Competitive Advantage in Nonprofit Grant Markets: Implications of Network Embeddedness and Status

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COMPETITIVE ADVANTAGE IN NONPROFIT GRANT MARKETS: IMPLICATIONS OF NETWORK EMBEDDEDNESS AND STATUS

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ABSTRACT: *This article empirically addresses the effects of network embeddedness on nonprofit organizations' ability to access financial resources within competitive markets, with a focus in this analysis on the acquisition of foundation grants. We test theory on the role of organizational status in competitive markets using data from a network of nonprofits linked by foundation grants in metropolitan Atlanta during 2000 and 2005. We find that observable characteristics of nonprofits, including size, fundraising expenses, and financial health, explain success in grant markets. However, market status in previous time periods, operationalized as prior relationships with influential foundations in grant markets, additionally explains future grant awards. Our findings suggest that the status conferred through connections to important actors in a network can raise the profile of a nonprofit and increase the probability of grant success.*

INTRODUCTION

Nonprofits operate in competitive markets for scarce public and private resources, including charitable donations, volunteers, grants, and government contracts. Private grantmaking foundations are an instrumental source of funding for

nonprofits. Surveys from the field consistently find that between 80 and 90% of nonprofit managers actively solicit foundation grants (Association of Fundraising Professionals 2009; Blackbaud 2010; Nonprofit Research Collaborative 2011; 2012), which amount to $50 billion of the estimated $300 billion donated to non-profit organization in the US annually (Giving USA 2013). There are currently over 70,000 foundations in the US, and grantmaking has grown by over 20% in the last 10 years (Foundation Center 2014; Pettijohn 2013). Trends indicate that organizations are increasingly applying for foundation grants (Nonprofit Research Collaborative 2011; 2012). However, due to finite funds, not all grant applications can be funded either at all or at the amounts requested. This resource scarcity leads to high, and increasing, levels of competition among organizations as the sector expands.

This study adds to a small body of research on competition for private foundation grants. The findings also lead to broader insight into contextual issues that may be more generally applied to other competitively awarded resources in the nonprofit sector. Finally, this analysis contributes to an emerging literature on the nature of competition in the nonprofit sector, for which market dynamics are not yet well understood (Faulk 2014; Gronbjerg, Martell, and Paarlberg 2000; Jing and Chen 2012; Lamothe 2014; Seaman, Wilsker, and Young 2014; Thornton 2006).

Similar to the process of selecting contractors, the grantmaking process entails challenges resulting from incomplete and asymmetric information between grant-makers and organizations seeking their grants (Thornton 2010). In the absence of costly program evaluations, donors such as foundations are left with organizational proxies of mission performance instead of unequivocal information on how well each nonprofit performs (Easley and O'Hara 1986; Hansmann 1980; 1987; Krashinsky 1986; 1997). Therefore, foundation decision makers rely on limited information during grantee selection, and applicants do not compete for grants solely based on objective criteria. For example, uncertainties drive funders toward favoring organizations with whom they have pre-existing relationships (Galaskiewicz and Wasserman 1989; Gronbjerg et al. 2000).

This article aims to improve our understanding of how foundation grant funding, as a scarce but highly sought resource, is allocated within the nonprofit sector. We build upon a general model that has been developed in a robust stream of research focusing on explaining donations to nonprofit organizations. These studies are primarily concerned with how donors use objective characteristics of nonprofits in their donation decision process (Buchheit and Parsons 2006; Church and Parsons 2008; Gordon, Knock, and Neely 2009; Parsons 2007; Weisbrod and Dominguez 1986). These objective, observable nonprofit characteristics that are often collected in the grant application process form the basis of our empirical model, including organizational age, size, subsector, fundraising expenses, financial health, and financial efficiency. In this way, the analysis builds upon an established stream of research on the distribution of philanthropic resources in the sector and upon other recent studies that explain success specifically within foundation grant markets (Ashley and Faulk 2010; McGinnis and Ashley 2011; MacIndoe 2008; Johnson 2016).

We then extend these ''objective'' models using insights from organizational sociology that have been applied in public management research. We particularly

draw on the theory of status signals, which highlights organizational status as a subjective but important factor in organizational success (Podolny 1993; 2005). Status signals are derived from actors in the market beyond those directly involved in a transaction. In this way, the effect of status is fundamentally similar to the concept of social proof in psychology (Cialdini 2001) in which individuals rely on the actions of others to inform their own decisions in situations of uncertainty. Podolny (1993) advanced a theory on the role of status in interorganizational competition in markets where there is imperfect or asymmetric information (Podolny 1993; 1994; 2005; Piazza and Castellucci 2014; Sauder, Lynn, and Podolny 2012).[1] A key finding from this literature is that when an organization's true quality or performance is difficult to determine, potential stakeholders, funders, or clients scan the environment for the behaviors of others to guide their own choices (Esparza and Jeon 2013; Galaskiewicz, Bielefeld, and Dowell 2006).

