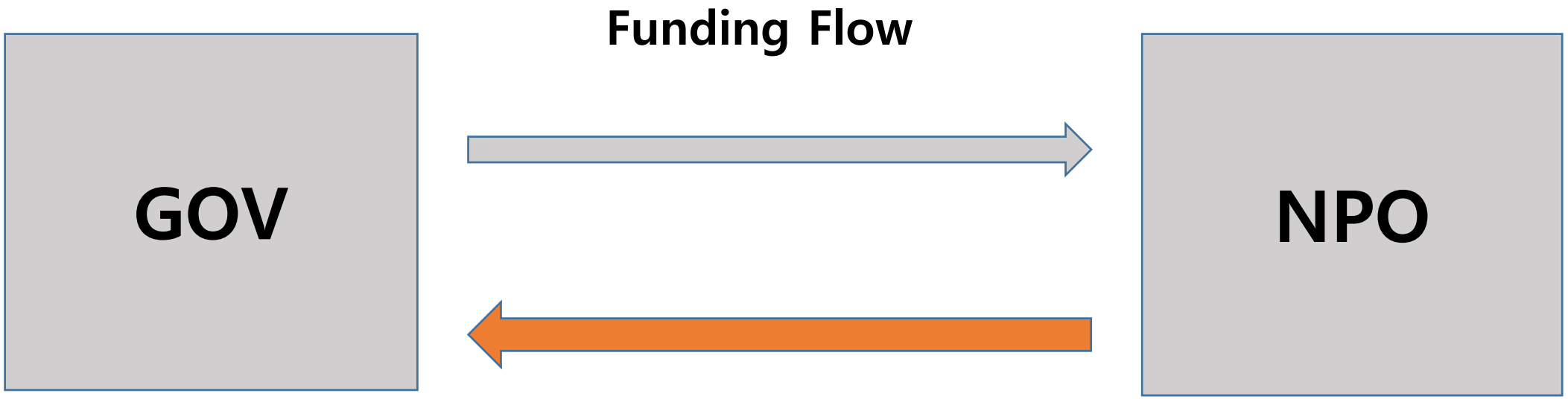
Motivation

- Nonprofits can support and finance public services *(Nelson & Gazley, 2014; Schatteman & Bingle, 2015; Yandle, et al., 2016).*



Motivation

- Nonprofits can support and finance public services *(Nelson & Gazley, 2014; Schatteman & Bingle, 2015; Yandle, et al., 2016).*
- Nonprofits can influence public policy and governments in multiple ways *(Fyall, 2016; Mosley, 2012; Sav, 2012).*



MINNEAPOLIS PARKS FOUNDATION

UNIVERSITY OF MINNESOTA FOUNDATION

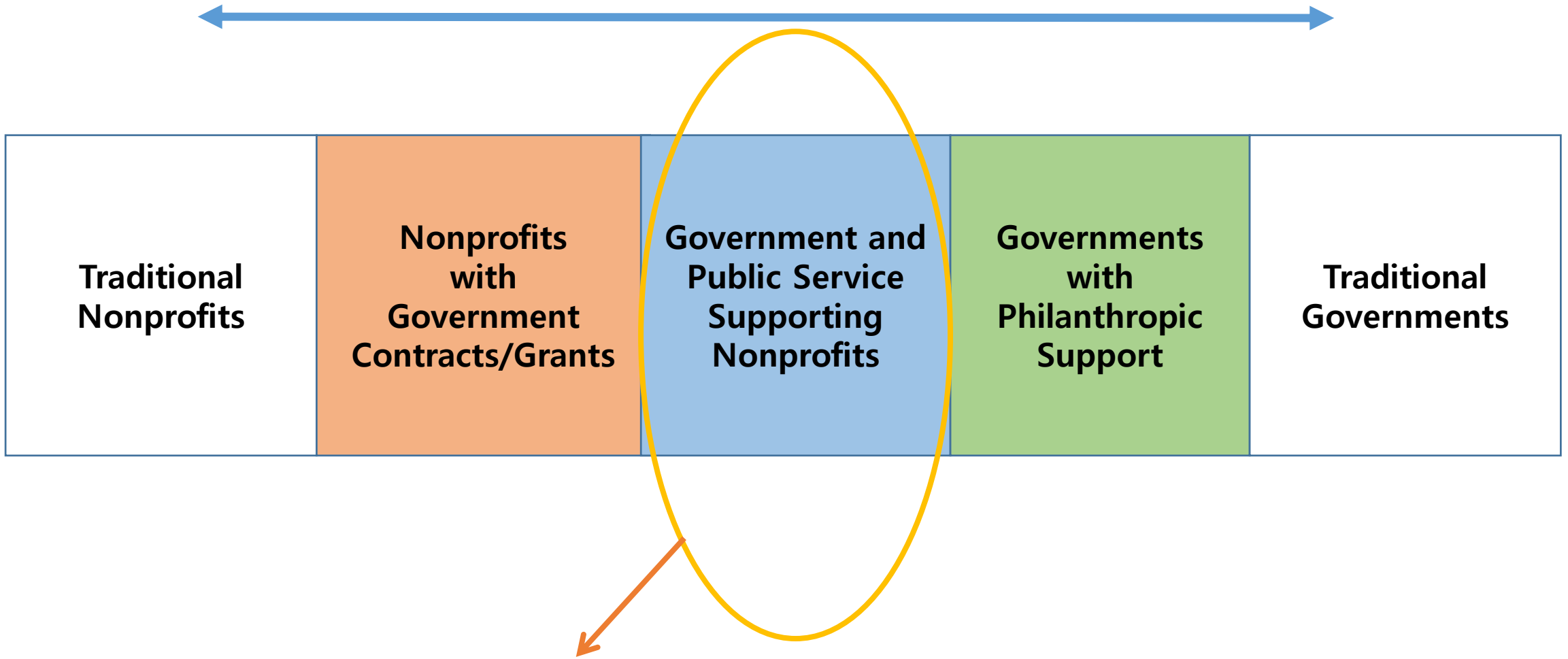
PIONEERED BY THE ROCKEFELLER FOUNDATION

100 RESILIENT CITIES

Hybrid Spectrum

Traditional Nonprofits	Nonprofits with Government Contracts/Grants	Government and Public Service Supporting Nonprofits	Governments with Philanthropic Support	Traditional Governments

Hybrid Spectrum



Overarching Research Question

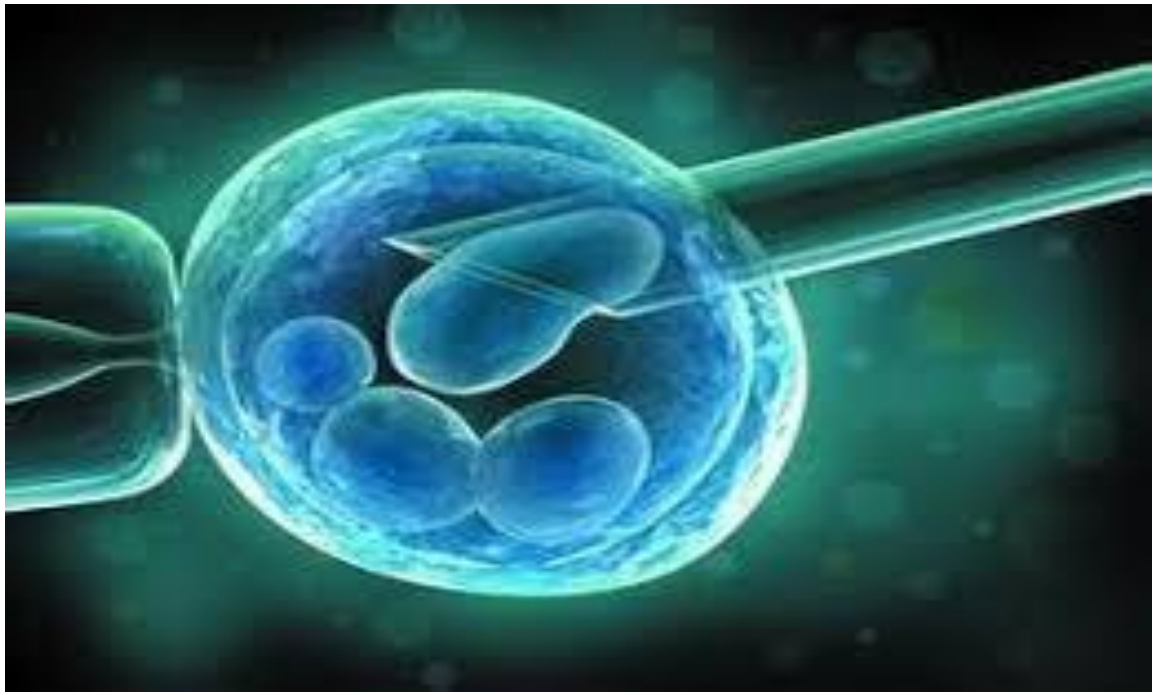
- *When nonprofits play important roles in financing and creating public services, how do they influence the behaviors of local governments?*

Research Question

- *How does the spending of government-supporting nonprofits influence the levels of local governments' expenditure on corresponding public services?*

Context: Why Parks and Recreation Services?

"The organism is not chosen because it is representative of all organisms. Rather, it is chosen because particular processes can be studied more effectively" *(Ostrom, 1990, p.26).*




Parks


75%
of operating budget is raised by Central Park Conservancy
$800 Million Invested Since 1980
$65 Million Annual Operating Budget
42 Million Visits Every Year

“30 years ago, it was all public and you were locked in. Now we are figuring out how to make these public-private partnerships work in a way that people never thought this could be possible. It is really interesting to see how this has evolved… I did not study anything about it in my college twenty years ago. But in my career this is what defines my career.”

Research Question

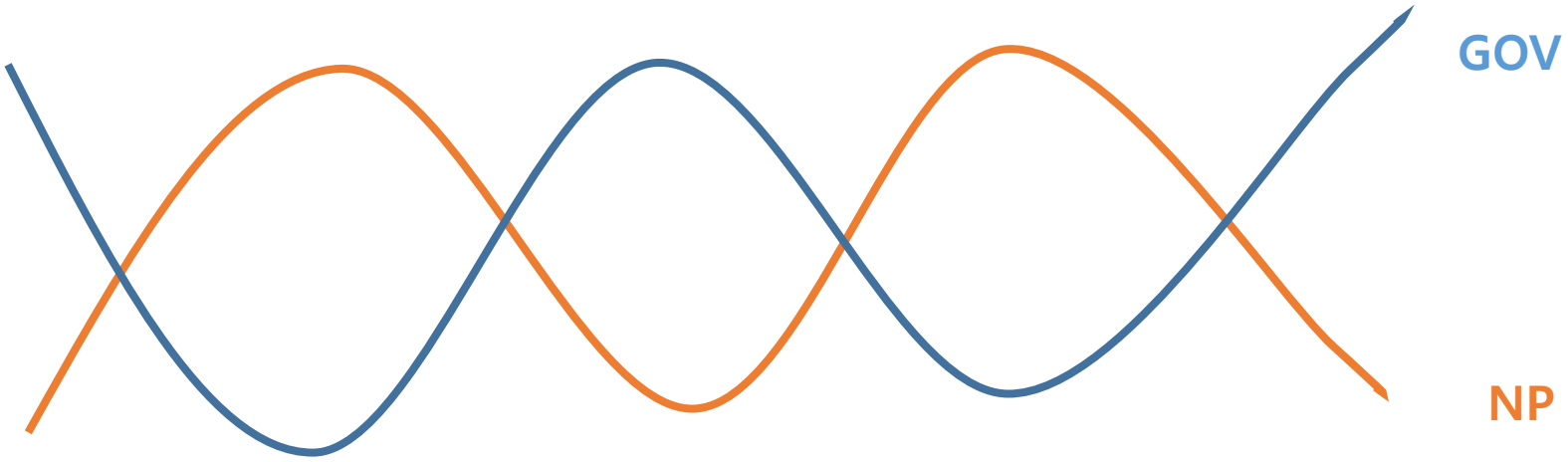
- *How does the spending of park-supporting charities influence the levels of local governments' expenditure on local parks and recreation services?*

