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RESEARCH ARTICLE

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Government-nonprofit partnerships outside the contracting relationship and public funding allocation: Evidence from New York City's park system

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Abstract

Government-nonprofit partnerships outside the contracting relationship have become an increasingly important mechanism in financing and supporting public service provision. However, the relationship between these partnerships and public funding allocation remains unclear. We articulate two competing mechanisms—the substitution mechanism and the exchange mechanism—and empirically test them with a unique geocoded dataset of public park capital projects allocation in New York City. Our findings indicate that parks units supported by government-nonprofit partnerships are likely to receive more public capital project funding, which supports the exchange mechanism. In addition, larger parks with a more populous community surrounding them get more public capital funding allocation. As governments at all levels are seeking new ways to finance and manage public service provision, many more empirical studies in other service subsectors, time periods, and geographical contexts are required to draw more general conclusions about how government-nonprofit partnerships may influence public funding allocation and how such dynamics may compromise or promote equitable public service provision.

Yuan (Daniel) Cheng and Zhengyan Li contributed equally to this study.

KEYWORDS
government-nonprofit partnerships, government-nonprofit relations, local government management, public service provision, resource allocation

1 | INTRODUCTION

There is a surge of scholarly interest in cross-sector collaboration and government-nonprofit relationships in the last three decades (Bryson et al., 2006; Kettl, 2006; Kramer, 1981; Salamon, 1995). This trend is driven by the New Public Management movement in the 1980s as governments increasingly depend on contracting out local public services to nonprofit and private organizations (Smith & Lipsky, 1993). In this dominant framework of government-nonprofit relations, nonprofits are the agents and tools of government agencies, and funding flows unidirectionally from the government to nonprofits (Salamon, 1995). Nonprofits primarily take part in the delivery and implementation of public services while governmental actors are viewed to control the financing and distribution of public services.

This assumption of unidirectional funding flow in government-nonprofit partnerships faces significant challenges from reality. As governments at all levels recently suffer from more constrained budgets, policymakers and public managers are increasingly seeking partnerships with private organizations and donors to help finance public service provision (Brecher & Wise, 2008; Gazley et al., 2018; Nisbet & Schaller, 2020; Pincetl, 2003). Empirical evidence also supports that nonprofits play multiple roles in financing, managing, and planning public services. For instance, in the public education sector, a notable growth of school-supporting charities, including school foundations and parent–teacher organizations, has been documented (Nelson & Gazley, 2014; Paarlberg & Gen, 2009). Beyond public education services, Gazley et al. (2018) also documented an increasing reliance on charities for the provision of national and state park services.

As these alternative service provision strategies become more prevalent, scholars and policy analysts have directed more attention to their social equity and distributional consequences (Jakobsen & Andersen, 2013; Walls, 2014). Brecher and Wise (2008) observed that "parks located in wealthy neighborhoods tend to be able to attract greater private resources than parks in poorer neighborhoods" (S156). As we advocate for an expanding role of nonprofit organizations in public service provision, how such arrangements influence the allocation of public services remains a knowledge gap and deserves further exploration (Andrews & Entwistle, 2013). Although a few studies have examined the relationship between the location of service-providing nonprofits and the spatial distribution of government contracts (Marwell & Gullickson, 2013; Peck, 2008), the focus of existing literature centers on the contracting relationship between the government and nonprofits and the location of service delivery nonprofits. What is still missing in the literature is that as local governments are increasingly relying on their nonprofit partners to fund public service provision, how do these partnerships influence the allocation of public resources? This question is particularly salient as the concerns about equity are mounting for these partnerships (Gazley et al., 2020; Nisbet & Schaller, 2020).

Informed by the literature on government-nonprofit relationships, coproduction, and the political role of nonprofit organizations, this article fills the gap by exploring how government-nonprofit partnerships outside the contracting relationship may influence public resource allocation, in the context of public capital project allocation to 2009 park units in the New York City (NYC) park system between 2009 and 2014. Our findings indicate that parks supported by government-nonprofit partnerships are likely to receive more public capital project funding. This article makes several important theoretical, empirical, and methodological contributions to the literature. First, despite multiple theoretical models in the existing literature to understand government nonprofit funding interactions, for example, the complementary and supplementary models developed by Young (2000), we do not have a well-developed theoretical framework to understand how nonprofits may influence public resource allocation when the partnership is outside the contracting relationship and when nonprofits help finance public service provision (Brecher & Wise, 2008; Gazley et al., 2018; Shi & Cheng, 2021). By articulating the theoretical mechanisms of exchange and substitution, this article answers this call and contributes to a more nuanced understanding of various forms of government nonprofit collaboration (Gazley & Guo, 2020).

Second, by applying the geographical information system (GIS) to construct a distance-based access measure of park community, this study improves the current practices in empirical studies of public service distribution, which mainly use administrative boundaries identified by the U.S. Census to construct place and community. In this article, we define the community for a park as areas within 0.5 mile of the boundary of the park, or a 10-min walk to the park. The distance-based approach used in this article may also provide ways to better capture the access and distribution of public services in other subsectors such as education, health, and social services. By constructing a community based on the location of parks instead of nonprofit organizations, our study also more accurately captures the service address of nonprofit organizations. By comparing with other studies that examine government-nonprofit interactions at different geographical scales, we also demonstrate that the unit of analysis is critical as we understand these dynamic relationships (Ma, 2020; Ostrom, 2009).

Third, our study complements existing scholarship on the distributional consequences of the nonprofit sector by extending the focus from where nonprofit organizations are located to how they may impact the allocation of public funding (Brecher & Wise, 2008; Cheng et al., 2022; Gazley et al., 2020). This question has important social equity implications when nonprofits play important roles in financing and supporting public services. As nonprofits have raised a significant amount of charitable support for public parks in a community, it creates inequities for the overall public park system if the local government also decides to allocate more resources to these parks, especially when the overall funding for the park system is decreasing or stagnant (Cheng, 2019a; Kaczynski & Crompton, 2006). These inequities are further exacerbated when wealthier and whiter communities are more likely to set up these government-supporting nonprofits (Gazley et al., 2020; Paarlberg & Gen, 2009). Parks without nonprofit partners and located in poorer and more racially diverse neighborhoods may get the worst of both worlds.

2 | THEORY AND HYPOTHESES

Government-nonprofit partnerships set up to help finance and support public service provision (e.g., public parks, public libraries, and public education) have drawn a significant amount of scholarly attention recently (Gazley et al., 2018; Paarlberg & Gen, 2009; Schatteman & Bingle, 2015). While they are certainly not a new form of government-nonprofit partnership (e.g., the public library movement stimulated by Andrew Carnegie in the late 1800s) and scholars have recognized the complex interdependence between local governments and nonprofit organizations in various forms (Saidel, 1991; Saidel & Searing, 2020; Van Slyke, 2007), they deserve renewed attention from scholars and policymakers as governments at all level suffer from extensive budget cuts and cannot sustain the level of public service provision on their own (Gazley et al., 2018; Nisbet & Schaller, 2020; Reckhow et al., 2020). While these partnerships can be governed by formal agreements, especially when the collaboration becomes more integrative (Cheng, 2019c), they are distinct from the classic contracting out relationship. Instead of depending on a government contract for public service delivery, nonprofits in these partnerships predominantly rely on charitable contributions and volunteers to support those public services traditionally financed by the government (Gazley et al., 2018).

From a theoretical perspective, this model of government-nonprofit partnership through which nonprofits raise support for public service provision also does not fit neatly with the existing models of government-nonprofit relations. As Brecher and Wise (2008) pointed out in their pioneer study of these partnerships in the context of public parks, this model is not identical to the supplementary model as suggested by Young (2000). The supplementary model emphasized the unique market niches nonprofits and governments reside in while in this model of government-nonprofit partnership, nonprofits and local governments operate in the same niche of public service provision. This model is also different from the complementary model or the traditional partnership model (Kramer, 1981; Salamon, 1995) as the funding flows from nonprofits to local governments. It creates a unique opportunity for scholars to understand how nonprofits may influence public service provision and the allocation of public resources even if they do not fit neatly with the supplementary and complementary models (Cheng, 2019a).

Drawn from the existing literature on government-nonprofit relations (Cheng et al., 2022; Fyall, 2016; Marwell, 2004), we summarize two theoretical mechanisms through which government-nonprofit partnerships outside the contracting relationship can influence public funding allocation in public service provision: the substitution mechanism and the exchange mechanism. We use mechanism instead of model here to distinguish from the supplementary and complementary models of government-nonprofit relations. Those mechanisms are likely to drive the covariance between these partnerships and public funding allocation. The substitution mechanism suggests that the support brought by these partnerships may substitute public spending while the exchange mechanism points out the possibility that nonprofits could leverage their support and power in exchange for more governmental resources to be allocated to their supporting parks.