Observable, and sometimes even subtle, connections to high-status actors in the market serve as a signal of quality (Podolny 2005). In the context of foundation grants, we expect nonprofit organizations' previous funding relationships with other foundations in a market to increase an organization's perceived status and quality. If a nonprofit has received prior grants, it has already been vetted by other foundations and therefore is perceived as more trustworthy or effective. The degree to which a nonprofit is embedded in grant markets through other foundations that are central in the funding network is expected to have an additional effect. Greater connections to more prominent and embedded foundations in the market signal higher quality and thus provide comparative advantages when organizations compete for future grant opportunities.

This theoretical perspective on organizational status helps explain one pathway that foundations may use to overcome information asymmetries in the grants marketplace. The core prediction from this framework is that the status of a nonprofit, which we measure as the past centrality of each nonprofit within the funding network, will explain some of the success at obtaining future grant awards, even after accounting for other observable organizational characteristics. We test this hypothesis using a network analysis of nonprofit organizations that are connected by foundation grants in metropolitan Atlanta in 2000 and 2005. We find that an organization's lagged network centrality significantly improves its chances of earning future foundation grants, even controlling for organizational characteristics and past grant awards. In our discussion, we link these findings to broader issues concerning the evaluation of nonprofit effectiveness and interorganizational competition for other financial resources such as government grants and contracts.

Organizational Determinants of Philanthropic Funding

There is an extensive literature on donor behavior and the organizational determinants of successfully acquiring philanthropic donations and grants (Ashley and Faulk 2010; Buchheit and Parsons 2006; Frumkin and Kim 2001; Greenlee and Brown 1999; Jacobs and Marudas 2006; 2009; McGinnis and Ashley 2011; Okten and Weisbrod 2000; Posnett and Sandler 1989; Tinkelman 2004; Tinkelman

and Mankaney 2007; Weisbrod and Dominguez 1986). Although empirical findings are mixed, some consensus exists (Jacobs and Marudas 2009; Parsons 2007). Older, larger, and more efficient nonprofits are expected to receive greater donations, as well as those that spend more on fundraising (which is comparable to spending more on advertising in a for-profit setting).

Historically, foundations operated under idiosyncratic decision-making processes, structured more by personal connections and the interests of the foundation's main donor or board members than by formalized grant selection criteria. However, in the 1970s and 1980s, spurred by new regulations under the Tax Reform Act of 1969, foundations quickly began to professionalize (Frumkin 1998). With this professionalization came greater structure, transparency, and formality in the grantmaking process, along with a general preference for objective grant selection criteria when deciding grants (Frumkin 2006). By the 2000s, foundations were characterized as seeking to maximize nonprofit impact through strategic allocation of grant money. Although some foundations continue to make grants entirely based upon relational or ideological grounds, a competitive grantmaking process, with formal applications and review, has become standard. Due to the lack of complete information on nonprofit performance, however, foundations must allocate grants with limited information on the true quality of applicants (Easley and O'Hara 1986; Hansmann 1980; 1987; Krashinsky 1986; 1997). Due to the complexity of fully evaluating the quality of services they fund, foundations often rely on proxies for true measures of performance (Bielefeld 1992; Feigenbaum 1987; Gronbjerg et al. 2000).

In part because of the challenge of getting full information on new or unfamiliar applicants, previous research has shown that preexisting relationships between nonprofits and donors play important roles in the grantmaking process (Galaskiewicz 1985; 1997; Gronbjerg et al. 2000; MacIndoe 2008; Wang and Coffey 1992; Werbel and Carter 2002). There is also evidence that the social networks of philanthropists significantly influence their selection of organizations to fund (Galaskiewicz 1985; 1997; Werbel and Carter 2002; Wang and Coffey 1992). A nonprofit's reputation within an interpersonal social network positively influences donation decisions (Galaskiewicz and Wasserman 1989), and organizations' relative embeddedness within networks is expected to signal greater legitimacy to potential funders, leading to greater organizational survival (Hager, Galaskiewicz, and Larson 2004).

There is evidence to suggest that this may be especially true for donors providing philanthropic funding. Organizations that rely on donations have been found to grow faster if they are more centrally embedded in organizational and social networks (Galaskiewicz, Bielefeld, and Dowell 2006). Organizations have also been found to have greater chances of receiving a first-time grant from public agencies and the United Way if they have overlapping board members with organizations that received past funding (Esparza and Jeon 2013). Taken together, these studies suggest that nonprofits' positions within funding networks affect their status in the network and impact the behavior of both general donors and institutional grantmakers. We contribute to this empirical literature by testing the effects of network embeddedness on the distribution of private foundation grants.

Organizational Status

Information problems are common across all types of market transactions. Some are simply more severe than others. Greater information asymmetries have more serious consequences for market processes (Akerlof 1970). Many scholars have examined ways that actors deal with limited, poor, or asymmetric information in such markets (Myers and Majluf 1984; Stiglitz and Weiss 1981). Theory on the role of status in organizational studies developed following research in sociology on the role of interpersonal ties. There are strong parallels between the fundamental role of status under conditions of uncertainty, transaction cost theory (Williamson 1979), and theory on the role of bounded rationality in decision making (Simon 1955). From an organizational perspective, an organization's status developed through past relationships in a network is an important means to grease the wheels of market transactions, facilitate trust, and give some competitors a market advantage.