Literature: Three Theoretical Lenses

- The Market Niche Model
- The Interdependence Model
- The Critical Mass Model

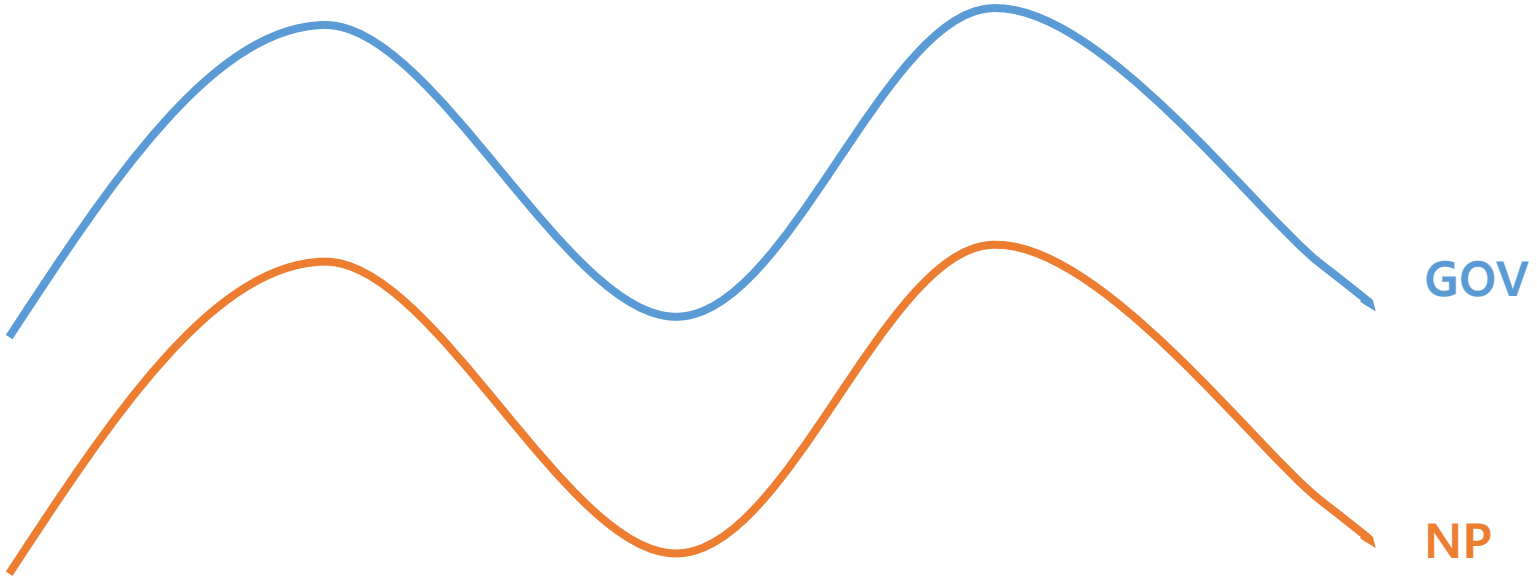
The Market Niche Model ***(Smith & Grønbjerg, 2006; Weisbrod, 1975)***:

Hypothesis 1: Everything else being equal, levels of expenditure by park-supporting charities are ***negatively*** associated with levels of local governments' expenditure on parks and recreation services.

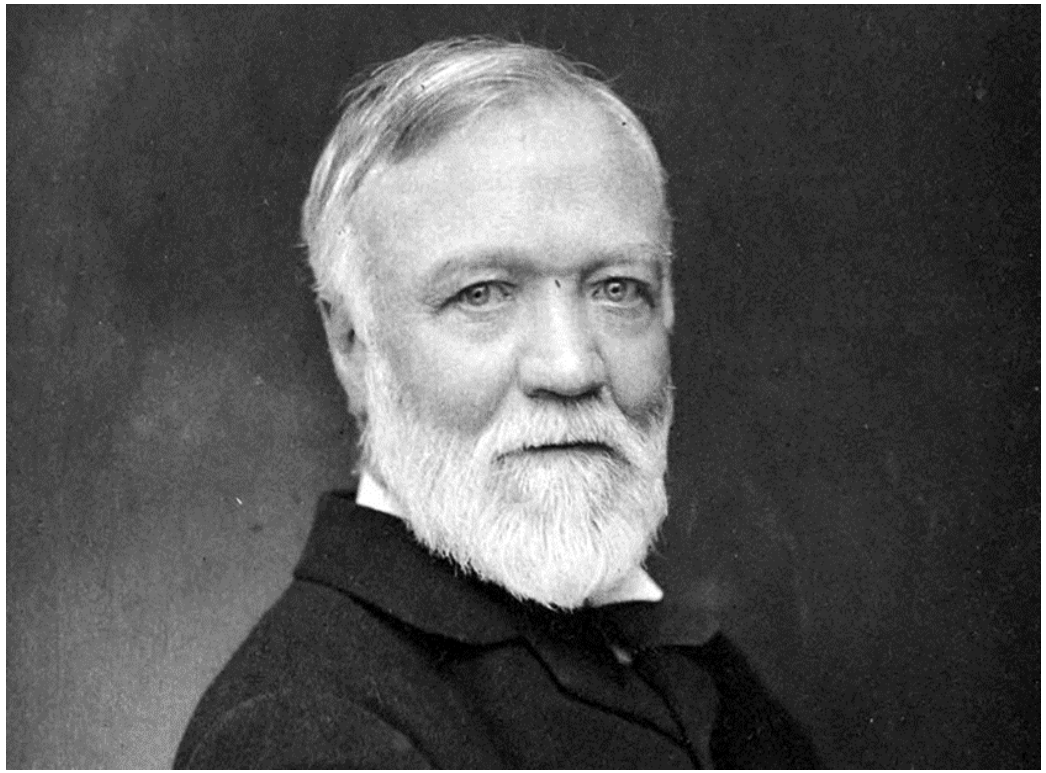


The Interdependence Model *(Salamon, 1987; Lecy & Van Slyke, 2013)*:

Hypothesis 2: Everything else being equal, levels of expenditure by park-supporting charities are ***positively*** associated with levels of local governments' expenditure on parks and recreation services.

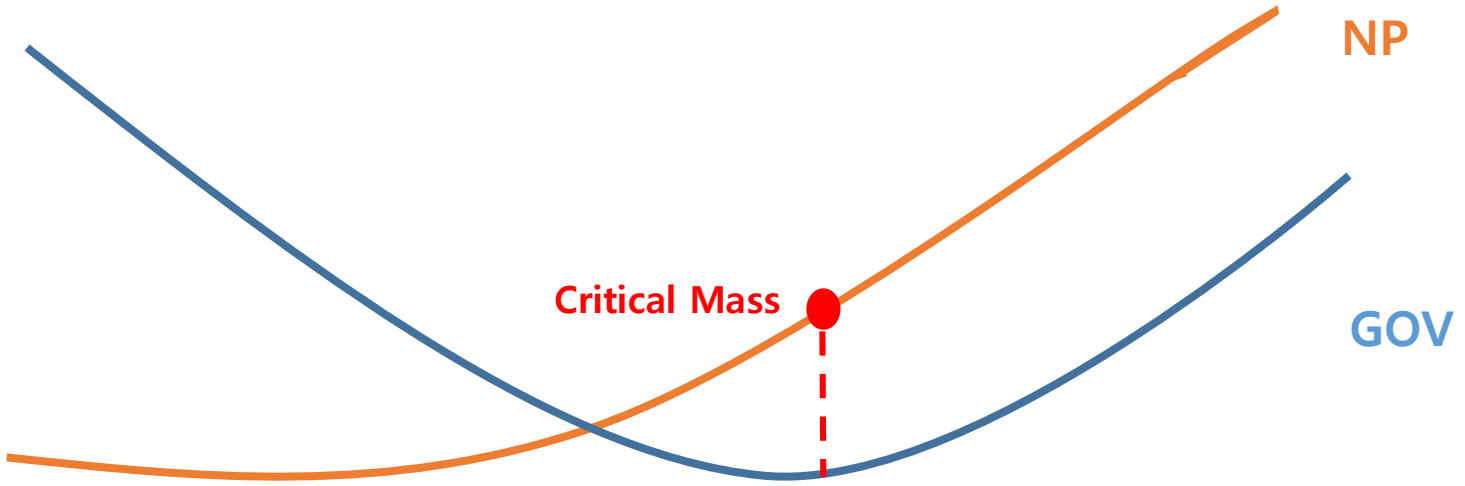


NEW YORKERS FOR PARKS



The Critical Mass Model *(Oliver et al., 1985; Meier, 1993)*:

Hypothesis 3: Everything else being equal, levels of expenditure by park-supporting charities have a ***curvilinear*** relationship and ***threshold*** effect with levels of local governments' expenditure on parks and recreation services.




CENTRAL PARK
CONSERVANCY
central to the park


Pittsburgh
Parks
Conservancy

Research Question

- *How does the spending of park-supporting charities influence the levels of local governments' expenditure on local parks and recreation services?*

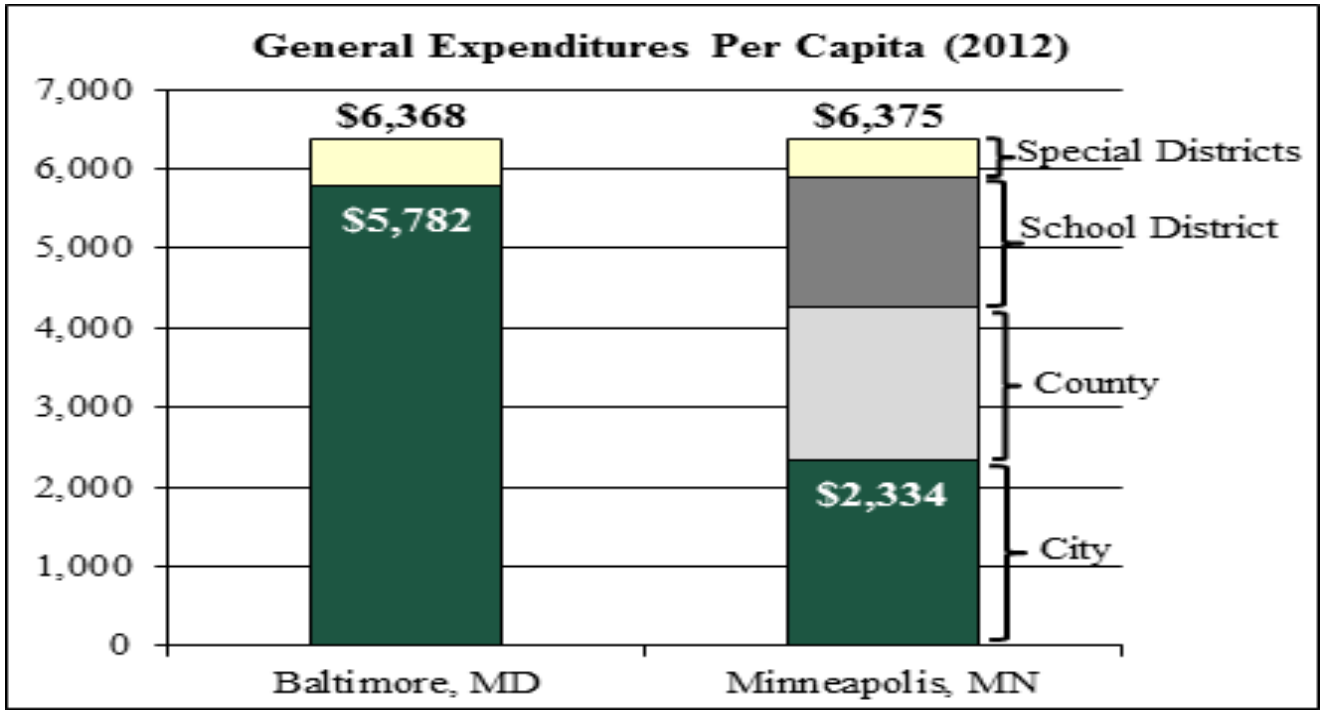
Data and Method

- Data Source and Sample
- Variables and Measurement
- Empirical Strategy

Data Source and Sample

- **Local Government Finance**

Comparable local government spending on parks in 149 largest U.S. cities from 1989 to 2012
Source: *Lincoln Institute's Fiscally Standardized Cities (FiSCs) database*