2.1 | The substitution mechanism

The substitution mechanism treats the support brought by nonprofits as a substitute for public resources. In other words, as nonprofits bring in more resources to public service provision, often in the forms of donations and volunteers, local governments tend to spend less on those services. For the interplay between nonprofits and local governments in public service provision, the substitution mechanism can take place at two levels: the service subsector level and the service unit level. At the service subsector level, the substitution mechanism predicts that as nonprofits bring in more resources to a service subsector, local governments are likely to decrease the overall level of public spending in that subsector. Existing empirical studies have validated the prediction of the substitution mechanism in multiple service subsectors and have found such a substitutional effect in higher education (Becker & Lindsay, 1994) and parks and recreation services (Cheng, 2019a; Walls, 2014).

What is yet to appear in the literature is the test of the substitution mechanism at the service unit level—when nonprofits support some service units in a subsector, how will it impact local governments' funding allocation to other service units in the same service subsector? We attempt to fill in this gap by examining how government-nonprofit partnerships outside the contracting relationship influence the allocation of public capital funding across park units owned by the NYC parks and recreation departments. Based on this substitution mechanism, park units supported by government-nonprofit partnerships outside the contracting relationship are likely to receive fewer public resources compared with those communities that are not supported by such partnerships. From a social equity perspective, as those partnerships have already attracted a significant level of voluntary and donative support, it is in the interest of local governments and the general public to divert the resources to parks that are not supported by these partnerships. In fact, a 2015 legislature adopted by the NYC city council required more information disclosure about the revenues of nonprofit partners and the park units that benefited from their support (Nisbet & Schaller, 2020). Such information needs to be taken into consideration as the parks and recreation department makes its budget allocation decisions.

Hypothesis 1. Everything else being equal, park units supported by government-nonprofit partnerships outside the contracting relationship are likely to receive a lower level of public funding allocation.

2.2 | The exchange mechanism

The assumption behind the substitution mechanism is that nonprofits are neutral players in public service provision and they do not intend to or have the ability to actively influence the funding allocation decisions of their government counterparts. Local governments make funding allocation decisions purely based on the need of the communities. The exchange mechanism challenges this assumption as nonprofits and the government constantly interacts with each other in these partnerships and nonprofits serve as an interest group to influence funding allocation (Fyall, 2017; Marwell, 2004; Mosley, 2012). Marwell (2004) proposed the machine politics model to conceptualize the interest group role that nonprofits play in determining the allocation of public resources. In the machine politics model, local elected officials allocate more contract funding to community-based organizations in exchange for the voting support that these CBOs might be able to mobilize. Through a qualitative investigation of the advocacy agenda of nonprofits that provide homeless services, Mosley (2012) also found that those nonprofits frequently advocate for higher levels of public funding. Carroll and Calabrese (2017) regarded this phenomenon as the rent-seeking theory of nonprofit organizations: nonprofit organizations that are engaged in direct funding relationships with the government have incentives to advocate for continued tax benefits and more public funding for public service provision. They further empirically validated the rent-seeking theory by showing a positive correlation between nonprofit and public spending in multiple public service subsectors. Informed by the machine politics CBOs and the rent-seeking theory, we use the exchange mechanism to describe the interest group role that nonprofits play in public service provision.

Although the exchange mechanism is mainly developed in the context of social services and the contracting regime, the same logic can be applied to government-nonprofit partnerships outside the contracting relationship, particularly those that are set up to help finance and support public service provision. Just as contracting opens a pathway for nonprofits to lobby public managers (Kelleher & Yackee, 2009), government-nonprofit partnerships that are set up to finance and support public service provision help nonprofits gain access and power to influence the allocation of public resources. Compared with the contracting regime where the governments have both political authority and financial resources, local governments are more likely to involve nonprofits in the planning and design of public services provision when nonprofits become important players in financing and creating public services (Cheng, 2019b; Reckhow et al., 2020). Nonprofits can also influence these decisions by setting up conditions for governments to commit a certain level of public investment to match their fundraising efforts (Fyall, 2016). All these mechanisms empower nonprofits to become an influential player in the decision-making process of local public service provision. As Marwell (2004) spells out in her machine politics model, it is often in the interest of the nonprofits to bring more public resources to the constituency and community they serve, in exchange for their own financial or human resource support via their donors and volunteers. Similar dynamics can also play out in the context of public parks as these nonprofits get involved in the planning and design of these services and play an instrumental role in raising charitable support for these services (Cheng et al., 2022). Based on the exchange mechanism, we develop the following hypothesis for the relationship between government-nonprofit partnerships outside the contracting relationship and public funding allocation in parks.

Hypothesis 2. Everything else being equal, park units supported by government-nonprofit partnerships outside the contracting relationship are likely to receive a higher level of public funding allocation.

3 | RESEARCH CONTEXT: NEW YORK CITY'S PARK SYSTEM

We chose to study such government-nonprofit partnerships in the context of NYC's public park system as it is widely regarded as the pioneer and most notable example of using government-nonprofit partnerships to help finance and manage public parks (Harnik & Martin, 2015; Nisbet & Schaller, 2020). Brecher and Wise (2008) documented more than 50 government-nonprofit partnerships that support the operation and management of NYC parks, and the number continues to grow. The scale and history of these partnerships in NYC provide an important benchmark for other local governments as they become more active in seeking nonprofit and private partners to help fund and manage their city park services (Harnik & Martin, 2015).

We focus on the relationship between government-nonprofit partnerships outside the contracting relationship and public funding allocation in the context of public capital funding among public parks for several reasons. First, compared with operating funding, capital funding and projects are likely to be attached to individual parks. Operating funding, instead, is often shared among multiple parks, therefore making it hard to delineate its allocation among individual parks. Second, capital project funding represents a significant share of public spending on parks. One-third of the total public funding for parks goes to capital funding (Lincoln Institute of Land Policy, 2021). Third, capital funding and projects (e.g., playgrounds, ball fields, recreation centers, and tree planting) are more visible to community residents and can serve as a stronger signal of the funding priority of local governments (Shybalkina & Bifulco, 2019). As a result, most governmental initiatives on public funding equity focus on the allocation of capital project funding. For example, NYC parks recently carried out a series of initiatives to improve capital funding equity among its parks, focusing on improving park conditions in neighborhoods that are dense, growing, and do not have significant capital investment in the past decade (Nisbet & Schaller, 2020).

The capital process for NYC parks has three phases: the design phase, the procurement phase, and the construction phase. It typically starts with a scope meeting with potential stakeholders to conduct a need assessment of the site and determine whether the site will receive funding for the project. Each year in late June or early July, NYC parks decides which projects get funded based on these scope meetings and need assessments. Once the funding and design are approved, the capital project will enter the procurement phase and the construction phase. In these two phrases, NYC parks solicit the contractors and carry out the construction of the capital projects (NYC Parks, 2021). Recent research shows that park-supporting nonprofits not only perform service delivery roles (e.g., volunteer recruitment, education, recreation programming, and natural resource maintenance), they also participate in the processes of developing the master plan and designing public parks (Cheng, 2019b; Gazley et al., 2018). These service planning and design roles performed by those organizations make them a very important player in the capital process of NYC parks, especially in the design phase of the capital process.

In the context of NYC's park system, we expect that both the substitution and exchange mechanisms are possible to play out. On the one hand, the parks department may allocate more capital funding to parks without the support of government-nonprofit partnerships, thus making up for the funding needs of those parks that do not benefit from charitable support from these partnerships. On the other hand, because of their involvement in the park planning and design process and the lever they have with their constituent support, these park-supporting nonprofits are also likely to advocate for more public capital funding to be allocated to parks they support via their partnership with the parks department. The context of NYC's park system and its presence of diverse government-nonprofit partnerships provide a great opportunity to test which mechanism is likely to dominate the interaction between nonprofits and local governments.

4 | DATA AND METHOD

4.1 | Variables and data sources

To test the above two competing hypotheses suggested by the substitution and exchange mechanisms, we construct a unique dataset containing detailed information about public capital funding allocation among NYC parks, government-nonprofit partnerships dedicated to supporting public parks, and socioeconomic characteristics of the communities surrounding these parks. Here below we discuss in detail how we construct and measure each of our variables and our main empirical strategy in modeling the relationship between public capital funding allocation and government-nonprofit partnerships outside the contracting relationship.

The dependent variable of this study is measured as the amount of public capital project funding allocated to parks. The public capital funding data come from the capital project tracker, which is an open data platform maintained by the NYC Department of Parks and Recreation (NYC Open Data, 2018a). The capital project tracker lists detailed information on all capital projects financed and managed by NYC parks, including the current status, the historical timeline of different phases, and the amount of funding. The capital project data are merged into the Parks Properties dataset from NYC Open Data, which records all city properties under the jurisdiction of NYC parks (NYC Open Data, 2018b). By merging these two datasets, we obtain detailed information about public capital funding allocation among park properties managed partially or solely by the New York City Department of Parks and Recreation (NYC parks) between the years of 2009 and 2014.[1] In our study period, the average public capital spending on parks is 82 dollars per capita and the average public operational funding is 161 dollars per capita, adjusted for inflation for 2017 dollars.