Podolny, in particular, advances a theory on the role of status in interorganizational competition in markets where there is imperfect or asymmetric information (1993; 1994; 2005; Piazza and Castellucci 2014; Sauder, Lynn, and Podolny 2012). The theory posits that, under conditions of uncertainty, decision makers will use the status of actors in markets as a proxy for the quality of their work. Status is derived from relationships with other actors in the marketplace and is developed through prior interactions. In an organizational setting, status affects the way organizations are perceived by other entities, funders, and consumers (Jensen and Roy 2008; Piazza and Castellucci 2014; Podolny 1993; 1995). More importantly, status influences "the perceived quality of that producer's products in relation to the perceived quality of that producer's competitors' products" (Podolny 1993, 830).

This is a general organizational theory, which primarily has been tested in for-profit markets. Empirical findings to date show that organizations with higher status have comparative advantages in competitive markets. Perceptions of superior quality allow organizations to more easily access resources, such as investment capital. Higher status also leads to other benefits, such as being able to charge higher prices for products and services that have the same objective qualities of those provided elsewhere in the market (Podolny 2005). Through these advantages, an organization's status has been associated with increased revenues, lower transaction costs, and enhanced likelihood of long-term stability (Podolny 2005; Stevens and Stevens 1992; Uzzi and Lancaster 2004).

These inferences are easily extended to nonprofit markets where donors are third parties that pay for services others individuals receive. For instance, high-status nonprofits would be expected to benefit from greater efficiencies in fundraising efforts by reducing their "marketing" costs. This would allow higher-status organizations to spend less time and effort raising equal amounts of funding. As discussed by Podolny (2005, 27):

> If consumers or relevant third parties—such as retailers—require "proof"
> that the product confronting them is of a given level of quality, status
> lowers the transaction costs associated with the exchange between buyer
> and seller. Implicit and explicit promises of a higher-status producer are

more likely to be accepted; therefore, the higher-status producer need not devote as much time or expense to convincing the buyer or relevant third parties of the validity of its claims.

Theory on status has important implications for research on foundation grant distribution because it helps predict how decision makers, such as foundations, will behave in the face of limited information within a transaction. From a foundation's perspective, an organization's status provides assurances of quality that would otherwise be difficult, costly, or impossible to fully assess through due diligence. When foundations make grants to organizations, they form a relationship that establishes trust and facilitates repeat grantmaking (Gronbjerg et al. 2000). When foundations decide on applicants they have not previously funded, past grants made by other foundations can serve as a signal that the organization is worth funding. Since each foundation individually vets its grantees, past grants from other foundations serve to reinforce information that the decision maker has about the quality of a nonprofit (Hager, Galaskiewicz, and Larson 2004; MacIndoe 2008). In this way, indicators of an organization's status can significantly reduce foundation transaction costs in the grantee selection process.

Importantly, however, status is not simply a function of the number of past grants, but also where they originate. A larger foundation that is more central in the grantmaking landscape will be more respected than small foundations operating on the periphery—for example, a Gates Foundation grant would carry more weight than a grant from a small and relatively unknown family foundation. Therefore, nonprofits with grants from more centralized foundations in a nonprofit grant network will earn greater numbers of grants in future time periods.

In the following, we present an approach for using the dyadic relationships between nonprofits and foundations to build a complex map of the grant marketplace using network analysis. We show that the structural position of a nonprofit within a grant marketplace in relation to prominent foundations and nonprofits—what we interpret as a measure of status—explains success above and beyond a nonprofit's organizational characteristics and past grants received. This finding provides further empirical support that organizational status matters in markets that entail high transaction costs resulting from information asymmetries between producers and purchasers of services. As discussed earlier, this analysis also extends the empirical literature on foundation grant distribution and adds to a growing stream of research on the importance of organizational network centrality on acquiring resources in the nonprofit sector while controlling for objective organizational measures that have been developed to explain donation-based funding in the nonprofit research literature.

DATA AND METHODS

Data

The analysis in this article is focused on nonprofits that were active in the foundation grant market in the Atlanta metropolitan area in the years 2000 and

2005. Data were compiled from all grant activity reported by foundations on their IRS Form 990-PF tax returns in each year and coded by a research team at Georgia State University (Ashley et al. 2008). The data consisted of a sample of 74 foundations in Georgia, which was stratified to be representative of foundations of different sizes and types across the state. Collectively, the foundations in the full sample accounted for 58% of all giving in the state in those respective years. For each foundation, the 990-PF was used to manually gather a list of grant recipients. Each grant recipient's tax identification number (EIN) was then manually collected in order to merge the foundation data with the organizational 990 data for each nonprofit grant recipient. As the grant award is the unit of analysis, the data consist of organizational and financial information of nonprofit grantees that were awarded grants by the sample of foundations in 2000 and 2005 (NCCS 2012a; 2012b).