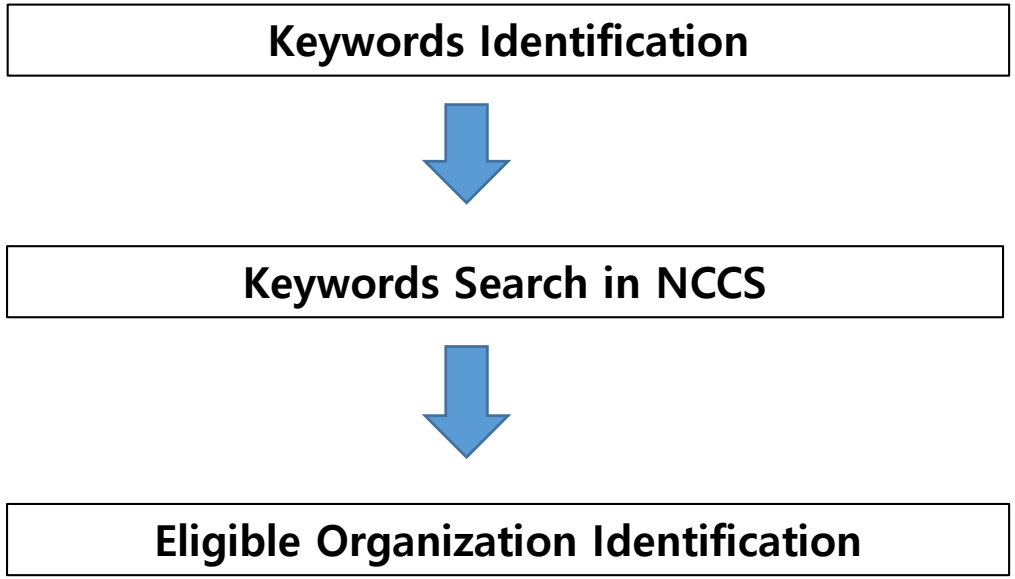


Source: Lincoln Institute of Land Policy, 2017

Data Source and Sample

- **Park-supporting Nonprofits**

267 city park-supporting nonprofits in 149 largest U.S. cities from 1989 to 2012
Source: *National Center on Charitable Statistics (NCCS) Core PC Files*



Data Source and Sample

- **Community Characteristics**

Source: *U.S. Decennial Census (1990, 2000, 2010); Economic Census (1997, 2002, 2007); CQ Press Voting and Elections Collection (1992, 1996, 2000, 2004, 2008)*

Citizen Preferences
(lagged one year)

- Median Age
- Population and Population Squared
- White
- Education Level
- Percentage Voted for the Democratic Candidate

Community Wealth
(lagged one year)

- Median Household Income
- Median Housing Value
- Homeownership
- Poverty Rate

Public Spending on Parks (Proportion and Absolute Amount)

- Total Direct Expenditure
- Operational Expenditure
- Capital Outlay Expenditure

Revenue Structure
(lagged one year)

- Proportion Intergovernmental Revenue
- Proportion Property Tax Revenue

Total Nonprofit Expenditures
(X_{t-1}, X_{t-1}^2)

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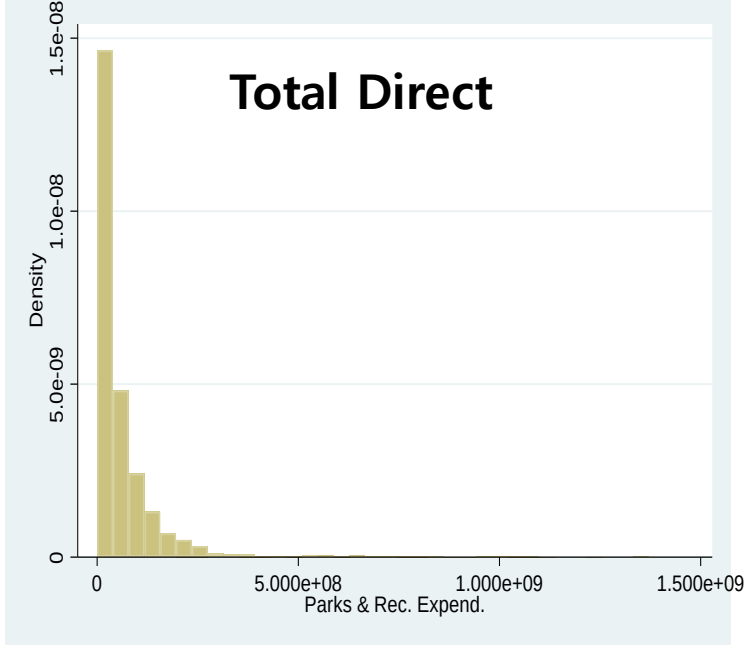
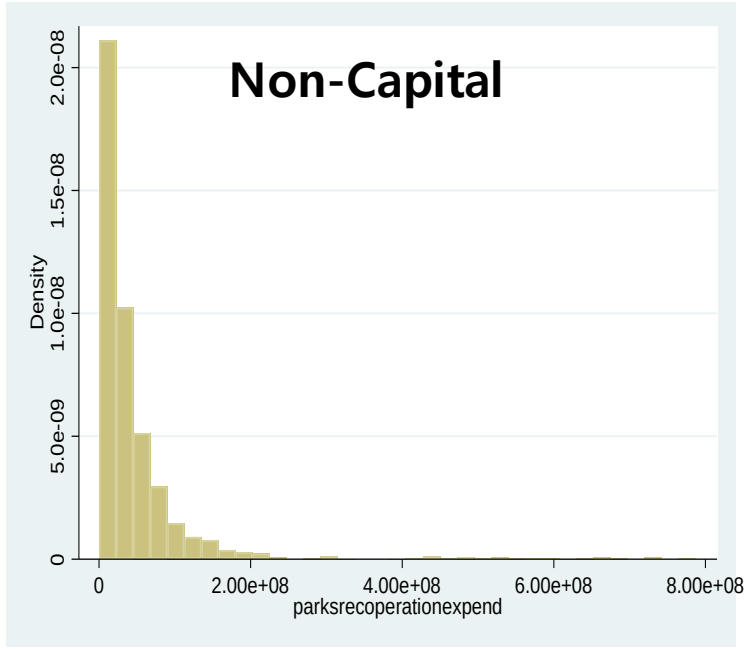
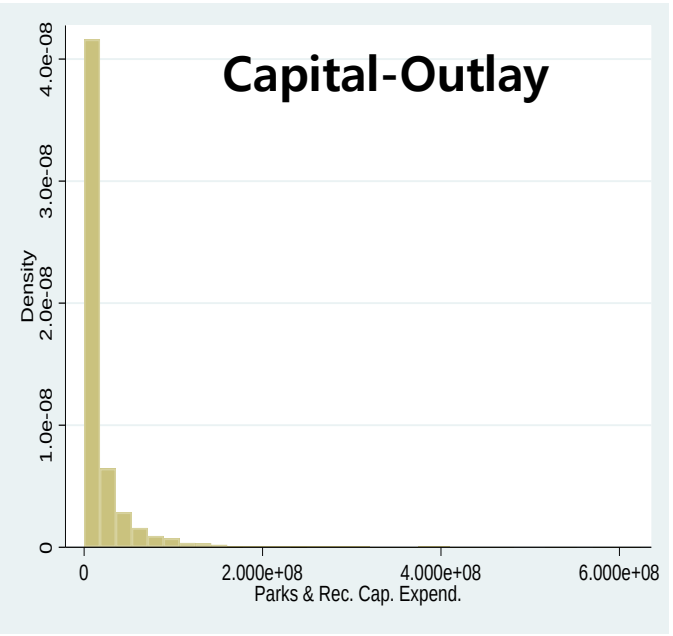
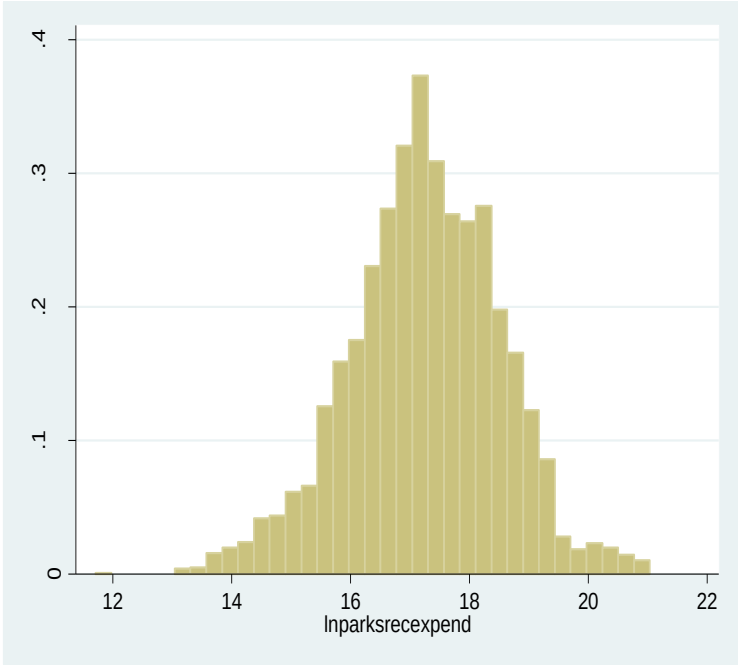
Public Spending on Parks