Our key independent variable is measured as a dummy variable of whether a park is supported by a government-nonprofit partnership that is outside the contracting relationship. Data on government-nonprofit partnerships come from two sources. First, we retrieved an official list of nonprofit park partners from NYC parks (NYC Parks, 2018). The list, however, does not include information on their supporting parks. A content analysis of these nonprofits' websites and annual reports was conducted by two research assistants to identify the parks these nonprofits support. We have identified 57 park-supporting nonprofits based on the list. To alleviate the concern that the list might omit some park-supporting nonprofits (not all partnerships are organized by a formal agreement with the city or listed on the NYC parks website), we conducted a keyword search in the 2013 and 2015 National Center for Charitable Statistics (NCCS) Core files to identify additional park-supporting nonprofits in NYC. We use the 2013 and 2015 files because they are at the end of our study period from 2009 to 2014 so that we will have a complete list of relevant nonprofits. The keywords used in this methodology followed recent studies of park-supporting nonprofits (Cheng, 2019a). We have identified 61 park-supporting nonprofits based on the keyword search, and 13 of them are not on the official list. Adding the 13 nonprofits to the 57 nonprofits from the official list gives us a total of 70 park-supporting nonprofits. By triangulating the official list and the NCCS search, our approach provides a more complete list of park-supporting nonprofits. We also obtained the annual total expenses for the park-supporting nonprofits from the NCCS database. Figure 1 shows the distribution of park properties owned by NYC parks and the ones that are supported by government-nonprofit partnerships in 2018.

We apply the 0–1 dummy coding to indicate whether a park-year observation is supported by government-nonprofit partnerships. Since the list of nonprofits was obtained in 2018 and the study period is 2009–2014, one concern is that some of the partnerships might be established in the middle of or after the study period. We address this concern by analyzing the official ruling year of the park-supporting nonprofits (the year when a nonprofit is granted tax exemption status by the Internal Revenue Service). We find that most of the park-supporting nonprofits were founded before 2009 with only two nonprofits established during the period between 2009 and 2014, which suggests that most of the partnerships existed throughout the analysis period.[1] We acknowledge the possibility that the beginning of a partnership may be after 2009 even when a nonprofit has existed before 2009. However, this issue is unlikely to affect our main analyses that focus on dedicated partnerships (see details in the next paragraph). For dedicated partnerships, nonprofit partners often incorporate the names of the parks that they support into the names of their organizations. It is, therefore, unlikely that they would change their supporting park after their establishment.

We categorize park-year observations with nonprofit partners into two types: those with dedicated partners and those with non-dedicated partners. An observation with dedicated partners has at least one nonprofit partner that serves only the park. An observation with non-dedicated partners has nonprofit partners but shares its partners with other parks. Our main focus is on dedicated partnerships as the two models in the hypothesis section are less

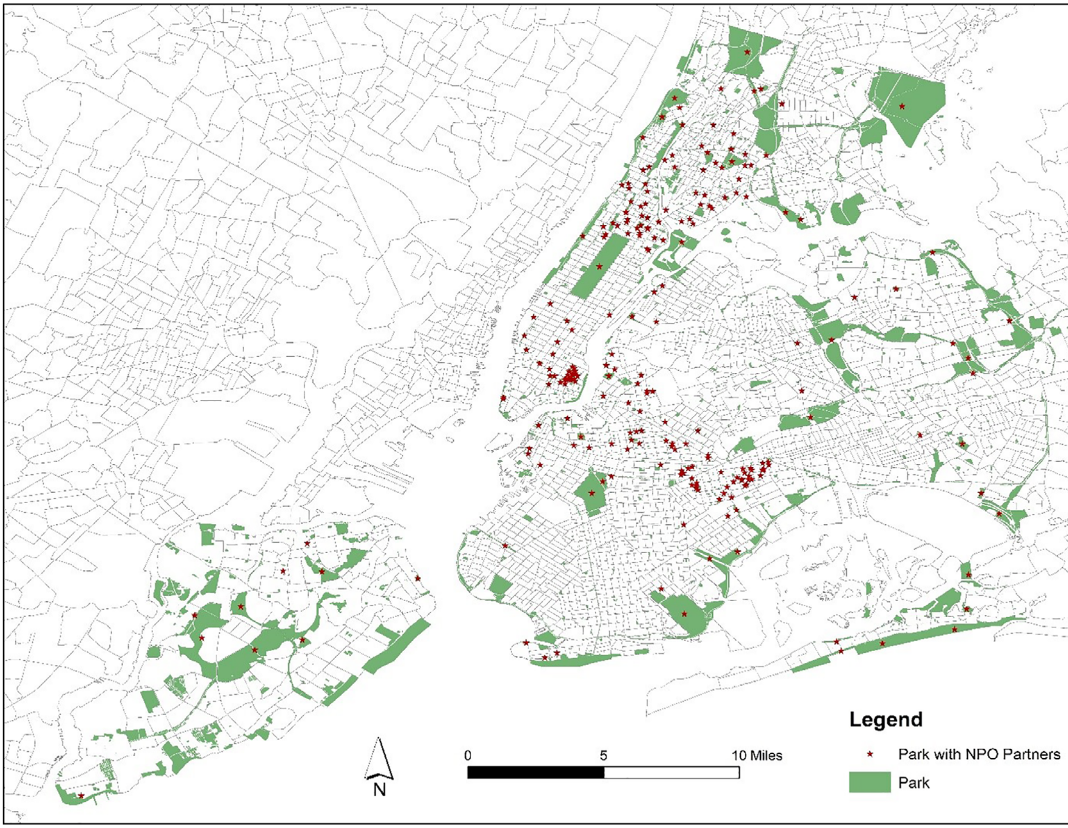

FIGURE 1 Map of the NYC park system

likely to apply to non-dedicated ones. First, if a nonprofit is partnering up with multiple parks, it needs to spread its resources over its partnering parks, or it may not advocate for funding equally for each of its partners. This represents a weaker partnership. Second, in the specific context of this research, parks with non-dedicated nonprofit partners are dominated by parks that partner with the nonprofit "Green Thumb," which supports 136 parks. "Green Thumb," with relatively small assets and expenses compared with other nonprofits, provides programming and material support to 550 community gardens (not all of them are parks as defined in this study) in New York City. Finally, compared with dedicated partnerships, non-dedicated partnerships have a higher risk of suffering from the concern that certain partnerships were established after 2009 despite the existence of relevant nonprofits before 2009 (as is noted at the end of last paragraph), therefore compromising the measurement validity. Given their limited resources, the large number of parks and gardens they support, and concern for measurement validity, non-dedicated partnerships are unlikely to trigger the two mechanisms we test. However, we do include both types of partnerships in our empirical models to show the robustness of the findings.

Other than the status of government-nonprofit partnerships, many other factors may also affect the allocation of capital project funding. We include some important park features, such as park size, borough, whether it is a famous park, and a rich set of demographic and social–economic characteristics of the park community, as control variables in our analysis.[2]

4.2 | Constructing surrounding communities of parks

One of the key empirical challenges of this study is to geographically identify the surrounding community of a park. Existing literature uses the "unit of coincidence" approach, in which the characteristics of the geographic unit where a park locates is assigned for the park. This approach, while convenient, raises some concerns about its ability to capture the "real" park communities. First, parks have relationships with communities beyond their hosting geographic units. In populated places like NYC, a census tract is very small. A park is likely to influence and be influenced by residents of nearby geographic units. Besides, a park can be located by the border of a geographic unit and be closer to the population of neighboring geographic units. Second, census geographic units vary greatly in size as they are based on population. Using geographic units as communities will lead to inconsistency in the definition of park communities (in terms of size).

To address these limitations, we follow the Trust for Public Land (2019) to define the community of a park as areas within 0.5 mile of the boundary of the park or a 10-min walk to the park. We use the areal apportionment method, which is commonly used in the environmental justice literature to study the racial and socioeconomic disparities associated with hazardous or polluted sites (Mohai & Saha, 2006), to construct a park community. First, we geolocate all park units and create a circular buffer with a 0.5-mile radius from the border of each park. Second, we overlay the buffer layer over the census tract layer to create intersections between the two layers. Third, assuming population and households are evenly distributed within a census tract, we calculate for each intersection the total population and the population of different races, ethnicities, and education levels, and the number of households of different traits, based on the proportion of the area of each intersection in the area of the census tract that the intersection belongs to. (The census tract level demographic data are from the American Community Survey.) Fourth, we calculate for each circular buffer the total population and the population of different races, ethnicities, and education levels, and the number of households of different traits by, respectively, summing up the population and household measures of all intersections that belong to a circular buffer. Finally, using the circular-buffer demographic information, we calculate the socioeconomic and demographic characteristics of the buffers for our analysis. Figure 2 shows the graphical demonstration of how we use the areal apportionment method to generate the community of each park unit.