The sample of foundations purposefully included the largest 10 foundations in the state, since these foundations account for over half of all grant dollars given (Ashley et al. 2008). For the analysis presented in this article, we used grants data from a subsample of 52 foundations that made grants to organizations located in metropolitan Atlanta. The sample includes independent, family, and corporate foundations and excludes community and operating foundations. Community foundations were excluded because their grants include large proportions of grants from individual donor-advised funds that are the equivalent of donations from individuals rather than the foundation itself. Operating foundations are also excluded because they make grants to specific organizations that they are established to fund. In order to analyze the grant market within the localized, metropolitan area, we also restricted the sample to nonprofits located in the 10-county Atlanta metropolitan area. There are two reasons we bounded the data geographically. First, nonprofits are likely to be evaluated against each other in the same geographic service market. Second, previous studies of foundations in Georgia find foundation giving to be highly localized (McGinnis and Ashley 2011), with foundations in the sample primarily awarding grants in the Atlanta metropolitan area.[2]

Descriptive Statistics

The median foundation distributed $1.02 million in 2005. Combined, the 52 foundations in the sample distributed $150 million in grants to 725 nonprofits in Atlanta in 2005 in human services, health, hospitals, environment, education, arts, international relief, mutual benefit, public benefit, and religious subsectors.[3] The median grant made to an organization in the sample in 2005 was $10,000 and the median of the total grant amounts received by each organization was $20,000 in that year. Because it is unknown whether organizations in the sample did not receive funding in 2005 because they were denied funding or because they did not apply for funding in that year, the final analysis is limited to organizations that received funding in 2005.[4]

Table 1 reports the number of organizations categorized by 10 major nonprofit subsectors that received grants from foundations in the sample in 2000 and 2005

TABLE 1
Sample Grant Market Characteristics in 2000 and 2005

Subsector	N Grantees 2000	Percent	Total Funding 2000 ($)	N Grantees 2005	Percent	Total Funding 2005 ($)
Human Services	299	30.86	26,906,595	228	31.45	26,519,081
Arts	150	15.48	14,457,923	108	14.9	18,833,391
Education	139	14.34	110,385,150	99	13.66	24,530,914
Health	102	10.53	13,898,623	98	13.52	21,606,594
Public Benefit	151	15.58	30,636,913	95	13.1	27,144,621
Environment	52	5.37	11,406,829	42	5.79	8,092,384
Religious	52	5.37	2,411,346	37	5.1	1,793,653
International	8	0.83	4,525,935	10	1.38	7,281,600
Hospitals	13	1.34	4,455,093	7	0.97	13,165,996
Mutual Benefit	3	0.31	6,100	1	0.14	75,000
Total	**969**	**100**	**219,090,507**	**725**	**100**	**149,043,234**

and the total grant awards made to each subsector by the sample foundations in those years. Across the two time periods, human service organizations made up around 31% of organizations that received grants. Arts, education, health, and public benefit subsectors each accounted for between 10 and 15% of grant recipients in those years, followed by other subsectors which composed below 6% each. The number of organizations funded and total amount of grants made by the sample foundations to organizations in Atlanta declined from 2000 to 2005. Even though the total funding to human services, arts, health, hospitals, and mutual benefit organizations remained stable or increased between the two time periods, the number of organizations funded in each of those fields decreased. International organizations represent an exception. Foundations in the sample funded a greater number of international organizations with greater total grant amounts in 2005 than they funded in 2000. Although there was some variation by subsector, median grant amounts received by each organization increased from $15,000 in 2000 to $20,000 in 2005, representing a shift to fund organizations at greater amounts, even though the foundations funded fewer organizations in Atlanta overall.

Variables

Dependent variables. The dependent variables for the analysis are *Total Grants*$_{2005}$ and *N Grants*$_{2005}$. *Total Grants*$_{2005}$ is the natural logarithm of the total of all grant amounts earned by each organization in the sample from all foundations in the sample in 2005. For instance, if Organization X received $10,000 from Foundation A and $10,000 from Foundation B, Organization X's *Total Grants*$_{2005}$ would be the natural logarithm of 20,000, or 9.904. This variable is logged to adjust for skewness and to facilitate the interpretation of the coefficients in the model as percent

changes. *N Grants$_{2005}$* is the number of grants earned from the sample foundations in 2005.

Key independent variables: Organizational status. We use two key independent variables to test the effect of organizational status in the grant market: (1) *Network Centrality*; and (2) receiving a prior grant from a *Top Ten* foundation in the state. *Network Centrality* is derived by calculating the eigenvector centrality of nonprofits within the grants network (Bonacich 2007; Bonacich and Lloyd 2004). As discussed earlier, our data consist of a set of grants given to nonprofits by foundations in the Atlanta metropolitan area. Each foundation is required to report all grant recipients on the 990-PF tax forms which serve as an archival record of relationships between foundations and nonprofits. In order to generate a measure of status within grant markets, we translate these archival data into a network representation of nonprofits and foundations and use network measures as a proxy for a measure of status that can be transferred between actors through transaction. As Podolny (2005, 14) discusses:

> Status flows through associations and through relations that involve either exchange or deference. Exchange relations are characterized by an implicit, loose equality in the value of that which is transferred between parties; exchange can involve material goods and payments, but they need not... When an actor engages in behavior that can be interpreted by others as an exchange or association with another actor, the status of each affects the status of the other.