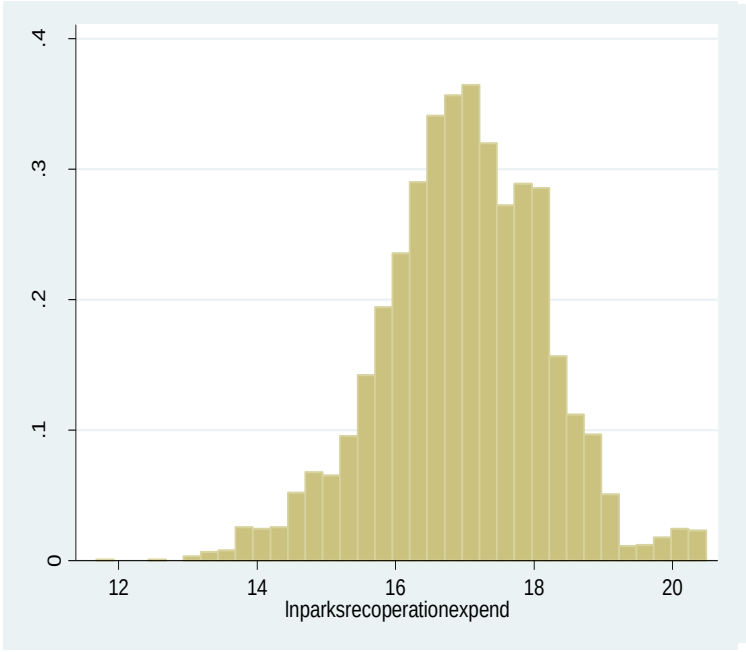


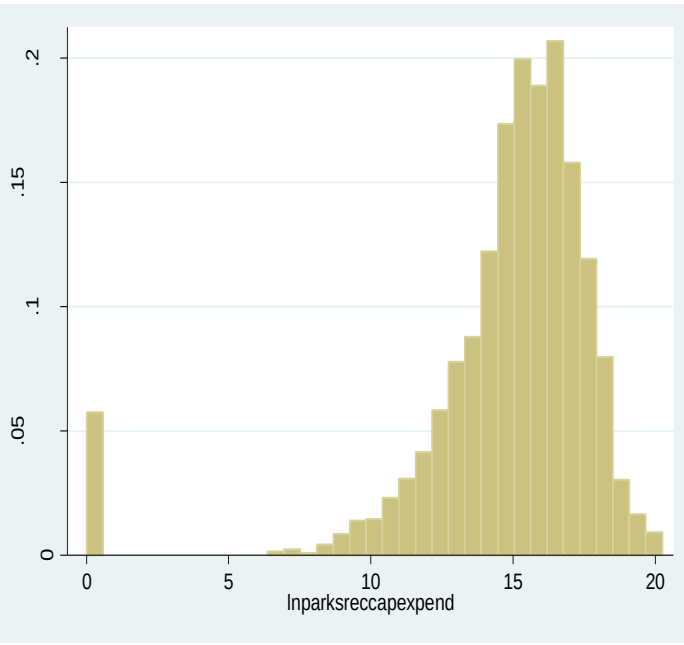




Log Public Spending on Parks







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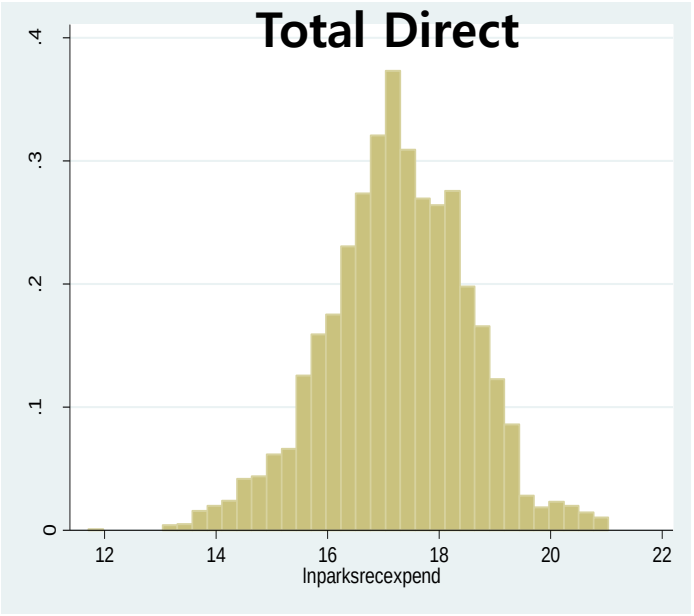
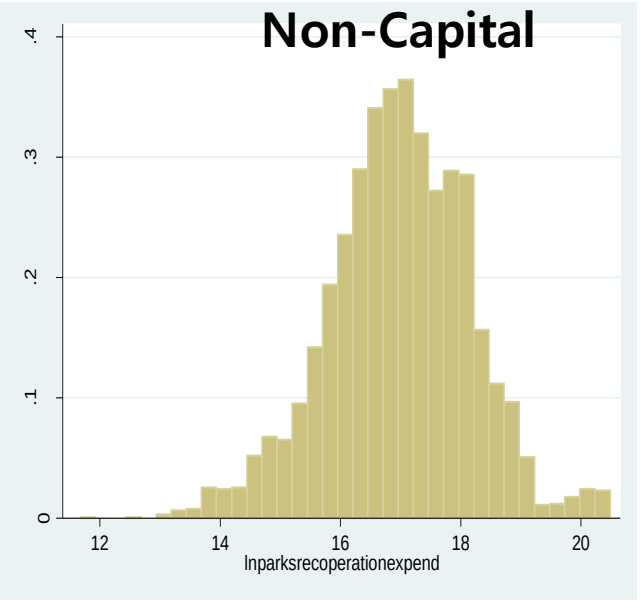
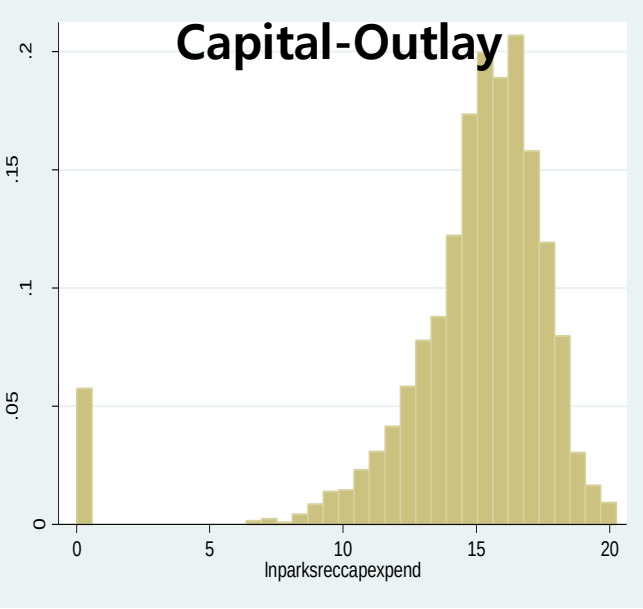
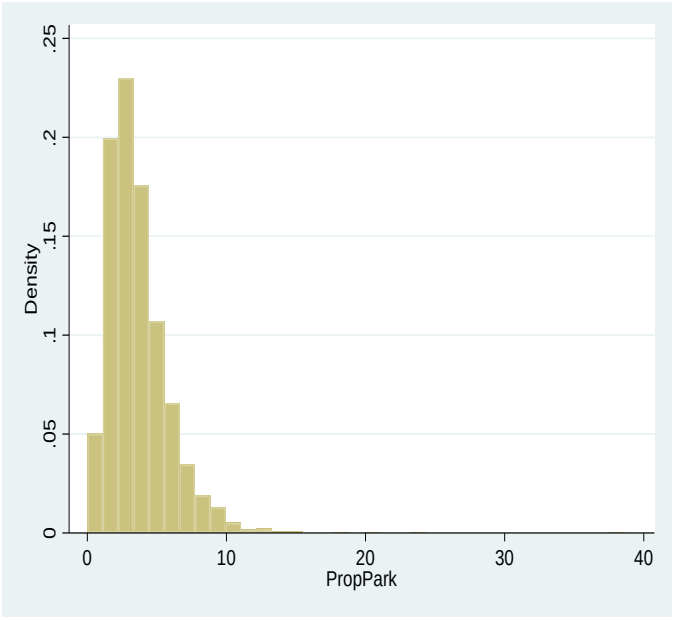
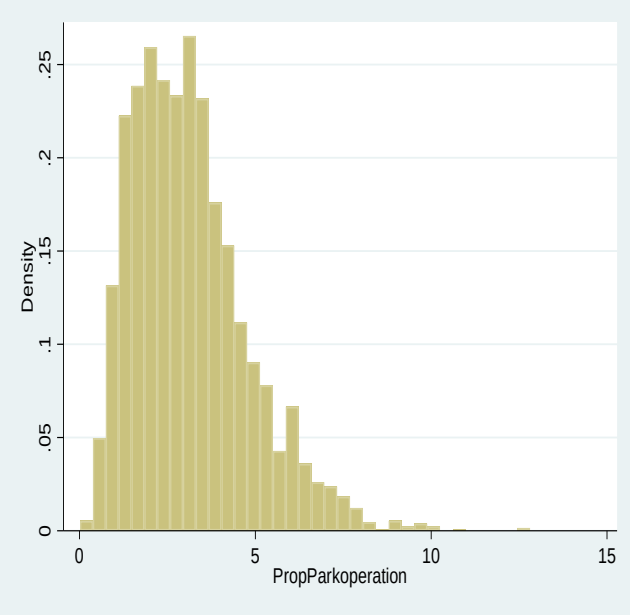


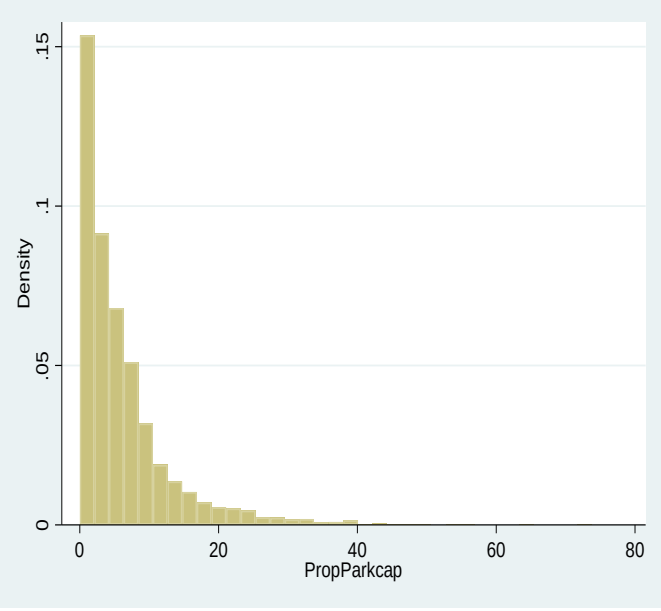




Proportion Public Spending On Parks







Empirical Strategy

Two-way Fixed Effects Model & Lagged Dependent Variable Model

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- Alternative Identifying Assumptions and Robustness Check *(Angrist and Pischke, 2009)*

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- Cannot Be Used In the Same Model *(Nickell, 1981; Ling 2012)*

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Two-way Fixed Effects Model & Lagged Dependent Variable Model

- Alternative Identifying Assumptions and Robustness Check *(Angrist and Pischke, 2009)*
- Cannot Be Used In the Same Model *(Nickell, 1981; Ling 2012)*
- Nice Bracketing Property: Bounding the Causal Effect *(Angrist and Pischke, 2009)*

Empirical Strategy

- ***Two-way Fixed Effects (FE) Model***

$$\ln(\text{GOVEXPARKS})_{i,t} = \alpha_0 + \alpha_1(\text{NONPROFIT-SUPPORT})_{i,t-1} + \alpha_2(\text{NONPROFIT-SUPPORT})^2_{i,t-1}$$

$$+ \beta\, X_{i,t-1} + \mu_i + \lambda_t + \varepsilon_{i,t}$$

- ***Lagged Dependent Variable (LDV) Model***

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Empirical Findings and Results

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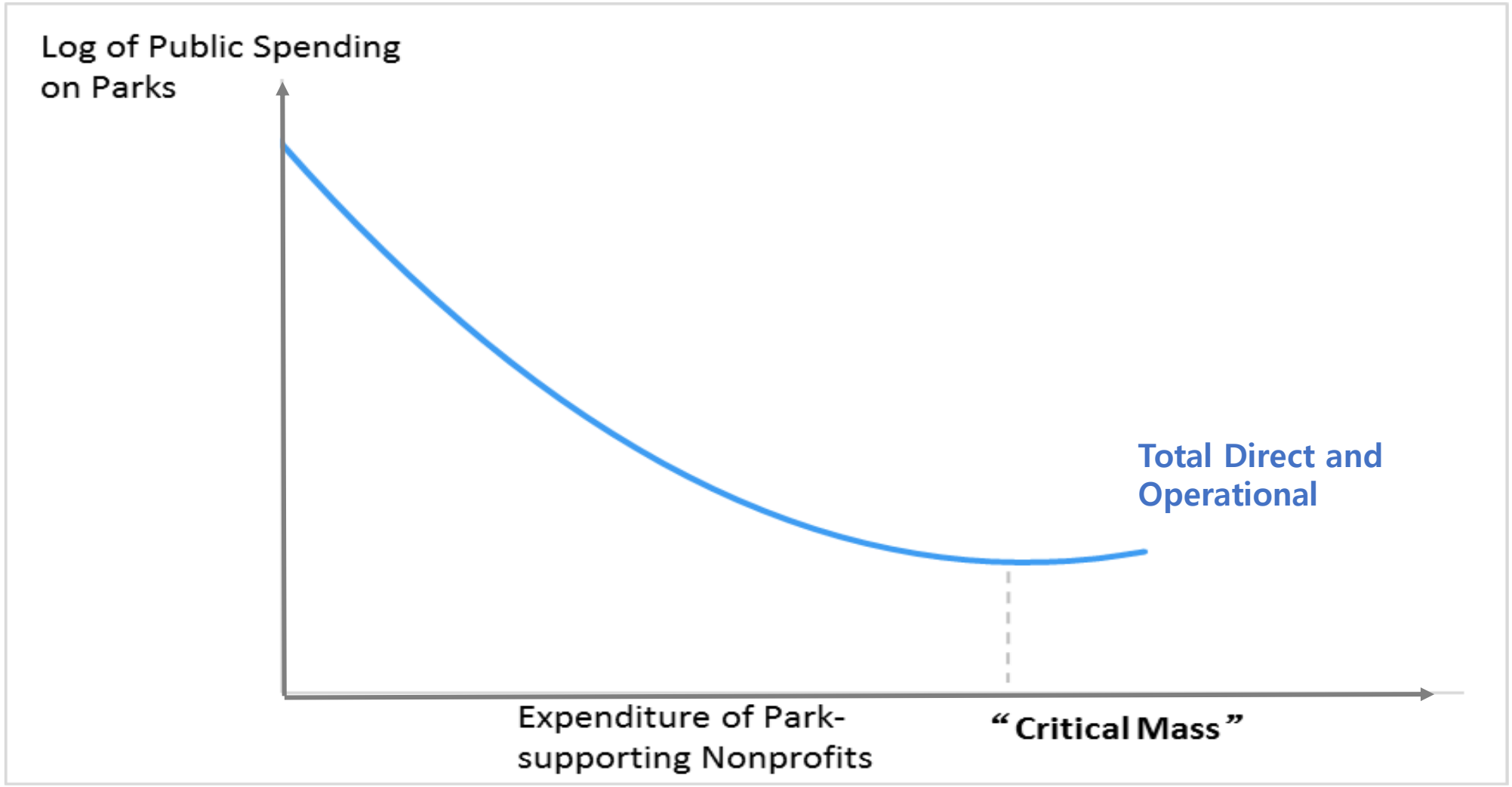
	Log Public Total Spending on Parks		Log Public Operational Spending on Parks		Log Public Capital Spending on Parks	
	Fixed Effects	***Lagged DV***	***Fixed Effects***	***Lagged DV***	***Fixed Effects***	***Lagged DV***
Lagged Nonprofit Expenditures	**-0.0186*** (0.00575)**	-0.00300 (0.00321)	**-0.0235*** (0.00582)**	**-0.00485** (0.00206)**	0.0303 (0.0322)	0.0242 (0.0148)
Lagged Nonprofit Expenditures Squared	**0.000248*** (0.0000557)**	**0.0000739** (0.0000290)**	**0.000225*** (0.0000513)**	**0.0000627*** (0.0000195)**	0.000154 (0.000249)	0.0000899 (0.000122)