Table 1 presents the descriptive statistics. The 70 park-supporting nonprofits have partnered up with 229 parks (about 1373 park-year observations). Among the 229 parks, 39 parks have dedicated nonprofit partners (about 236 park-year observations). Approximately 8% of the park-year observations with nonprofit partners and about 5% of the park-year observations without such partners have received capital project funding. Among the park-year observations that have received capital project funding, those supported by government-nonprofit partnerships tend to have larger amounts of funding compared with those without government-nonprofit partnerships (about $2 million vs. $1 million). Besides, park-year observations with nonprofit partners tend to be larger and located in communities with a larger population, higher proportions of Black population, lower levels of median household income, and lower rates of homeownership. Park-year observations with dedicated nonprofit partners, however, tend to have lower percentages of Black and Hispanic population, higher income, and higher education levels, which is more consistent with Brecher and Wise (2008)'s observation that park-supporting nonprofits are more likely to locate in wealthier neighborhoods.

4.3 | Empirical strategy

The goal of our empirical analysis is to examine the relationship between government-nonprofit partnerships and the amount of park capital project funding allocated to public parks in NYC. The statistic distribution of the amounts of public capital project funding poses two empirical challenges for our analysis. First, there are many zeros in the dependent variable (amounts of funding) as most parks do not have any funding in a certain year. Second, the distribution of the amounts of funding is heavily skewed to the right. These features of the dependent variable render a simple OLS regression inappropriate for our analysis. We could address the problem of the right-skewness with the logarithm transformation of park funding. This, however, requires us to exclude the observations with zero funding from the analysis, which will lead to potential sample selection bias.

To address these issues, we adopt a two-part model (Belotti et al., 2015; Duan et al., 1984), which has been widely used in health economics and health services research to deal with healthcare expenditures, which share the structure and nature of our capital funding data. In the two-part model, a logit model is first fitted to all observations to model the binary outcome of positive or zero capital project funding, and then conditional on positive funding, an OLS regression is used to model the level of the funding. The results from both parts can be combined to get an overall marginal effect for each independent variable.

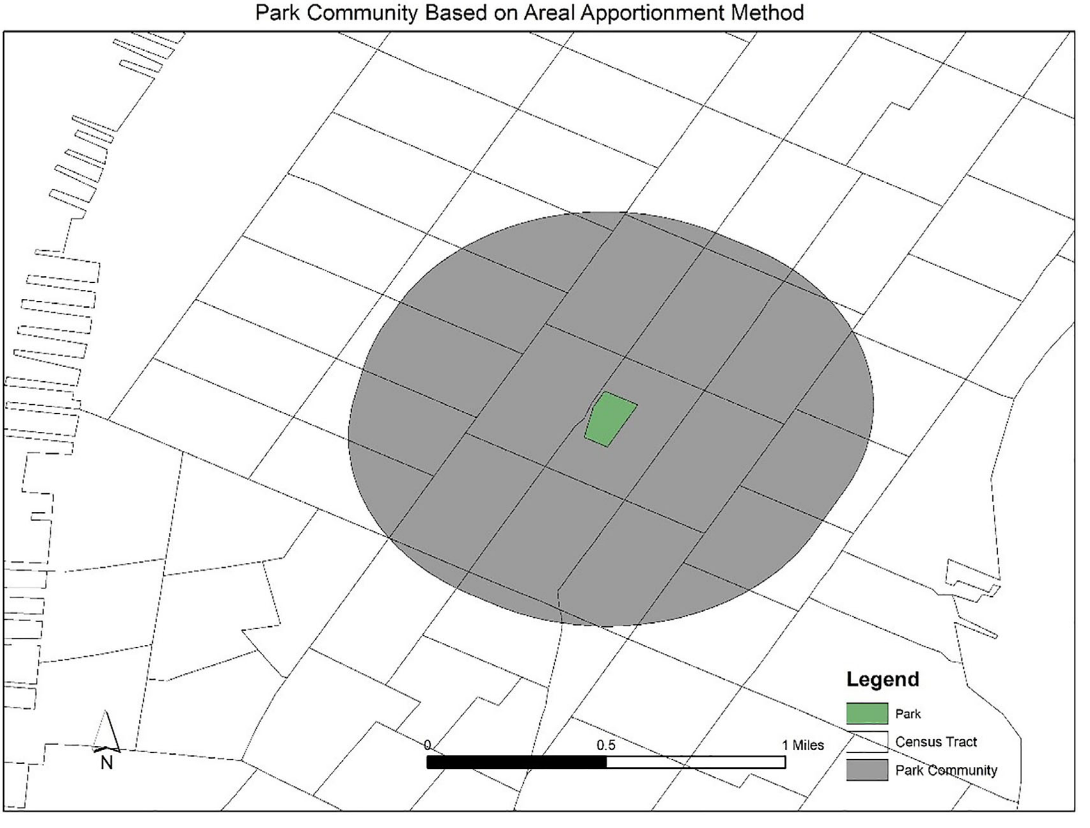

FIGURE 2 Graphical demonstration of the areal apportionment method

TABLE 1 Park-year level descriptive statistics

Variables	Park-year observation type: W/nonprofit partners (N = 1373) Mean	SD	W/dedicated nonprofit partners (N = 236) Mean	SD	W/O nonprofit partners (N = 10,680) Mean	SD	All parks (N = 12,053) Mean	SD
Dependent variable								
Receive funding (1 = Yes)	0.079	0.269	0.220	0.415	0.049	0.217	0.053	0.224
Amount of funding (excluding zeros) ($1 k)	1903	3303	2141	3996	1086	1893	1225	2215
Independent variables								
Nonprofit expense ($1 k)	4255	5387	6130	13,316	0	0	452	2191
Park size (Acre)	40	145	142	278	12	84	15	94
L. population (1000)	43	33	70	60	33	21	34	23
L. median household income ($1 k)	50	24	72	33	54	24	54	24
L. % Black population (0–100)	35	28	22	24	26	26	27	26
L. % Hispanic population (0–100)	31	20	25	20	31	21	31	21
L. % College graduate (0–100)	33	21	49	23	32	19	32	19
L. % Owner occ'd houses (0–100)	23	17	28	19	33	21	32	21

Note: *N* represents number of park-year observations. We have identified 2009 parks through the official park list of NYC parks. We have 12,053 park-year observations over the 6-year span of our analysis (One park-year observation misses park community median household income and is excluded).

The two-part model can be represented by

$$\text{Logit}: \text{Recive Funding or not} = X\beta_1 + \varepsilon_1,$$

$$\text{OLS}: \log(\text{Amount of Funding}) = X\beta_2 + \varepsilon_2 \text{ when Funding} > 0, \text{where } X \text{ are explanatory variables.}$$

The overall predicted amount of funding can be calculated by multiplying the expectations from both parts of the model, as

$$E(\text{Amount of Funding}|X) = \Pr(\text{Funding} > 0|X) * E(\text{Amount of Funding}|\text{Funding} > 0, X),$$
$$\text{where } X \text{ are explanatory variables.}$$

Duan et al. (1984) showed that the maximum likelihood estimation of the two-part model is relatively simple, as the likelihood function can be broken down into two terms, which are equivalent to a logit regression likelihood function and an OLS regression likelihood function respectively, thus the estimates for each part can be obtained by separately fitting a logit model and an OLS model. It is worth noting that the two-part model does not make any assumption about the independence between the errors of the two parts (Belotti et al., 2015). They may well be correlated, but the correlation does not affect the consistency of the estimates as "the separability of the likelihood functions is a consequence of the way conditional densities are calculated and it does not depend on any independence assumption." (Duan et al., 1984). We use the Stata code "2 pm" (Belotti et al., 2015) to combine the results from part 1 and part 2 for the overall predictions and marginal effects. When combining the two parts, retransformation of the dependent variable from the logarithm scale to its raw scale is necessary to make the interpretation meaningful. The bootstrap method is used to obtain standard errors for the combined results.

The two-part model is different from selection models such as Heckman and Tobit models. The Tobit and Heckman models are used to deal with censored or missing data when the true values or values of interest are unobservable for some subjects. They estimate what the potential outcomes would be if we could observe the censored and missing outcomes. In our case, a Heckman or Tobit model would be estimating the effect of nonprofit partnership on capital funding if every park receives funding. This is not our question of interest. Instead, the two-part model does not address the selection bias issue, and it simply provides an approach to better predict the actual outcomes given the data structure. The use of two-part versus Heckman/Tobit models has been debated extensively in the literature. More recent literature suggests that when zeros represent actual outcome values instead of censored or missing values and we are interested in predicting the actual outcomes, the two-part model should be used (e.g., Belotti et al., 2015). The two-part model is appropriate for our analysis as park capital funding is actual values. Zero funding means a park receives zero dollars. And we are interested in predicting the actual values.