In order to operationalize this notion of status through association we represent our data as a social network and utilize a common network analytic technique—centrality—to capture the social position of an actor in a market. The information that we have comes from bipartite relationships—an interaction between two categories of actors: foundations and nonprofits. Since most network analysis techniques rely on networks of a uniform category of actors we must first translate the bipartite network—foundations and nonprofits—to a network of nonprofits (see Figure 1). The bipartite grant network generated from data on the IRS 990-PF forms is projected into a weighted nonprofit network using a T-projection (Latapy, Magnien, and Del Vecchio 2008; Opsahl 2009).[5]

In the transformed network, each node represents a unique nonprofit, and ties signify that two nonprofits received grants from at least one common foundation. It is a weighted network because two nonprofits can be associated through more than one common foundation. Therefore, in the analysis, *Network Centrality$_{2000}$* is each organization's eigenvector centrality in the grant network in 2000, which is weighted by the number of ties through foundations that nonprofits shared in that year. Without the weighted values, the information on the number of ties shared from the two-mode network would be lost once the data were projected onto a one-mode network for analysis (Latapy et al. 2008; Opsahl 2009; 2013; Padrón, Nogales,
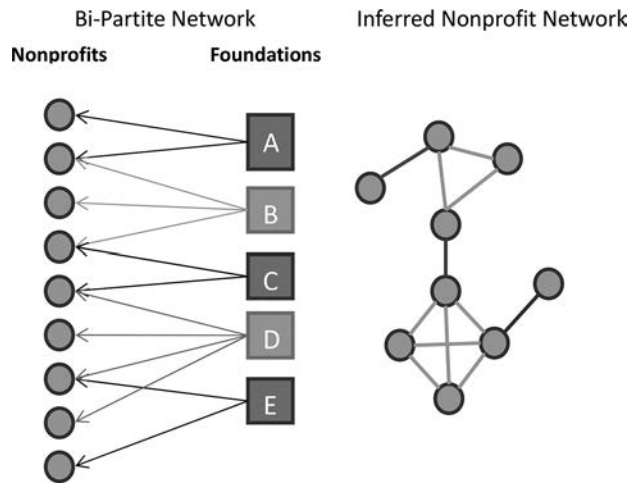
Figure 1. Transformation of bi-partite networks to uni-modal networks as explained by Latapy et al. (2008). On the left, nonprofits are linked to foundations through grants. Non-profits can be associated through common sources of funding. The inferred nonprofit network on the right comes from ties between nonprofits that both receive grants from the same foundations.

and Traveset 2011). Because nonprofits are compared to other organizations in the same mission-based subsector, *Network Centrality* values are calculated within networks of organizations that are in the same subsector (human services, health, hospitals, environment, education, arts, international relief, mutual benefit, public benefit, or religious).

Basic centrality (the number of ties within a network) gives similar information as the number of grants received in the past, but the total number of grants is not as important to the nonprofit as the status of the donors and other nonprofits that they associate with. The eigenvector centrality therefore captures an important feature of social structure—not all ties are equal. A grant from the largest foundations in the state will carry more weight than a grant from a little-known family foundation. The eigenvector centrality measure takes this into account by weighting each tie by the importance of the node to which it is linked (Freeman 1979).[6]

Two key assumptions drive this network operationalization with nonprofits connected through foundation grant relationships. First, we assume that more centrally embedded funders in each subsector network will be more prominent foundations in the metropolitan area and will have more status within the grant market. More centralized funders in each subsector will therefore lend greater status to the nonprofits they are associated with. Second, and similarly, nonprofits in the core of the network (i.e., that receive multiple grants from centralized foundations) will share high status, partly through their relationships with high-status funders and partly by virtue of their own reputations. Status from centralized

nonprofits and foundations in the network will be transferred and communicated through the network, with organizations at the fringes sharing the least status. Because of the nature of the weighted projected network, nonprofits will be more highly embedded within the network if they share grant relationships with multiple high-status foundations. Other organizations' status will vary based on how connected they are to the core of the network.

The second status-based measure, *Top Ten Grant*$_{2000}$, is a dummy variable with a value of 1 for organizations that received a grant in 2000 from one of the most prominent foundations in in the state. Prominent foundations are identified and coded based on whether they were listed on The Foundation Center's top 10 list for total assets or giving in Georgia in 2005 (The Foundation Center 2005). Because these "top 10" funders are recognizable and respected beyond subsector-specific networks, past grants (direct ties) from those high-status foundations are expected to lend greater status to an organization and increase its chance of receiving future grants by foundations in the metropolitan region. Based on how the variables are constructed, *Top Ten* status will be partly correlated with an organization's *Network Centrality*. Therefore, the full models that follow omit and then include *Top Ten Grant* to demonstrate the unmediated and direct effects of the two status variables. The two status variables test slightly different avenues of attaining organizational status in the network. Including both in the same model allows us to test the effect of each controlling for the other.

The subsector networks share a distinct core-periphery structure with a central hub of nonprofits that are tightly connected and many nonprofits on the edges that are loosely integrated (see Figure 2 as an example based on human service organizations in the sample). In this context, it means that nonprofits in the core set of each network all receive grants from similar foundations. The grant market is loosely organized around this core. Across all network constructions, the core group is tightly intertwined, which would suggest that there is likely a lot of information about this set of organizations flowing through the network as network connectivity facilitates information sharing. As a result, foundation monitoring costs are likely lower for this group of nonprofits, since grantmakers can readily access information on an organization in the core.