Note: Nonprofit expenditures in millions. Robust standard errors are in the parentheses.
The table omits other variables. Significance Level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Empirical Findings and Results



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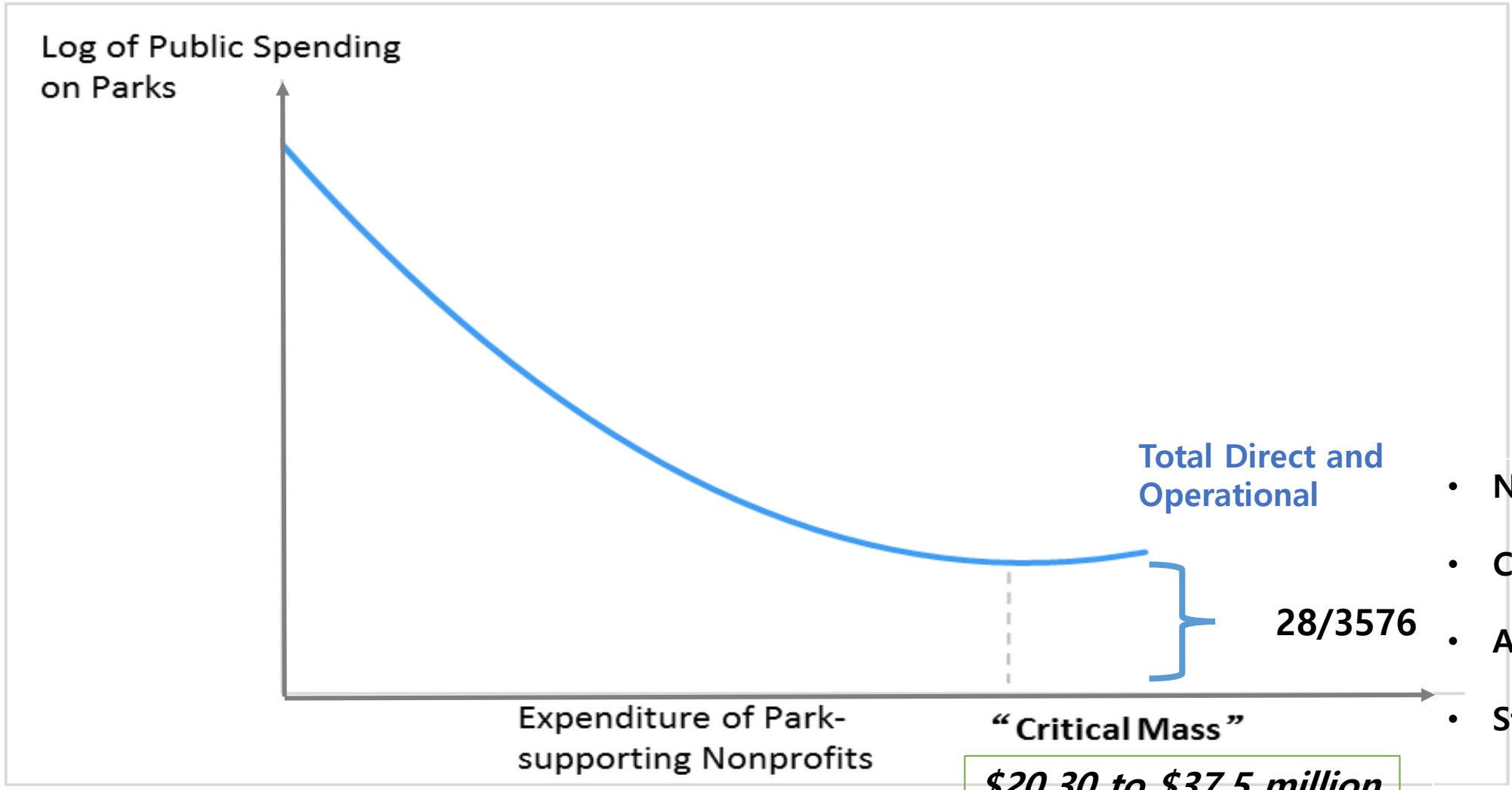

- New York City
- Chicago (2003, 05)
- Atlanta (2011)
- St. Louis (2002)

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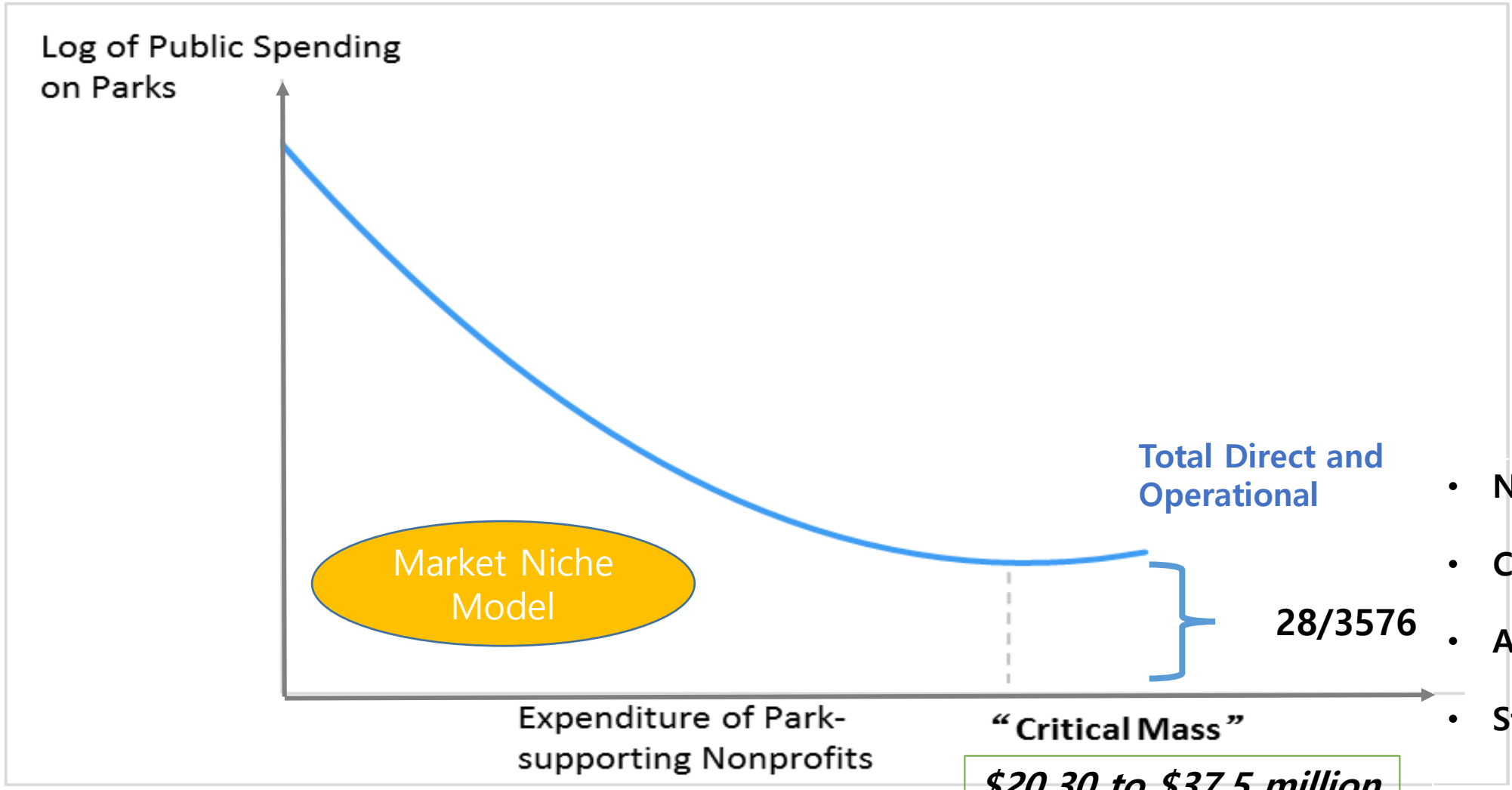

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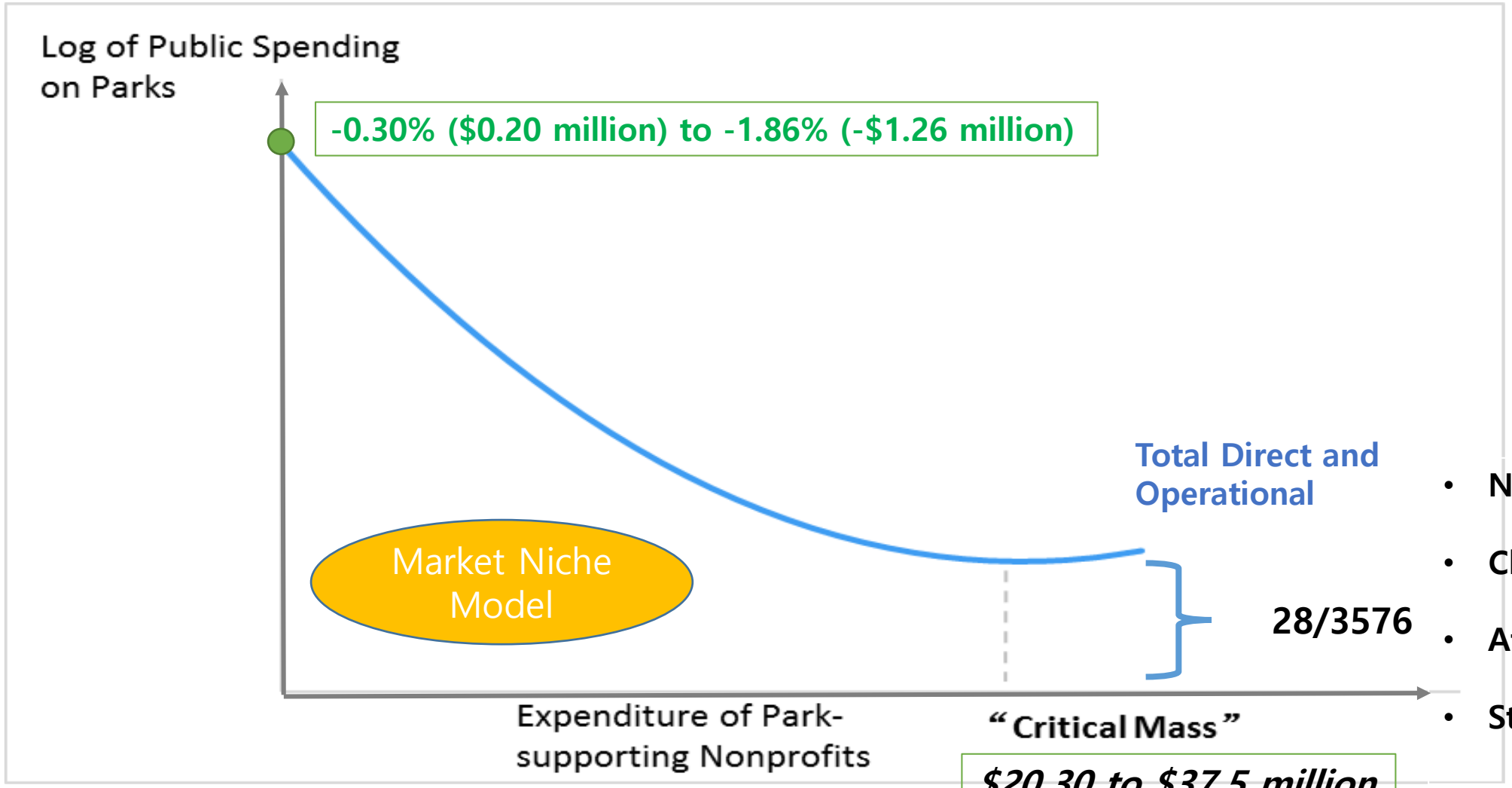