5 | EMPIRICAL FINDINGS AND RESULTS

We organize the results by part of the analysis (part 1, part 2, and combined), and for each part, we present the estimates from three models. For all three models, the analysis is at the park-year level (each park is measured in each year). Using park-year observation as the unit of analysis is appropriate as each year represents a different budgeting and fiscal cycle. To address the potential interdependence among observations of the same park in different years, we have included park random effects and clustered the standard errors at the park level.

Model (1) uses a dummy to measure dedicated partnerships and excludes parks with only non-dedicated partnerships. Model (2) uses two dummies to separately measure dedicated and non-dedicated partnerships. Model (3) pools dedicated and non-dedicated partnerships together and uses a single dummy variable to measure partnerships. As discussed earlier, our main focus is on dedicated partnerships as non-dedicated partnerships are less likely to trigger the two theoretical models we propose.

Table 2 shows the results for part one, which examines the relationship between government-nonprofit partnerships and the chances of receiving capital project funding with a logit model. Each column represents estimates from a separate regression. Table 2 contains the average marginal effects (AMEs) on the probabilities of receiving capital project funding.

Column (1) in Table 2 shows that dedicated government-nonprofit partnerships have a statistically significant correlation with the chances of receiving funding. Specifically, the

TABLE 2 Regression results: Part I

	(1) Funding (1—Yes, 0—No)	**(2) Funding (1—Yes, 0—No)**	**(3) Funding (1—Yes, 0—No)**
Dedicated partner	0.0711** (0.0321)	0.0614** (0.0268)	
Non-dedicated partner		−0.0041 (0.0087)	
Partner (dedicated + non-dedicated)			0.0085 (0.0093)
Park size (Acre)	0.0002** (0.0001)	0.0002** (0.0001)	0.0002** (0.0001)
Population (1000)	0.0003** (0.0001)	0.0004*** (0.0001)	0.0004*** (0.0001)
Median household income ($1000)	0.0000 (0.0003)	0.0001 (0.0003)	0.0002 (0.0003)
% Black population (0–100)	0.0001 (0.0001)	0.0001 (0.0001)	0.0001 (0.0001)
% Hispanic population (0–100)	0.0000 (0.0002)	0.0000 (0.0002)	0.0000 (0.0002)
% College graduate (0–100)	0.0000 (0.0004)	−0.0001 (0.0004)	−0.0001 (0.0004)
% Owner occupied houses (0–100)	−0.0001 (0.0003)	−0.0001 (0.0003)	−0.0001 (0.0003)
Famous park	−0.0444*** (0.0117)	−0.0448*** (0.0113)	−0.0415** (0.0175)
Brooklyn	−0.0144 (0.0132)	−0.0239* (0.0133)	−0.0242* (0.0133)
Manhattan	−0.0062 (0.0159)	−0.0158 (0.0161)	−0.0145 (0.0162)
Queens	0.0083 (0.0109)	0.0026 (0.0108)	0.0041 (0.0108)
Bronx	−0.0147 (0.0143)	−0.0201 (0.0143)	−0.0184 (0.0143)
Year dummies	X	X	X
Park random effects	X	X	X
Clustered standard error (park level)	X	X	X
N	10,913	12,053	12,053

Note: (a) All explanatory variables that measure partnership and park neighborhood characteristic are lagged by 1 year. (b) Model (1) excludes park-year observations without dedicated nonprofit partners. Models (2) and (3) use full park-year level sample. (c) Standard errors in parentheses. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

probabilities of receiving capital project funding for parks supported by dedicated government-nonprofit partnerships increase by 0.071, compared with parks without government-nonprofit partnerships. This is an increase of more than 100% as the baseline probability of receiving funding in our sample is only 0.053 (Table 1). But when the non-dedicated government-nonprofit partnerships are included, the correlation becomes insignificant (Column (3)).

Park size and the population of park community have statistically significant associations with the probabilities of receiving funding. Across models (1)–(3), a 100-acre (about 1 *SD*) increase in park size is associated with an increase in the probabilities of receiving capital project funding by 0.02. Given that only 5.3% of the parks receive funding in a year, the increase of probabilities by 0.02 represents a 38% increase. Based on model (1), an increase of population by 1000 is associated with an increase in the probabilities of receiving funding by 0.0003, which represents a 0.6% increase from the baseline probability of receiving funding (5.3%). Results on population from models (2) and (3) are comparable to those in model (1). Across the models, famous parks tend to have lower probabilities of receiving capital project funding. Other socio-economic and demographic variables do not seem to have statistically significant correlations with the chances of receiving funding. Joint tests of the significance of these variables (median household income, percentage Black population, percentage Hispanic population, percentage college graduates, and homeownership rate) show that they are jointly insignificant, which indicates their insignificances are not due to high collinearities. The low correlations between these variables and government-nonprofit partnership status (all smaller than 0.15) suggest their insignificances are also not because of high collinearities with the partnership status.

Table 3 presents estimates from part two, which focuses on the relationship between government-nonprofit partnerships and the amounts of capital project funding for parks that have received funding. It shows that conditioning on receiving funding, parks supported by government-nonprofit partnerships tend to receive larger amounts of funding, but the correlations are not statistically significant across models (1)–(3).

The population of park community has a statistically significant relationship with the amounts of funding, conditioning on receiving funding. Across models (1)–(3), an increase of 1000 in population is associated with an increase in the amounts of funding by about 0.6%. Conditioning on receiving funding, park size does not seem to be correlated with the amounts of capital project funding. Being a famous park does not have a statistically significant correlation with the amount of project funding. Other socioeconomic and demographic variables also do not have statistically significant correlations with the amounts of funding. Joint tests of the significance of these variables suggest their insignificances are not due to high collinearities. Low correlations between these variables and partnership status (all smaller than 0.15) also suggest their insignificances are not because of high collinearities with the partnership status.

Table 4 presents the combined results from parts one and two. The results from model (1) show that dedicated government-nonprofit partnerships are associated with a $142,048 increase in capital project funding for a park per year, and the association is statistically significant. This amount is not incidental even though capital projects can be costly. First, the amount above is an average value. Since most parks (with or without government-nonprofit partnerships) do not receive any project funding in a certain year. For those that do receive it, the amount will be much larger. Second, many parks are small pocket parks or neighborhood parks. When the amount of capital project funding accumulates, it is a significant amount of money for these parks. When adding in non-dedicated partnerships, the correlated increase of capital project funding becomes smaller and less significant (Column (3)).

TABLE 3 Regression results: Part II

	(1) Ln (funding amount)	(2) Ln (funding amount)	(3) Ln (funding amount)
Dedicated partner	0.2662 (0.1872)	0.2309 (0.1795)	
Non-dedicated partner		0.2239 (0.1398)	
Partner (dedicated + non-dedicated)			0.2086* (0.1250)
Park size (Acre)	0.0003 (0.0003)	0.0003 (0.0003)	0.0003 (0.0003)
Population (1000)	0.0056*** (0.0017)	0.0061*** (0.0017)	0.0061*** (0.0017)
Median household income ($1000)	−0.0019 (0.0081)	−0.0019 (0.0078)	−0.002 (0.0078)
% Black population (0–100)	−0.0041 (0.0027)	−0.003 (0.0026)	−0.0029 (0.0026)
% Hispanic population (0–100)	0.0032 (0.0051)	0.0047 (0.0049)	0.0048 (0.0049)
% College graduate (0–100)	−0.0001 (0.0102)	0.0018 (0.0098)	0.0021 (0.0099)
% Owner occupied houses (0–100)	0.0064 (0.0069)	0.0062 (0.0065)	0.0063 (0.0065)
Famous park	(0.0601) (0.4763)	(0.0363) (0.4886)	(0.0763) (0.4838)
Brooklyn	0.3419 (0.2576)	0.4179* (0.2448)	0.4168* (0.2425)
Manhattan	0.0107 (0.3128)	−0.0028 (0.2929)	0.0027 (0.2913)
Queens	−0.0560 (0.2205)	−0.0293 (0.2030)	−0.0219 (0.2032)
Bronx	−0.2369 (0.2629)	−0.2432 (0.2459)	−0.2401 (0.2460)
Constant	13.0914*** (0.5239)	12.9179*** (0.4962)	12.8982*** (0.4990)
Year dummies	X	X	X
Park random effects	X	X	X
Clustered standard error (park level)	X	X	X
N	578	636	636

Note: (a) All explanatory variables that measure partnership and park neighborhood characteristic are lagged by 1 year. (b) Model (1) excludes park-year observations without dedicated nonprofit partners. Models (2) and (3) use full park-year level sample. (c) Standard errors in parentheses. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

Across the models, park size and population of park community are the only two characteristics that have statistically significant correlations with capital project funding in the combined results. In model (1), a 1-acre increase in park size is correlated with an increase in the amounts of funding by $253 per year, and a 1000 increase in the population of park community is correlated with an increase in the capital project funding by $649 a year. The results do not substantively change across models.