Control Variables

We control for organizational characteristics that have been found to be important in past research on performance in grant markets. To control for the impact of past performance in the grant market, we include a variable for lagged grants (Gronbjerg et al. 2000; MacIndoe 2008). This variable is operationalized as the value of the dependent variable in the year 2000. Past performance is important to consider because it has been found to be a significant predictor of grant success (Gronbjerg et al. 2000; Johnson 2016). It is important to note that past performance will correlate with organizations' prior centrality and status, which are our primary variables of interest. Because of this, using past performance as a control variable

2005 Human Service Nonprofits Connected Through Foundation Grants
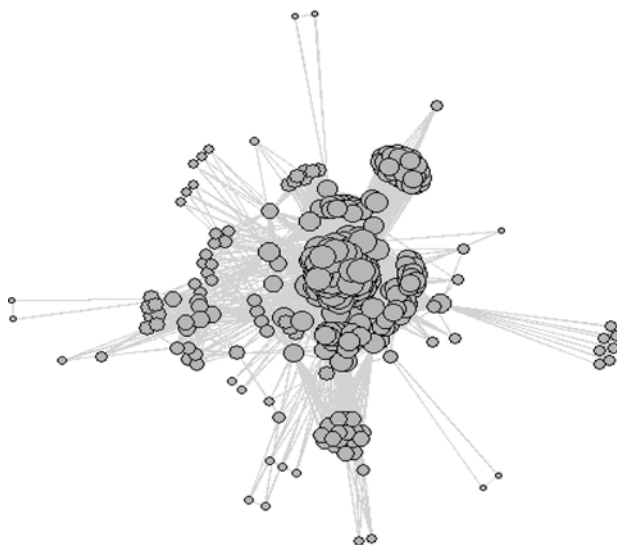
Figure 2. Example of a grant market network constructed through projections of the bipartite foundation-to-nonprofit market into a nonprofit network. Ties between nonprofits represent shared foundation connections; i.e., if a tie exists, it signifies that the nonprofits both received a grant from the same foundation in the same study year. Some pairs of nonprofits have up to nine ties, meaning they received grants from nine of the same foundations.

may result in conservative estimates for status. However, the amount of past grants represents an inherently different construct from the main variables we are testing. Most importantly, including past grants controls for a variety of factors unrelated to an organization's status, including the level at which a nonprofit applies for and consumes grants, which we cannot control for in another way in the model. In other words, the lagged dependent variable represents the volume of grants a nonprofit has received while the status variables represent information that is conveyed through the network regarding *with whom* nonprofits are connected through those grants. Including past performance and measures of status allows us to separately measure these effects.

For the first set of models, we use *Total Grants*$_{2000}$, which is equal to the natural logarithm of organizations' total grant amounts from the foundations in the sample in 2000. For the second set of models, we use *N Grants*$_{2000}$, which is the number of grants received by foundations in the network in 2000. These lagged grants variables have a five-year time-lag. Because multi-year awards typically last for three years at the most, the five-year lag allows us to confidently assume that they control for previous grant amounts awarded instead of multi-year grants that overlap with the dependent variable.

The remaining control variables follow prior empirical studies explaining donations and grants to nonprofit organizations and were generated using the lagged financial variables from organizations' 990 in 2004.[7] We explain grant market success based upon variables that suggest comparative advantage in competitive markets—size, age, fundraising expenses, program efficiency, financial health, and proximity to funders. These controls include *Size* (the log of total assets in 2004) and *Age*, calculated as the log of the number of years since receiving exempt status. Older and larger organizations are expected to benefit from greater visibility and name recognition. Size also controls for relative grant amounts that would be requested by organizations as well as their general capacity to write grant proposals. *Fundraising Expenses* are calculated as the log of the fundraising expenses reported on an organizations' Form 990 in 2004. Fundraising expenses are similar to marketing expenses in a for-profit context. Organizations that spend more to fundraise are expected to earn greater grants.[8]