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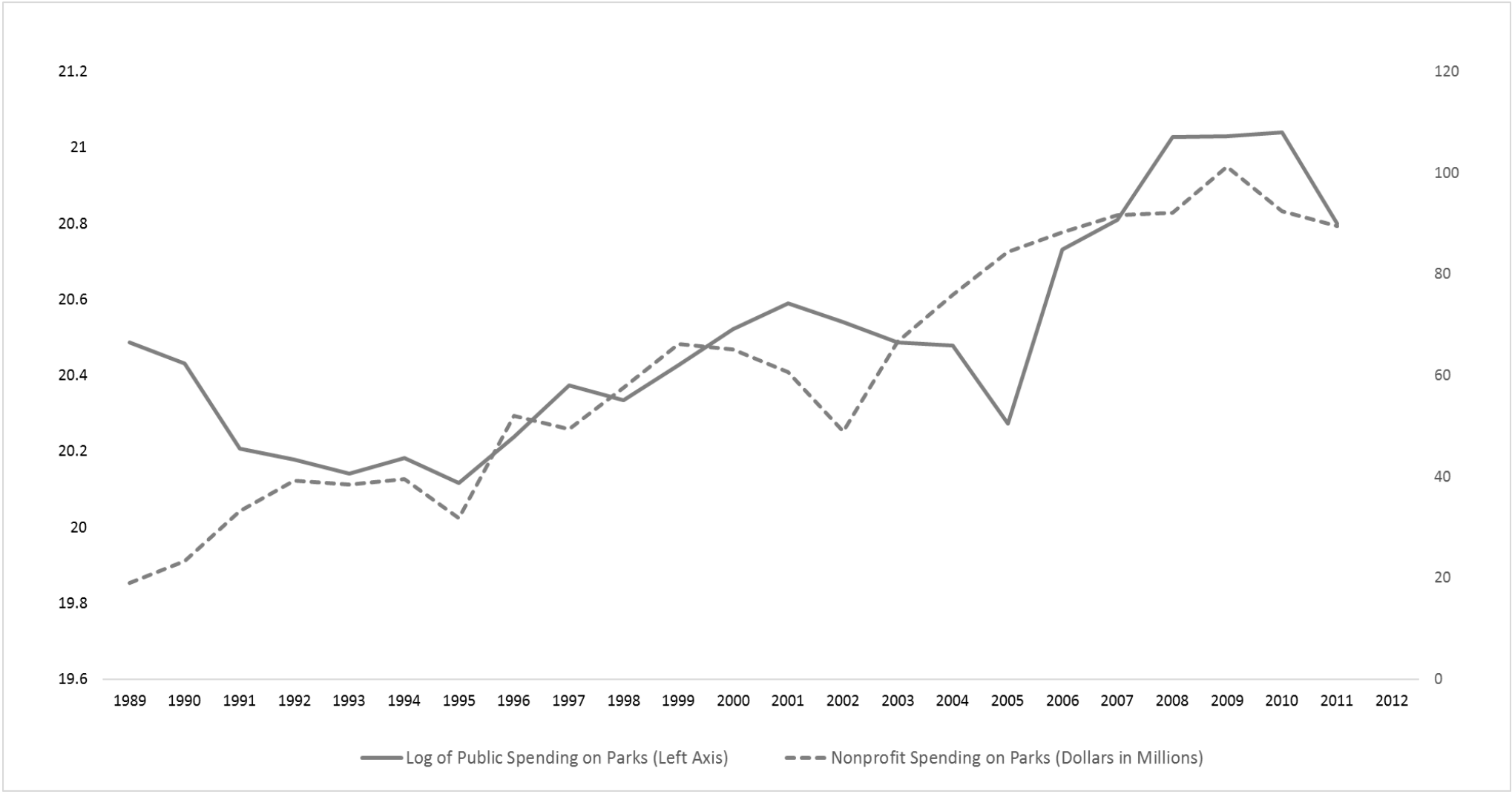
Government-Nonprofit Funding Interactions in New York City



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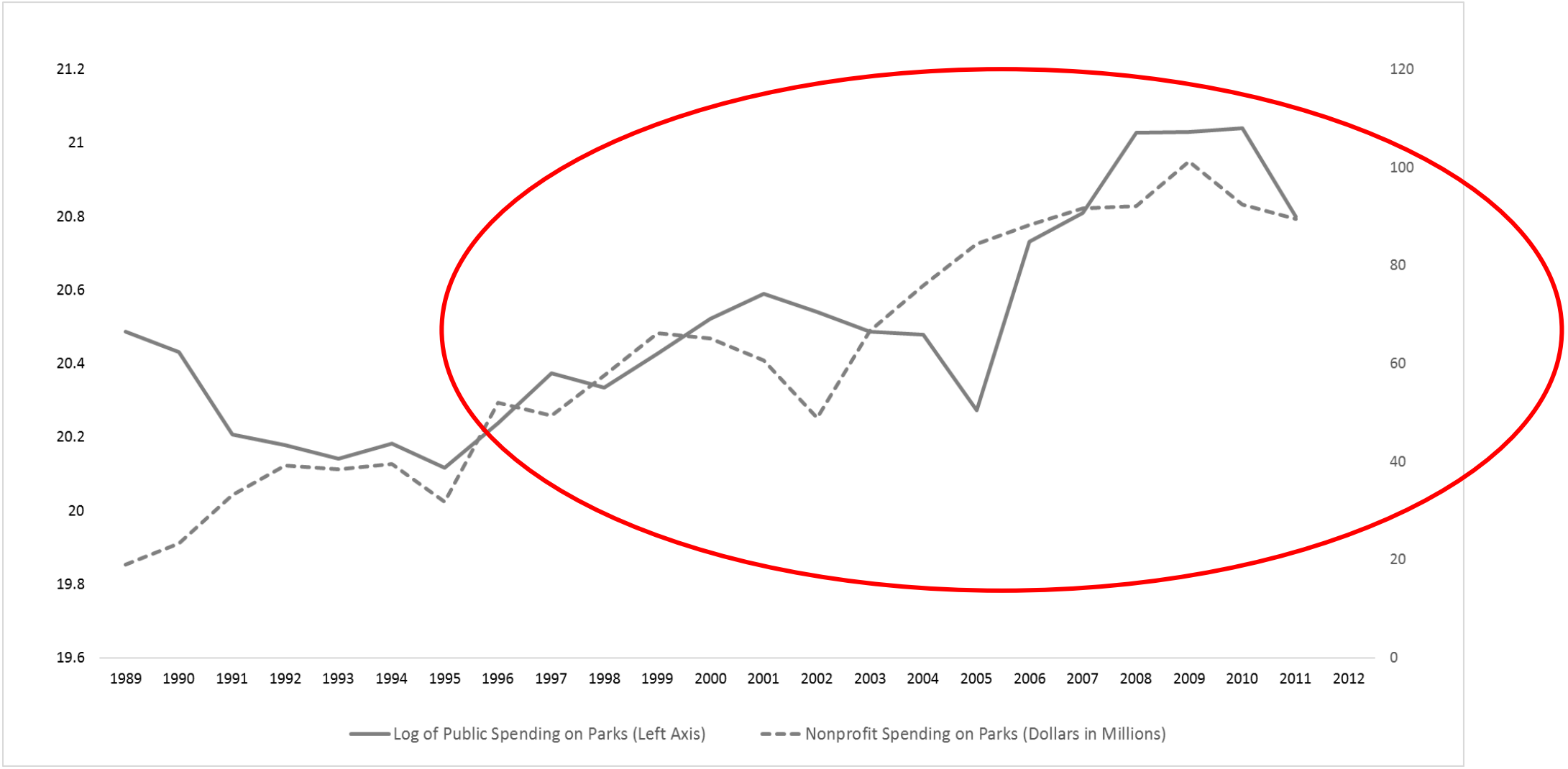

Conclusions

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Conclusions

- Nonprofits can influence local governments through direct service provision.

- The market niche model is supported when nonprofits play important roles in financing and creating public services. Government-nonprofit relationships are not identical when the direction of funding flow differs in subsectors.

- A two-way understanding is essential for the theory building and development in government-nonprofit relationships.

Implications and Future Research

- Theory testing in other jurisdictions and public service sub-sectors

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- Theory development in the role of nonprofits in public service provision

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Implications and Future Research

- Performance implications of a polycentric system of public service provision

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Implications and Future Research

- Who benefits from cross-sector collaboration?

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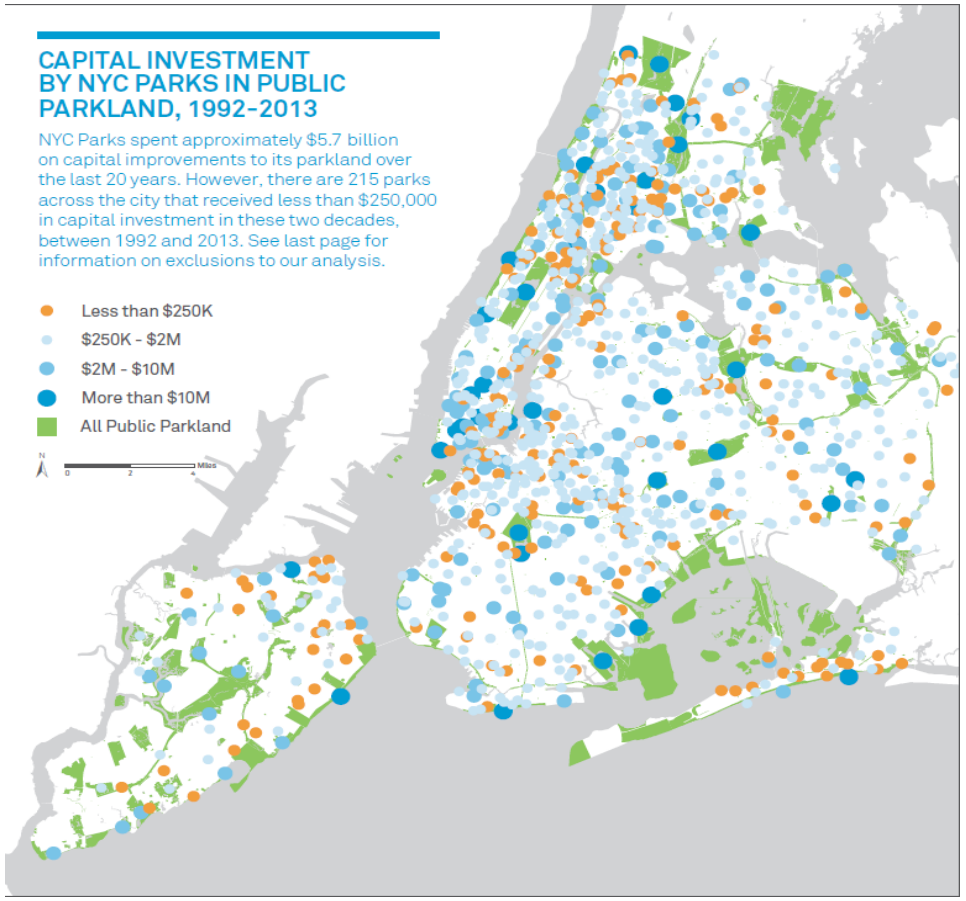

Implications and Future Research

- The black box of managing and governing cross-sector collaboration

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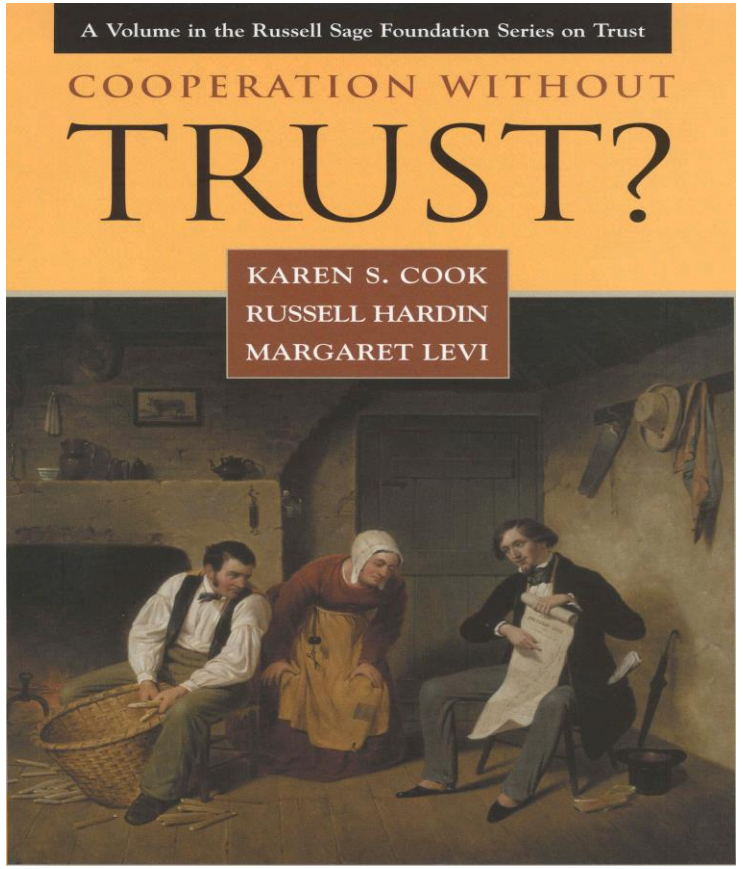

Implications and Future Research

- Theory testing in other jurisdictions and public service sub-sectors
- Theory development in the role of nonprofits in public service provision
- Performance implications of a polycentric system of public service provision
- Who benefits from cross-sector collaboration
- The black box of managing and governing cross-sector collaboration

Thank You!