Overall, the results (Tables 2–4) suggest that government-nonprofit partnerships are positively associated with parks' capital project funding, which supports Hypothesis 2 (the exchange mechanism). Parks supported by dedicated government-nonprofit partnerships have a larger association with public capital project funding.

In addition to the main analyses, we conduct a few robustness checks. To address the concern that capital project funding can be cyclical or follow a certain schedule, we conduct two additional analyses. In the first analysis, we add a dummy for whether a park received capital project funding in the previous year as a control. In the second analysis, we conduct a park-level analysis. The dependent variables in the park level analysis measure whether a park received funding and the

TABLE 4 Regression results: Combined

	(1) Funding amount ($)	(2) Funding amount ($)	(3) Funding amount ($)
Dedicated partner	142,048** (68,547)	108,585** (50,846)	
Non-dedicated partner		15,984 (18,966)	
Partner (dedicated + non-dedicated)			34,187* (19,189)
Park size (Acre)	253** (100)	249*** (85)	270*** (84)
Population (1000)	649*** (226)	811*** (240)	856*** (238)
Median household income ($1000)	−44 (711)	100 (691)	222 (690)
% Black population (0–100)	−169 (277)	−89 (254)	−69 (259)
% Hispanic population (0–100)	184 (502)	305 (467)	305 (471)
% College graduate (0–100)	−139 (897)	−87 (866)	−124 (877)
% Owner occupied houses (0–100)	254 (647)	264 (606)	228 (607)
Famous park	(58,068) (38,526)	(59,430) (43,535)	(57,461) (53,714)
Brooklyn	8812 (25,015)	1577 (25,480)	958 (25,391)
Manhattan	−3126 (30,196)	−15,976 (30,931)	−14,303 (30,943)
Queens	7687 (23,003)	1785 (21,739)	4532 (21,938)
Bronx	−31,356 (27,612)	−40,363 (27,339)	−37,953 (27,339)
Year dummies	X	X	X
Park random effects	X	X	X
Clustered standard error (park level)	X	X	X
N	10,917	12,054	12,054

Note: (a) All explanatory variables that measure partnership and park neighborhood characteristic are lagged by 1 year. (b) Model (1) excludes park-year observations without dedicated nonprofit partners. Models (2) and (3) use full park-year level sample. (c) Standard errors in parentheses. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

amount of average yearly funding in the 6-year period from 2009 to 2014. In the last robustness check, we use the logarithm of nonprofit expense instead of partnership status as the independent variable. We use nonprofit expenses as an indicator of nonprofit size and a crude proxy for the resources and support they provide for partnering parks. Results for robustness checks are included in the Appendix A, and they are substantively the same as those in the main analyses.

6 | DISCUSSION

In this article, we summarize two competing mechanisms of how government-nonprofit partnerships outside the contracting relationship may influence public funding allocation and empirically test them in the context of public capital funding allocation in NYC's park system. We find that parks are likely to receive more public capital project funding when they are supported by government-nonprofit partnerships, which support the exchange mechanism.

These findings suggest that in the context of NYC's park system, when nonprofits bring support to public parks through government-nonprofit partnerships, these activities do not crowd out public investment. Instead, they are likely to leverage their support and constituents in exchange for more public funding allocation to the parks they support. Nonprofits' political influence can take place in the form of partnerships, not limited to contracting relationships or nonprofits with the core mission of advocating for more public funding. It broadens our view of funding interactions in multiple modes of government-nonprofit relations.

First, our findings suggest that the exchange mechanism, which is mainly conceptualized in the contracting relationship between local governments and nonprofits (Marwell, 2004; Mosley, 2012), also applies to the context where nonprofits play important roles in financing and supporting public service provision. Our finding is important not only because the context is new, but also because we are able to rule out the alternative explanation of funding flow from governments to nonprofits in empirical studies of the contracting regime (Grønbjerg & Paarlberg, 2001; Lecy & Van Slyke, 2013). For public services like parks and recreation, non-profit organizations rely heavily on private donations to finance their activities and their donations do not directly go to local governments (Cheng & Yang, 2019; Walls, 2014). Funding flow between the two sectors is insufficient to explain such interdependent relationships. The exchange mechanism, informed by the understanding of nonprofit organizations serving as interest groups and participating in the collaborative governance of public service provision (Carroll & Calabrese, 2017; Cheng, 2019b; Fyall, 2017; Marwell, 2004; Mosley, 2012), is, therefore, more rigorously tested and supported in the context of government-nonprofit partnerships outside the contracting relationship. Consistent with past research in homeless services (Mosley, 2012), these partnerships make it undisguisable between nonprofits' participation in funding advocacy and their involvement in collaborative governance. We need to pay special attention to the distributional consequences of these arrangements as nonprofits get more involved in the collaborative governance or co-governance of public service provision (Cheng et al., 2022; Nisbet & Schaller, 2020).

Second, our findings are different from multiple empirical studies that support the substitution mechanism in service subsectors where nonprofits play an important role in financing public service provision (e.g., Becker & Lindsay, 1994; Cheng, 2019a; Kim, 2021; Walls, 2014). In similar service subsectors, why do scholars mostly find the pattern of substitution while we find support for the exchange mechanism in the context of NYC's park system? While there may be other plausible explanations and we cannot rule them out with our current study design, namely the uniqueness of our study context or the legitimacy and credibility of nonprofits that might attract public funding to their supporting parks, we propose that the level of analysis and resulting power differentials between nonprofits and local governments may be the main reasons for those differences. In the context of parks and recreation services, we study the allocation of funding at the park unit level while others study the funding allocation among different types of government services (e.g., education, library, parks, and arts). At the system level, public park services are often not regarded as a priority of local governments (Kaczynski & Crompton, 2006). Even in the context of the NYC park system where public and green spaces are celebrated by its citizens, public funding for parks is decreasing or stagnant over time (Cohen, 2020). Therefore, in the whole spectrum of public services (e.g., public safety and social services), the power of government-nonprofit partnerships to advocate for more public investment for the whole park system is relatively weak. However, within a park system, because of the constraint of the overall public funding on parks and the dire need of public managers to establish partnerships with nonprofits, nonprofits have stronger leverage to divert resources to those parks that they support. These contrasts of the findings suggest the importance of contextualizing government-nonprofit relationships in different levels of analysis and public service subsectors for future research.

Finally, the implications of our findings on equitable service provision need some further discussion. If we only look at the characteristics of the surrounding communities of parks, there is not a big concern about equity. Larger parks with a more populous community surrounding them get more public capital funding allocation (Table 4). The racial composition, education level, homeownership rate, and income level of these communities seem to not matter in determining where public capital funding goes. These findings speak to the effectiveness of recent capital funding equity initiatives carried out by the NYC parks department (Nisbet & Schaller, 2020). One important contribution we make to the current scholarly and policy discussions is to consider government-nonprofit partnerships when assessing the equity implications of public funding allocation. The overall decline of public funding for park systems (Cohen, 2020) and the increase of capital funding to park units supported by dedicated government-nonprofit partnerships may pose equity concerns for those parks that do not have support from those partnerships, even when controlling for major park and surrounding community characteristics. To address the system-level concern of park funding equity, building coalitions and providing more targeted support for citizen groups and nonprofit organizations that advocate for parks at the system level may also help close the equity gap in park provision (Rigolon, 2019).

7 | FUTURE RESEARCH AND CONCLUSION

Our study raises many important questions for future research. First, what are the performance implications of government-nonprofit partnerships in public service provision (Shi & Cheng, 2021)? How do they influence the pattern of user interactions in public parks? With the availability of public safety and public health data, such questions can be answered by future research. The availability of social media data also provides promising ways to analyze user interactions on a large scale (Hamstead et al., 2018). As there are more efforts in transforming public parks and public spaces to build more healthy, inclusive, and resilient communities (e.g., the Reimagining the Civic Commons initiative that is funded by four major U.S. private foundations to support strategic investment in public spaces), it is imperative for scholars and policy-makers to systematically track long-term community outcomes and link them to private and public investments in parks and other public spaces.

Second, it will be worthwhile to investigate the impact of different types of government-nonprofit partnerships and how their governance mechanisms mediate their performance and distributional impacts. Our study suggests the importance of distinguishing dedicated versus non-dedicated partnerships when assessing their impact on public funding allocation. However, there are other possible mechanisms and types of government-nonprofit partnerships. For example, partnerships can be distinguished based on their geographical/administrative levels of operation (Gazley et al., 2018), their main supporting activities (Cheng, 2019b), and stages of collaboration (Gazley & Guo, 2020). How are various types of government-nonprofit partnerships governed and managed? How are they linked to public service outcomes? This is a promising area of research as it links microlevel organizational behaviors to macrolevel policy outcomes. Future studies of government-nonprofit relations need to take the level of analysis and the types of partnerships seriously.