Other variables relate to an organization's financial health and efficiency, which are expected to impact grantmakers' assessments of organizations' risk levels and the relative ''price'' of making a grant to them (Ashley and Faulk 2010; 2014; Tinkelman and Mankaney 2007). *Program Efficiency* is the ratio of program expenses to total expenses, which is conceptually similar to price variables that combine fundraising and administrative costs into one variable (Tinkelman and Mankaney 2007). Organizations with greater program expense ratios are expected to be viewed more favorably by funders because they expect more of their donated dollars to go toward programs. Financial health variables include *Surplus Margin, Debt Ratio,* and *Revenue Concentration. Surplus Margin* and *Debt Ratio* are measures of an organization's financial flexibility and capacity to respond to future opportunities or threats. *Surplus Margin* (also referred to as operating margin) is calculated as the ratio of net revenue (total revenue minus expenses) divided by total revenue in 2004 (Ashley and Faulk 2010; Greenlee and Tuckman 2007; Hager 2001; Trussel 2002; Tuckman and Chang 1991). Greater surplus margins provide greater financial cushions for future spending, while negative surplus margins (financial losses) can lead to financial distress. *Debt Ratio* is calculated as the ratio of end-of-year liabilities to end-of-year assets in 2004 (Carroll and Stater 2009).[9] High debt ratios limit an organization's ability to take on future debt. *Revenue Concentration* is measured using a Herfindahl-Hirshman Index (HHI), which is the sum of the squared ratios of the total amount of funding earned through each revenue category to total revenue in 2004. We follow Calabrese (2012) in constructing an 11-revenue source HHI, except that we are able to separate total contributions into donations and government grants, resulting in a 12-revenue source HHI using private contributions, government grants, program service revenue, membership dues, interest, dividends, net rental income, other investment income, investment profits, net income from special events, net revenue from the sale of inventory, and other revenue. Total revenue was calculated by summing revenue from all 12 streams. We follow Hager (2001) in recoding negative values (losses) in each revenue stream as zero before calculating the HHI. We also follow Carroll and Stater

(2009) by normalizing the HHI. In theory, *Revenue Concentration* ranges from 0 to 1, with lower values indicating more diversified funding and a value of 1 indicating that organizations received all revenue from one source. From a financial health perspective, having more diversified funding (i.e., lower *Revenue Concentration*) can buffer an organization against sudden shocks to any single revenue stream. However, concentrating on single or few revenue streams can be efficient and lead to faster growth (Foster and Fine 2007). In general, organizations that are financially healthier based on *Surplus Margin, Debt Ratio,* and *Revenue Concentration* are expected to be viewed as less risky from a grantmaker perspective, giving financially healthier organizations a comparative advantage in competitive markets for philanthropic funding (Ashley and Faulk 2010; 2014).

Because many foundations are located in Atlanta, we also control for the location of a nonprofit in the two major metropolitan counties that the city of Atlanta overlaps, Fulton or DeKalb, as a control for proximity to major funders (Ashley and Faulk 2010; McGinnis and Ashley 2011). We also include the log of government funding to control for income interactions with government grants (Tinkelman and Mankaney 2007). Finally, because organizations compete against other organizations in their same mission areas for funding and because funding amounts vary by field of activity, we control for nonprofit subsector using a set of dummy variables for each of the 10 subsectors described earlier. Summary statistics on all variables in the models are presented in Table 2 below.

TABLE 2
Summary Statistics

Variable	Mean	Std. Dev.	Min	Max
$\ln(Total\ Grants)_{2005}$	9.83	2.27	4.32	16.11
$Total\ Grants_{2005}$	205,577	738,513	75	9,870,338
$\ln(Total\ Grants)_{2000}$	5.60	5.46	0	16.21
$Total\ Grants_{2000}$	131,465	603,664	0	10,972,677
$N\ Grants_{2005}$	1.71	1.31	1	11
$N\ Grants_{2000}$	1.22	1.78	0	15
$Network\ Centrality_{2000}$	0.15	0.27	0	1
$Top\ Ten\ Grant_{2000}$	0.27	0.44	0	1
$\ln(Assets)_{lag}$	13.35	3.09	0	20.90
$\ln(Age)_{2005}$	2.78	0.93	0	4.38
Age_{2005}	21.90	17.35	0	78.93
$\ln(Fundraising\ Expenses)_{lag}$	6.51	5.51	0	17.45
$Program\ Expense\ Ratio_{lag}$	0.72	0.27	0	1
$Debt\ Ratio_{lag}$	0.29	1.83	0	43.21
$Surplus\ Margin_{lag}$	0.08	0.37	−3.12	1
$Revenue\ Concentration_{lag}$	0.63	0.25	0.10	1
$Fulton/DeKalb\ County$	0.46	0.50	0	1
$\ln(Government\ Grants)_{lag}$	4.39	5.97	0	19.68

Note: Observations = 725.

Models

The data are structured as a two-year panel, with the unit of analysis being the nonprofit, and the dependent variables are the natural logarithm of total grant amounts in 2005 and the number of grants received from the sample foundations in 2005. Our final empirical model is as follows:

$$Y_{2005} = \lambda_0 + X_{lag}\beta + \delta \cdot Y_{2000} + \alpha \cdot Centrality_{2000} + \gamma \cdot TopTenGrant_{2000} + \varepsilon.$$

The matrix X represents the time-lagged financial and organizational controls. The coefficients α and γ represent the main theoretical estimates of interest in the study. Grant market *Centrality* in the year 2000 is the weighted eigenvector centrality of the nonprofit in relation to other nonprofits. As discussed earlier, we treat this as a measure of organizational status in the theoretical framework. Foundations are assumed to have some knowledge about what nonprofits reside in the core of the grant markets, either through information that nonprofits communicate directly to foundations through grant applications or through other communication channels such as foundation officers' informal discussions, association meetings, newsletters, and press coverage. Having received a grant from one of the top 10 foundations in the state is also expected to contribute to an organization's status by signaling that they are worthy of grant investments made by the most prominent foundations in the state.[10] The coefficients α and γ represent the effects of network position and status on grant market success above and beyond information foundations may have about organizational characteristics from grant applications and other sources.