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Supplementary Slides

Robustness Checks - Removing New York City

	Log Public Total Spending on Parks		Log Public Operational Spending on Parks		Log Public Capital Spending on Parks	
	Fixed Effects	***Lagged DV***	***Fixed Effects***	***Lagged DV***	***Fixed Effects***	***Lagged DV***
L. Nonprofit Expenditures	**-0.0212**** **(0.00915)**	**-0.00121**** **(0.00512)**	**-0.0385***** **(0.00887)**	**-0.0100***** **(0.00367)**	**0.121***** **(0.0590)**	0.00584 (0.0212)
L. Nonprofit Expenditures Squared	**0.000412*** **(0.000412)**	0.000202 (0.000163)	**0.000862***** **(0.000220)**	0.000158 (0.000102)	**-0.00338***** **(0.00167)**	0.000277 (0.000689)

Note: Nonprofit expenditures in millions. Robust standard errors are in the parentheses.
The table omits other variables. Significance Level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Robustness Checks – Per Capita Measures

	Per Capita Public Total Spending on Parks		Per Capita Public Operational Spending on Parks		Per Capita Public Capital Spending on Parks	
	Fixed Effects	***Lagged DV***	***Fixed Effects***	***Lagged DV***	***Fixed Effects***	***Lagged DV***
L. Per Capita Nonprofit Expenditures	-0.700 (0.772)	**-0.860**** **(0.428)**	**-0.942**** **(0.390)**	**-0.423*** **(0.222)**	0.460 (0.586)	-0.417 (0.322)
L. Per Capita Nonprofit Expenditures Squared	0.00400 (0.00963)	0.00491 (0.00602)	0.00718 (0.00454)	0.00175 (0.00364)	-0.00529 (0.00790)	0.000675 (0.00446)

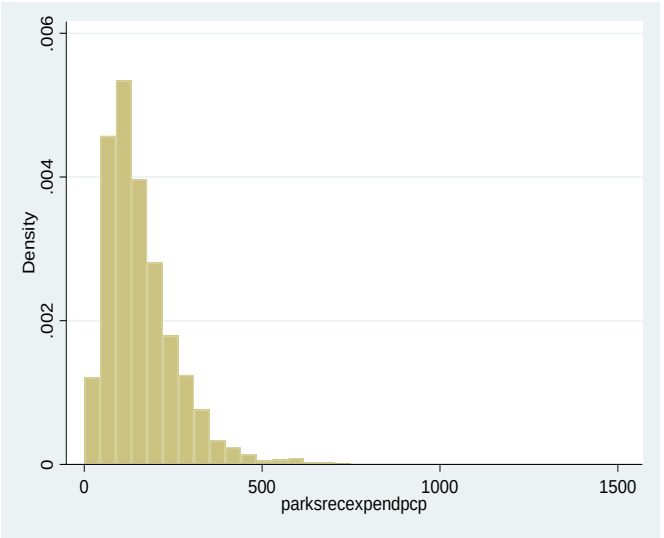
Note: Robust standard errors are in the parentheses. The table omits other variables.
Significance Level: * $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