In conclusion, our study showcases new data and new empirical strategies in answering the important question of how nonprofits may influence the allocation of public funding and public services. Situated in the context of NYC's park system, our findings indicate that parks supported by government-nonprofit partnerships outside the contracting relationship are likely to receive more public capital project funding, which supports the exchange mechanism. As governments at all levels and around the world are seeking new ways to finance and manage public service provision, many more empirical studies in other service subsectors, time periods, and geographical contexts are required to draw more general conclusions about how government-nonprofit partnerships may influence public funding allocation and how such dynamics may compromise or promote equitable public service provision.

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DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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ENDNOTES

[1] For the park-year level analysis, government-nonprofit partnerships associated with the two nonprofits that received nonprofit tax exemption during the analysis period are considered existing only after the tax exemption was granted. The government-nonprofit partnership status takes "0" before the tax exemption and "1" after the tax exemption.

[2] We have identified five famous parks: the top four most visited parks (Central Park, Flushing Meadows Corona Park, Bryant Park, and Union Square Park) based on social media data (Hamstead et al., 2018) and the High Line Park.

REFERENCES

Andrews, R., & Entwistle, T. (2013). Four faces of public service efficiency: What, how, when and for whom to produce. *Public Management Review*, *15*(2), 246–264.

Becker, E., & Lindsay, C. (1994). Does the government free ride? *The Journal of Law and Economics*, *37*(1), 277–296.

Belotti, F., Deb, P., Manning, W., & Norton, E. (2015). Twopm: Two-part models. *Stata Journal*, *15*(1), 3–20.

Brecher, C., & Wise, O. (2008). Looking a gift horse in the mouth: Challenges in managing philanthropic support for public services. *Public Administration Review*, *68*, S146–S161.

Bryson, J., Crosby, B., & Stone, M. (2006). The design and implementation of cross-sector collaborations: Propositions from the literature. *Public Administration Review*, *66*, 44–55.

Carroll, D. A., & Calabrese, T. D. (2017). Intersecting sectors? The connection between nonprofit charities and government spending. *Journal of Public and Nonprofit Affairs*, *3*(3), 247–271.

Cheng, Y. (2019a). Nonprofit spending and government provision of public services: Testing theories of government–nonprofit relationships. *Journal of Public Administration Research and Theory*, *29*(2), 238–254.

Cheng, Y. (2019b). Exploring the role of nonprofits in public service provision: Moving from coproduction to cogovernance. *Public Administration Review*, *79*(2), 203–214.

Cheng, Y. (2019c). Governing government-nonprofit partnerships: Linking governance mechanisms to collaboration stages. *Public Performance & Management Review*, *42*(1), 190–212.

Cheng, Y., & Yang, L. (2019). Providing public services without relying heavily on government funding: How do nonprofits respond to government budget cuts? *The American Review of Public Administration*, *49*(6), 675–688.

Cheng, Y., Yang, L., & Deng, S. (2022). Nonprofit density and distributional equity in public service provision: Exploring racial/ethnic disparities in Public Park access across US cities. *Public Administration Review*, *82*, 473–486.

Cohen, S. (2020). The Mayor's shameful mismanagement of new York City's parks. Columbia Climate School State of the Planet. https://news.climate.columbia.edu/2020/08/31/mayors-shameful-mismanagement-new-york-citys-parks/

Duan, N., W G. Manning, C. N. Morris, & J. P. Newhouse. (1984). Choosing between the sample-selection model and the multi-part model. *Journal of Business & Economic Statistics*, *2*(3), 283–289.

Fyall, R. (2017). Nonprofits as advocates and providers: A conceptual framework. *Policy Studies Journal*, *45*(1), 121–143.

Fyall, R. (2016). The power of nonprofits: Mechanisms for nonprofit policy influence. *Public Administration Review*, *76*(6), 938–948.

Gazley, B., Cheng, Y., & LaFontant, C. (2018). Charitable support for US national and state parks through the lens of coproduction and government failure theories. *Nonprofit Policy Forum*, *9*(4), 1–16.

Gazley, B., & Guo, C. (2020). What do we know about nonprofit collaboration? A systematic review of the literature. *Nonprofit Management and Leadership*, *31*(2), 211–232.

Gazley, B., LaFontant, C., & Cheng, Y. (2020). Does coproduction of public services support government's social equity goals? The case of US state parks. *Public Administration Review*, *80*(3), 349–359.

Grønbjerg, K., & Paarlberg, L. (2001). Community variations in the size and scope of the nonprofit sector: Theory and preliminary findings. *Nonprofit and Voluntary Sector Quarterly*, *30*(4), 684–706.

Hamstead, Z., Fisher, D., Ilieva, R., Wood, S., Mcphearson, T., & Kremer, P. (2018). Geolocated social media as a rapid indicator of park visitation and equitable park access. *Computers, Environment and Urban Systems*, *72*, 38–50.

Harnik, P., & Martin, A. (2015). *Public spaces/private money: The triumphs and pitfalls of Urban Park conservancies*. The Trust for Public Land.

Jakobsen, M., & Andersen, S. (2013). Coproduction and equity in public service delivery. *Public Administration Review*, *73*(5), 704–713.

Kaczynski, A., & Crompton, J. (2006). Financing priorities in local governments: Where do park and recreation services rank? *Journal of Park and Recreation Administration*, *24*, 84–103.

Kelleher, C., & Yackee, S. (2009). A political consequence of contracting: Organized interests and state agency decision making. *Journal of Public Administration Research and Theory*, *19*(3), 579–602.

Kettl, D. (2006). Managing boundaries in American administration: The collaboration imperative. *Public Administration Review*, *66*, 10–19.

Kim, C. (2021). Local government growth from a tri-sector perspective. *The Social Science Journal*, 1–17. https://doi.org/10.1080/03623319.2020.1851012

Kramer, R. M. (1981). *Voluntary agencies in the welfare state*. University of California Press.

Lecy, J., & Van Slyke, D. (2013). Nonprofit sector growth and density: Testing theories of government support. *Journal of Public Administration Research and Theory*, *23*(1), 189–214.

Lincoln Institute of Land Policy. (2021). Fiscally Standardized Cities database. http://www.lincolninst.edu/research-data/data-toolkits/fiscally-standardized-cities/search-database

Ma, J. (2020). Funding nonprofits in a networked society: Toward a network framework of government support. *Nonprofit Management and Leadership*, *31*(2), 233–257.

Marwell, N. (2004). Privatizing the welfare state: Nonprofit community-based organizations as political actors. *American Sociological Review*, *69*(2), 265–291.

Marwell, N., & Gullickson, A. (2013). Inequality in the spatial allocation of social services: Government contracts to nonprofit organizations in New York City. *Social Service Review*, *87*(2), 319–353.

Mohai, P., & Saha, R. (2006). Reassessing racial and socioeconomic disparities in environmental justice research. *Demography*, *43*(2), 383–399.

Mosley, J. (2012). Keeping the lights on: How government funding concerns drive the advocacy agendas of nonprofit homeless service providers. *Journal of Public Administration Research and Theory*, *22*(4), 841–866.

Nelson, A., & Gazley, B. (2014). The rise of school-supporting nonprofits. *Education Finance and Policy*, *9*(4), 1–26.

Nisbet, E., & Schaller, S. (2020). Philanthropic partnerships in the just City: Parks and schools. *Urban Affairs Review*, *56*(6), 1811–1847.

NYC Open Data. (2018a). Parks properties. https://data.cityofnewyork.us/City-Government/ARCHIVED-Parks-Properties/k2ya-ucmv

NYC Open Data. (2018b). Capital project tracker. https://data.cityofnewyork.us/Recreation/Capital-Project-Tracker/qiwj-i2jk

NYC Parks. (2018). Partners: NYC parks. https://www.nycgovparks.org/about/partners

NYC Parks. (2021). How we build parks. https://www.nycgovparks.org/planning-and-building/capital-projects

Ostrom, E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science*, *325*(5939), 419–422.

Paarlberg, L., & Gen, S. (2009). Exploring the determinants of nonprofit coproduction of public service delivery: The case of k-12 public education. *The American Review of Public Administration*, *39*(4), 391–408.

Peck, L. (2008). Do antipoverty nonprofits locate where people need them? Evidence from a spatial analysis of Phoenix. *Nonprofit and Voluntary Sector Quarterly*, *37*(1), 138–151.

Pincetl, S. (2003). Nonprofits and park provision in Los Angeles: An exploration of the rise of governance approaches to the provision of local services. *Social Science Quarterly*, *84*(4), 979–1001.

Reckhow, S., Downey, D., & Sapotichne, J. (2020). Governing without government: Nonprofit governance in Detroit and Flint. *Urban Affairs Review*, *56*(5), 1472–1502.

Rigolon, A. (2019). Nonprofits and park equity in Los Angeles: A promising way forward for environmental justice. *Urban Geography*, *40*(7), 984–1009.

Saidel, J. (1991). Resource interdependence: The relationship between state agencies and nonprofit organizations. *Public Administration Review*, *51*(6), 543–553.

Saidel, J. R., & Searing, E. A. (2020). Public agency strategies, collaborative contracting, and medicaid managed care. *Perspectives on Public Management and Governance*, *3*(3), 239–255.

Salamon, L. (1995). *Partners in Public Service: Government-nonprofit relations in the modern welfare state*. Johns Hopkins University Press.

Schatteman, A., & Bingle, B. (2015). Philanthropy supporting government: An analysis of local library funding. *Journal of Public and Nonprofit Affairs*, *1*(2), 74–86.

Shi, Y., & Cheng, Y. (2021). Nonprofit-as-supplement: Examining the link between nonprofit financial support and public service quality. *VOLUNTAS: International Journal of Voluntary and Nonprofit Organizations*, *32*, 28–44.

Shybalkina, I., & Bifulco, R. (2019). Does participatory budgeting change the share of public funding to low income neighborhoods? *Public Budgeting & Finance*, *39*(1), 45–66.

Van Slyke, D. M. (2007). Agents or stewards: Using theory to understand the government-nonprofit social service contracting relationship. *Journal of Public Administration Research and Theory*, *17*(2), 157–187.

Smith, S., & Lipsky, M. (1993). *Nonprofits for hire: The welfare state in the age of contracting*. Harvard University Press.

Trust for Public Land. (2019). Park score. https://parkscore.tpl.org/methodology.php#sm.001o2krgbej4dk6112d13bqretbdz

Walls, M. (2014). *Private funding of public parks: Assessing the role of philanthropy*. Resources for the Future.

Young, D. (2000). Alternative models of government-nonprofit sector relations: Theoretical and international perspectives. *Nonprofit and Voluntary Sector Quarterly*, *29*(1), 149–172.

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APPENDIX A

The appendix presents some robustness checks for the main analysis. Specifically, we conduct three analyses. In the first analysis, we examine the relationship between nonprofit partners' expenses and parks' capital project funding. Instead of a dummy for partnership status, we use log of nonprofit expenses as the key explanatory variable. The second and third analyses address the concern of the potential cyclical nature of park capital project funding. In the second analysis, we include whether a park received capital project funding in the previous year as a control variable. In the third analysis, we conduct analysis at park level (instead of park-year level). The dependent variables in the park level analysis measure whether a park received funding and the amount of average yearly funding in the 6-year period from 2009 to 2014. Tables A1–A3 present results for the three analyses, and they are substantively similar to the results in the main analyses.

TABLE A1 Regression results: Part I

	(1) Funding (1—Yes, 0—No)	(2) Funding (1—Yes, 0—No)	(3) Funding (1—Yes, 0—No)
1-year lagged funding dummy		−0.0022 (0.0079)	
Dedicated partner		0.0850** (0.0334)	0.1784** (0.0840)
Ln (nonprofit expense)	0.0034** (0.0015)		
Park size (Acre)	0.0002** (0.0001)	0.0002** (0.0001)	0.0020*** (0.0003)
Population (1000)	0.0003* (0.0002)	0.0003** (0.0001)	0.0005 (0.0006)
Median household income ($1000)	0.0000 (0.0003)	0.0000 (0.0003)	0.0022 (0.0014)
% Black population (0–100)	0.0001 (0.0001)	0.0001 (0.0001)	0.0003 (0.0005)
% Hispanic population (0–100)	−0.0001 (0.0002)	0.0000 (0.0002)	−0.0004 (0.0009)
% College graduate (0–100)	−0.0001 (0.0004)	0.0000 (0.0004)	−0.0016 (0.0016)
% Owner occupied houses (0–100)	−0.0001 (0.0003)	−0.0001 (0.0003)	−0.0017 (0.0011)
Famous park	−0.0422*** (0.0116)	−0.0453*** (0.0108)	−0.2111*** (0.0167)
Brooklyn	−0.0145 (0.0134)	−0.0151 (0.0131)	0.0084 (0.0513)
Manhattan	−0.0054 (0.0159)	−0.0069 (0.0158)	0.0454 (0.0604)
Queens	0.0084 (0.0110)	0.0075 (0.0108)	0.0846** (0.0428)
Bronx	−0.0147 (0.0142)	−0.015 (0.0143)	0.0149 (0.0547)
Year dummies	X	X	
Park random effects	X	X	
Clustered standard error (park level)	X	X	
N	10,776	10,919	1810

Note: (a) All variables that measure partnership and park neighborhood characteristic are lagged by 1 year. (b) Models (1) and (2) are based on park-year observations; model (3) are based-on park level observations. (c) Standard errors in parentheses. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

TABLE A2 Regression results: Part II

	(1) Ln (funding amount)	(2) Ln (funding amount)	(3) Ln (funding amount)
1-year lagged funding dummy		−0.1571 (0.1648)	
Dedicated partner		0.2612 (0.1891)	0.4732 (0.3066)
Ln (nonprofit expense)	0.0294* (0.0161)		
Park size (Acre)	0.0000 (0.0004)	0.0004 (0.0003)	0.0026*** (0.0007)
Population (1000)	0.0058*** (0.0022)	0.0058*** (0.0018)	0.0086*** (0.0030)
Median household income ($1000)	0.0003 (0.0084)	−0.0022 (0.0082)	0.0023 (0.0107)
% Black population (0–100)	−0.0045 (0.0028)	−0.0039 (0.0027)	−0.0027 (0.0033)
% Hispanic population (0–100)	0.0005 (0.0053)	0.0034 (0.0051)	0.0020 (0.0065)
% College graduate (0–100)	−0.0031 (0.0105)	0.0006 (0.0104)	−0.003 (0.0121)
% Owner occupied houses (0–100)	0.0014 (0.0071)	0.0061 (0.0069)	−0.0039 (0.0087)
Famous park	0.2290 (0.6225)	−0.0023 (0.5075)	−1.9255* (1.0817)
Brooklyn	0.1540 (0.2727)	0.3552 (0.2630)	0.0342 (0.3448)
Manhattan	−0.1958 (0.3330)	0.0151 (0.3142)	−0.2289 (0.4143)
Queens	−0.1698 (0.2305)	−0.0372 (0.2267)	−0.3158 (0.2883)
Bronx	−0.3395 (0.0142)	−0.222 (0.0143)	−0.6429* (0.0547)
Year dummies	X	X	
Park random effects	X	X	
clustered standard error (park level)	X	X	
N	541	579	391

Note: (a) All variables that measure partnership and park neighborhood characteristic are lagged by 1 year. (b) Models (1) and (2) are based on park-year observations; model (3) are based-on park level observations. (c) Standard errors in parentheses. *$p < 0.10$; **$p < 0.05$; ***$p < 0.01$.

TABLE A3 Regression results: Combined

	(1) Funding (1—Yes, 0—No)	(2) Funding (1—Yes, 0—No)	(3) Funding (1—Yes, 0—No)
1-year lagged funding dummy		79,616*** (27,063)	
Dedicated partner		123,516** (56,058)	97,023* (50,606)
Ln (nonprofit expense)	5686** (2315)		
Park size (Acre)	211** (87)	215** (97)	600*** (128)
Population (1000)	597*** (232)	642*** (228)	680*** (261)
Median household income ($1000)	122 (684)	−61 (690)	627 (781)
% Black population (0–100)	−194 (263)	−171 (248)	−112 (255)
% Hispanic population (0–100)	−95 (454)	169 (469)	55 (484)
% College graduate (0–100)	−395 (852)	−114 (878)	−549 (895)
% Owner occupied houses (0–100)	−168 (601)	254 (637)	−628 (670)
Famous park	−46,755 (51,660)	−55,678 (37,162)	−72,976** (35,515)
Brooklyn	−6384 (24,249)	8986 (24,560)	4128 (25,621)
Manhattan	−16,097 (28,508)	−2420 (29,470)	−5366 (32,042)
Queens	−275 (21,906)	6902 (22,759)	−2588 (21,539)
Bronx	−37,023 (26,366)	−29,751 (26,495)	−39,684 (26,769)
Year dummies	X	X	
Park random effects	X	X	
Clustered standard error (park level)	X	X	
N	10,917	10,920	1810

Note: (a) All variables that measure partnership and park neighborhood characteristic are lagged by 1 year. (b) Models (1) and (2) are based on park-year observations; model (3) are based-on park level observations. (c) Standard errors in parentheses. $^*p < 0.10$; $^{**}p < 0.05$; $^{***}p < 0.01$.