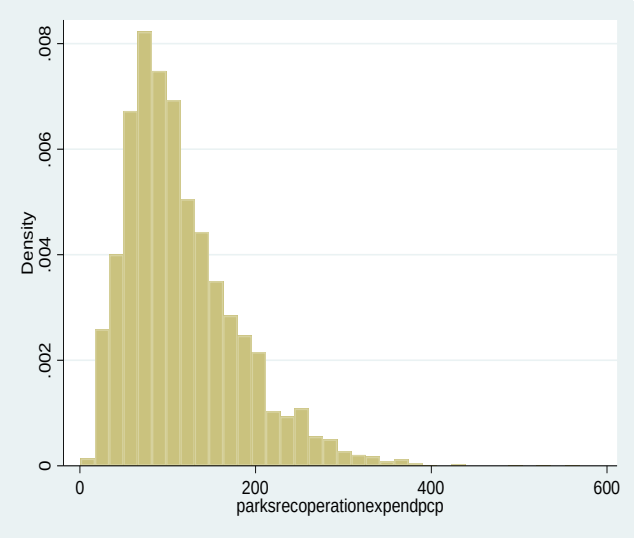
Total Direct

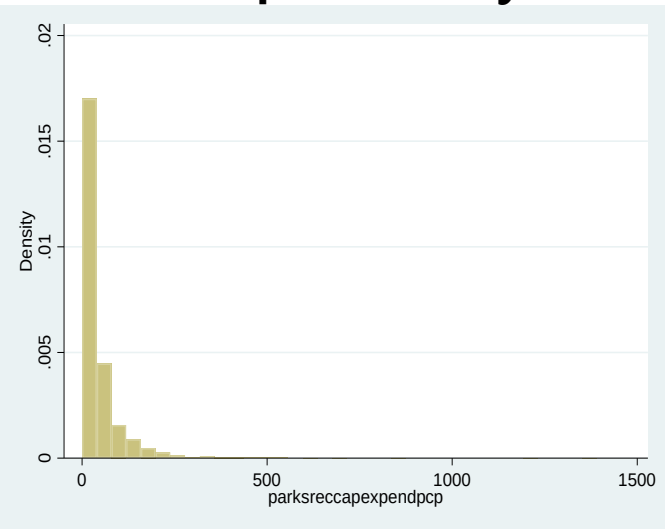
Operational

Capital Outlay

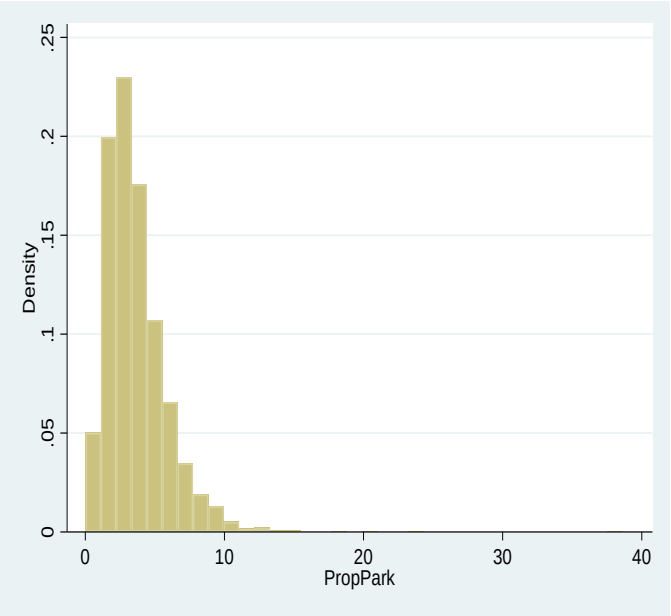
Per Capita Public Spending on Parks

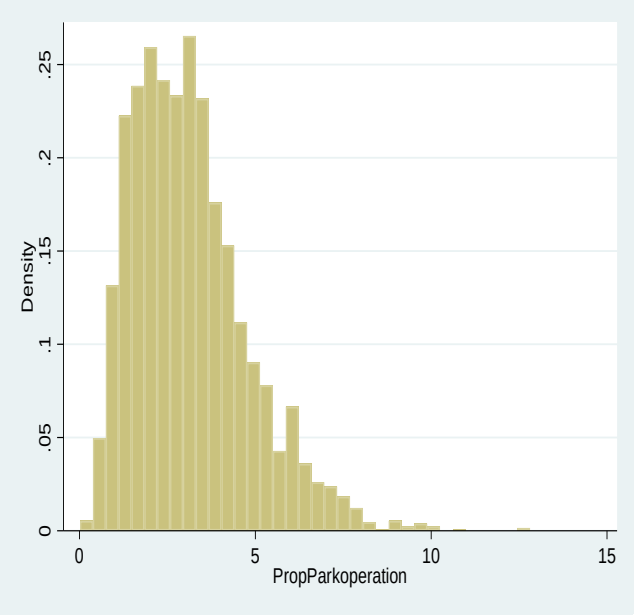


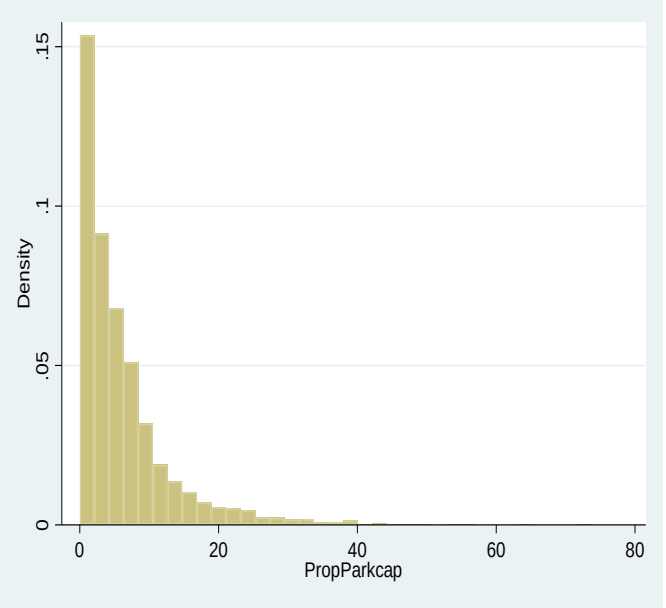




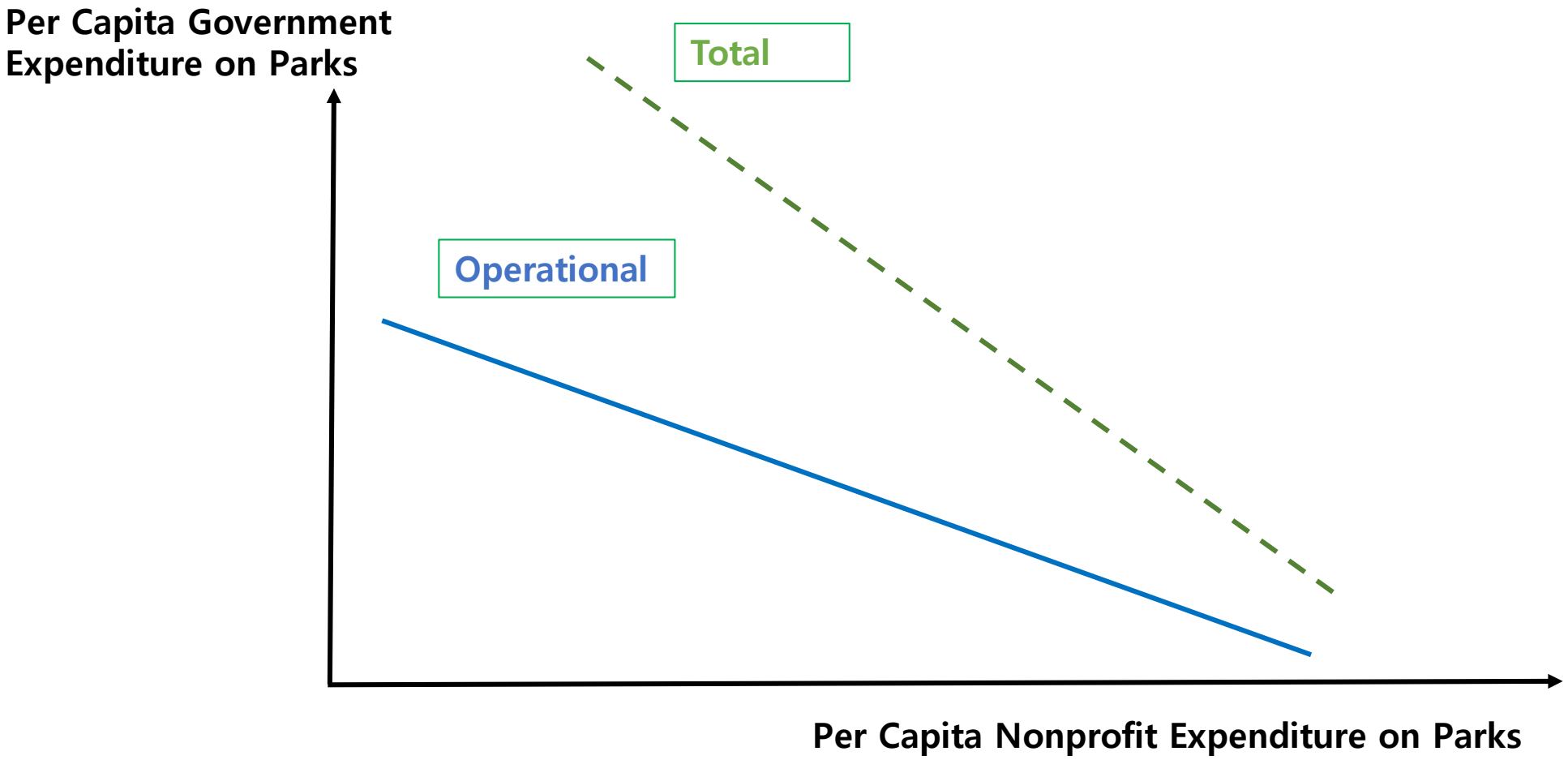
Proportion Public Spending On Parks



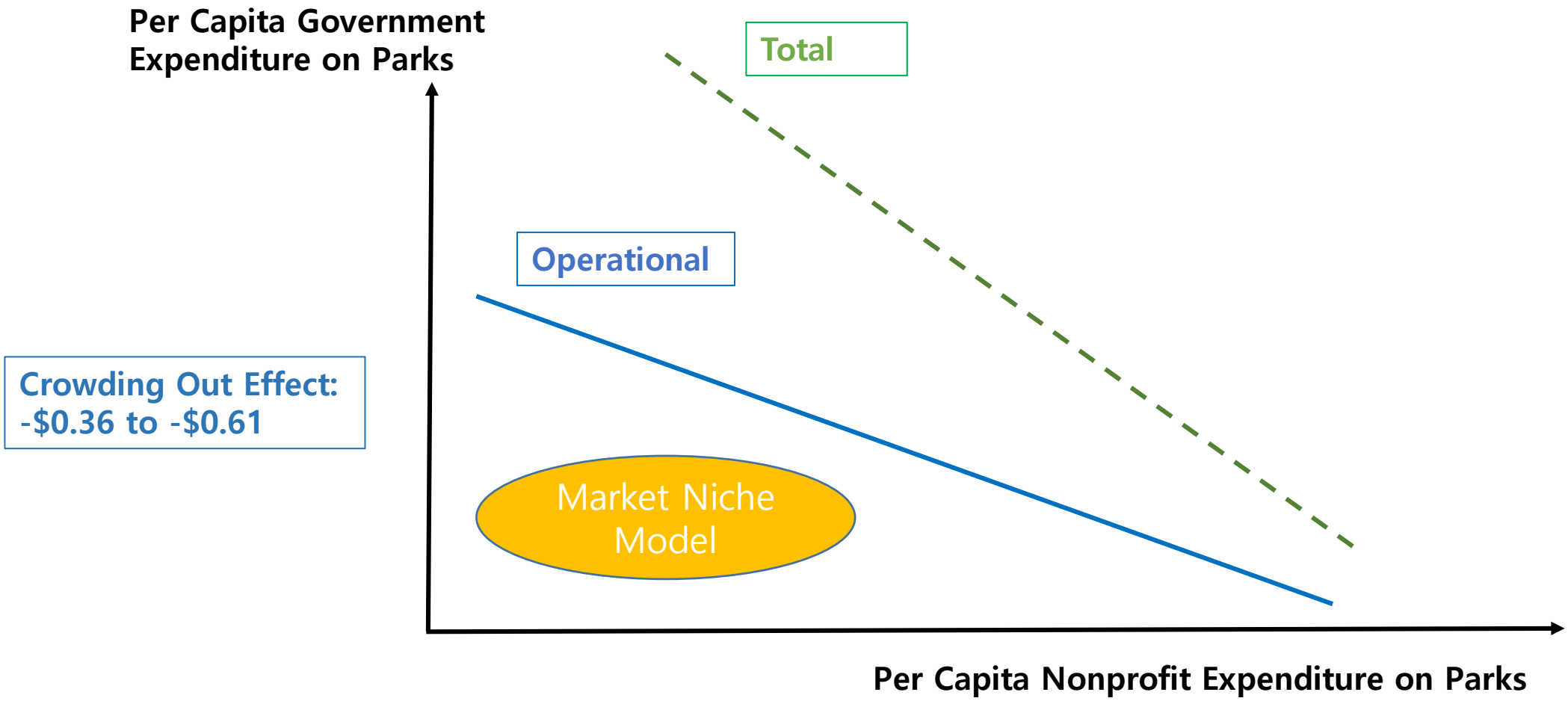




Empirical Findings and Results



Empirical Findings and Results



Park Expenditure Categories		Mean	SD	Min.	Max.	Observations	
Total direct expenditures (in millions of dollars)	overall	67.483	120.022	0.122	1372.162	N =	3576
	between		113.711	1.172	908	n =	149
	within		39.476	-215.762	611.248	T =	24
Non-capital expenditures (in millions of dollars)	overall	47.173	80.410	0.118	787.228	N =	3576
	between		78.574	0.886	632.165	n =	149
	within		18.209	-101.375	286.975	T =	24
Capital expenditures (in millions of dollars)	overall	20.310	48.248	0	623.854	N =	3457
	between		37.513	0.008	280.971	n =	149
	within		30.490	-210.898	404.161	T =	24
Percentage total direct expenditures	overall	3.627	2.203	0.014	-0.950	N =	3576
	between		1.685	0.893	8.856	n =	149
	within		1.426	-1.283	33.429	T =	24
Percentage non-capital expenditures	overall	3.138	1.647	.015	12.812	N =	3576
	between		1.466	0.697	7.619	n =	149
	within		0.760	-1.309	10.806	T =	24
Percentage capital expenditures	overall	6.156	7.182	0	73.815	N =	3457
	between		3.593	0.047	17.565	n =	149
	within		6.226	-10.439	70.259	T =	24

Variable		Mean	SD	Min.	Max.	Observations	
Total nonprofit expenditures (in millions of dollars)	overall	0.942	5.607	0	101.191	N =	3576
	between		5.016	0	59.5112	n =	149
	within		2.538	-39.520	42.622	T =	24
Median household income (in thousands of dollars)	overall	56.289	10.628	32.942	102.402	N =	3576
	between		10.416	36.754	94.037	n =	149
	within		2.273	44.332	64.654	T =	24
Median housing value (in thousands of dollars)	overall	197.089	131.743	71.500	1333.222	N =	3576
	between		123.788	83.387	1027.982	n =	149
	within		46.167	-97.027	502.328	T =	24
Percentage homeownership	overall	61.527	7.793	17.680	79.600	N =	3576
	between		7.630	20.478	77.866	n =	149
	within		1.700	50.722	67.289	T =	24

Empirical Findings and Results

Total

	DV: Log of Total Expenditures		DV: Percentage Total Expenditures	
	FE	**LDV**	**FE**	**LDV**
Nonprofit expenditures	-0.0186***	-0.00300	-0.0470***	-0.0298**
	(0.00575)	(0.00321)	(0.0179)	(0.0119)
Nonprofit expenditures squared	0.000248***	0.0000739**	0.000514***	0.000329***
	(0.0000557)	(0.0000290)	(0.000156)	(0.000107)

Non-Capital

	DV: Log of Non-Capital Expenditures		DV: Percentage Non-Capital Expenditures	
	FE	**LDV**	**FE**	**LDV**
Nonprofit expenditures	-0.0235***	-0.00485**	-0.0534***	-0.0145***
	(0.00582)	(0.00206)	(0.0165)	(0.00488)
Nonprofit expenditures squared	0.000225***	0.0000627***	0.000342**	0.000127***
	(0.0000513)	(0.0000195)	(0.000133)	(0.0000414)

Capital Outlay

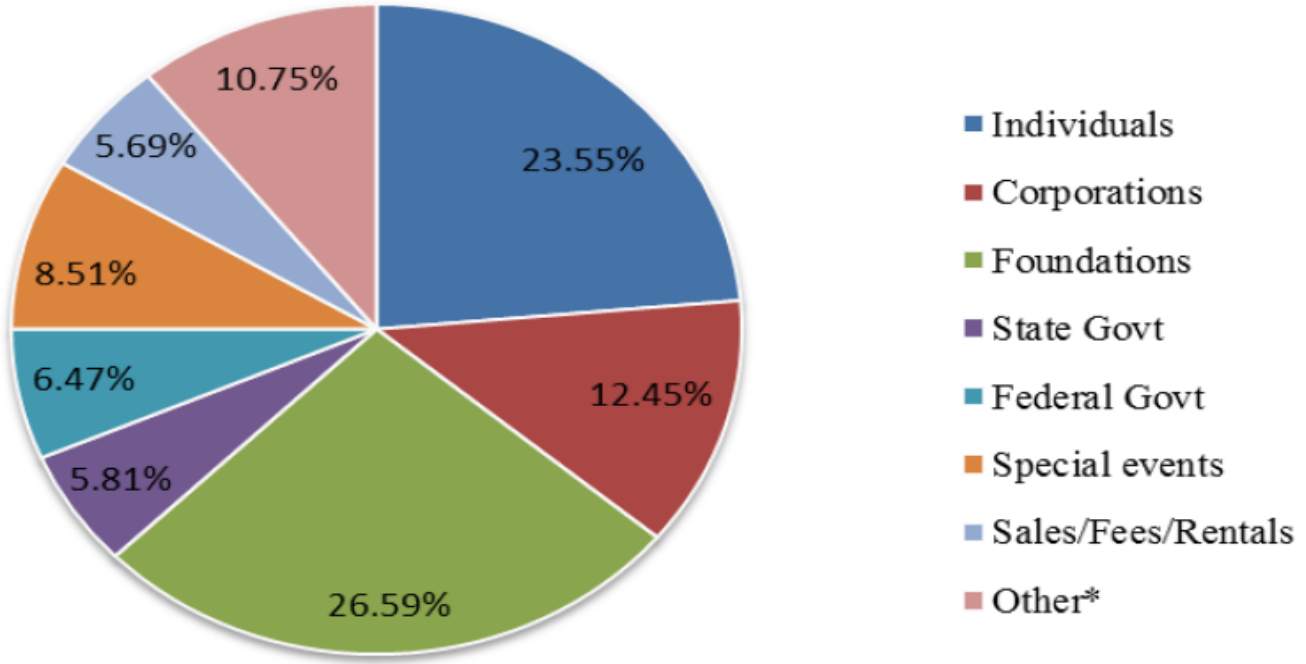
	DV: Log of Capital Expenditures		DV: Percentage Capital Expenditures	
	FE	**LDV**	**FE**	**LDV**
Nonprofit expenditures	0.0303	0.0242	0.00924	-0.0850*
	(0.0322)	(0.0148)	(0.0742)	(0.0492)
Nonprofit expenditures squared	0.000154	0.0000899	0.00106	0.00120***
	(0.000249)	(0.000122)	(0.000668)	(0.000409)

Limitations and Suggestions

- Sample

- Double counting of government and nonprofit expenditures

- Simultaneous Causality



*Other includes mainly investment income and local government funding.

Source: *Resources for the Future 2009 park conservancies and advocacy organizations survey*

- 7.18% government grant ratio, 14.9 program service ratio

(NCCS-GuideStar National Nonprofit Research Database 1998 – 2003)

Supporting Activities of City Park-supporting Nonprofits

Category	Number of Supporting Activities (Frequency) N = 204
1. Participating in developing the **master plan** of the park	56 (26.96%)
2. **Managing** the daily operation of the park	26 (12.74%)
3. **Advocating** for park funding and park policy	44 (21.57%)
4. **Fundraising** – e.g., raising philanthropic funds for benefit of a public park.	198 (97.05%)
5. **Natural resource maintenance and construction** – e.g., volunteer day for trail construction	145 (71.08%)
6. **Volunteer recruitment and management** – e.g., NPO provides an internet portal for volunteer recruitment	152 (74.51%)
7. **Public education and outreach**—e.g., volunteer led nature education.	121 (59.31%)
8. **Offers recreation programs** – e.g., organizing a sports league, concerts or other cultural events.	99 (48.53%)
9. Erection or **Construction** of Facilities	118 (57.84%)
10. **Membership organization**	83 (40.69%)

Dataset Construction Roadmap

Keywords Identification: Identify searchable keywords through existing friends' organizations list.

Keywords Search: Search the National Center on Charitable Statistics dataset (2013) using identified keywords (Different key words under the full NCCS database and under NTEE Code C - Environment and D - Recreation).

Eligible Organization Identification: Go through the websites and 990 forms of each organization to see whether they are eligible as a park-supporting charity.

Linking Eligible Charities to Historical Dataset: Each identified eligible park-supporting nonprofits linked to NCCS database (1989 to 2012).