As discussed earlier, the data for the analysis include all organizations that received grants from the sample foundations in 2005. Because organizations that did not receive grants in 2005 are excluded, the ranges of the dependent variables are positive and non-zero. Because it is unknown which organizations applied for grants but did not receive them (i.e., organizations with values of 0 for the dependent variables are not observed), the sample is not a random sample of the population of organizations in Atlanta. Instead, the sample is truncated based on values of the dependent variables. Standard OLS could therefore lead to biased or inconsistent estimators (Wooldridge 2000). To account for this, we use truncated regression for models explaining *Total Grants,* which is a continuous variable, and zero-truncated Poisson for models explaining *N Grants*, which is a count variable. Unobserved competitive dynamics and other organizational circumstances are similar for organizations in the same specific subsector industries (such as for homeless shelters versus other types of organizations within the human services subsector). Therefore, model errors could be correlated within specific industry groupings even if they are uncorrelated across subsectors. To correct for potentially inflated standard errors, we use cluster-robust standard errors clustered at the specific NTEE-CC level, which includes 255 industry clusters in the sample.[11]

RESULTS

As discussed earlier, our models explain total grant amounts (*Total Grants*) and the number of grants (*N Grants*) received in 2005 based upon organizational characteristics, past performance, *Network Centrality,* and receiving a *Top Ten Grant* in 2000. Variance inflation factors in the fully conditional regression demonstrated moderate collinearity (VIF >1) but VIF values were below 3 for all variables in the final model. Simple, unconditional models without other controls (not shown) indicate that organizations with greater *Network Centrality* in 2000 received significantly greater grants in 2005 ($\alpha = 2.298$, $p < 0.001$). Together in the same model, *Network Centrality* and *Top Ten Grant* each significantly explains grants earned in 2005 ($\alpha = 1.269$, $p < 0.001$; $\gamma = 1.252$, $p < 0.001$), even controlling for *Total Grants* in 2000 ($\alpha = 0.794$, $p < 0.01$; $\gamma = 0.818$, $p < 0.001$; $\delta = 0.0725$, $p < 0.001$). As expected, having a *Top Ten Grant* explains some of the effect of *Network Centrality*, but each status variable continues to positively impact future grants, controlling for the other. To test the effects of these status variables controlling for organizational factors explained earlier, we first build the empirical model using the organizational controls and past performance. We then follow with the fully conditional models, which include the status measures. The results are presented in Tables 3 and 4.

As shown in the models explaining total grant amounts in Table 3 and the number of grants earned in Table 4, many of the expectations from previous research are upheld. Controlling for the other organizational factors, larger organizations, organizations in closer proximity, organizations with greater financial health, and those that spend more on fundraising are expected to earn significantly greater total grant amounts. Age is found to have a significant, negative relationship with grant amounts. While this finding is not the expected direction based on economic models of giving for individuals (Weisbrod and Dominguez 1986), it is consistent with emerging research on the complicated relationship between age and receipt of charitable or government funding (Calabrese and Grizzle 2012; Johnson 2016; Suárez 2011; Tinkelman and Mankaney 2007). Lagged government grants are positively and significantly related to *Total Grants* in Model 1, which is consistent with Suárez's (2011) findings of a positive association between government and foundation grants. However, this effect falls from significance in other models. The effect of program expense ratios is in the expected direction for both total grant amounts and the number of grants earned; however, the effects are not statistically significant. The effect of debt ratios is positive in these models, which is the opposite of what is expected based on prior research and theory.

As discussed in note 11 and by Tinkelman and Mankaney (2007) and Bowman (2011), effects of financial variables can be sensitive to outlier values in organizations' 990 data. We therefore conducted sensitivity analysis following Ashley and Faulk (2010) and Tinkelman and Mankaney (2007). Following restrictions used by Ashley and Faulk (2010), excluding seven observations with outlier values of debt ratio above 4, the effect of debt ratio is in the expected, negative direction, which is consistent with Ashley and Faulk (2010). Additionally, restricting the sample to

TABLE 3
Regression Results Explaining the Total Grant Amounts Received in 2005

VARIABLES	Model 1	Model 2	Model 3	Model 4
Network Centrality$_{2000}$			0.687**	0.546*
			(0.313)	(0.326)
Top Ten Grant$_{2000}$				0.576**
				(0.234)
ln(Total Grants)$_{2000}$		0.131***	0.113***	0.088***
		(0.015)	(0.017)	(0.018)
ln(Total Assets)$_{lag}$	0.188***	0.150***	0.152***	0.148***
	(0.040)	(0.038)	(0.038)	(0.038)
ln(Age)$_{2005}$	−0.281***	−0.490***	−0.498***	−0.488***
	(0.101)	(0.101)	(0.101)	(0.101)
ln(Fundraising Expenses)$_{lag}$	0.049**	0.032*	0.028	0.026
	(0.020)	(0.019)	(0.019)	(0.019)
ln(Government Grants)$_{lag}$	0.033**	0.026	0.024	0.024
	(0.017)	(0.016)	(0.016)	(0.016)
Program Expense Ratio$_{lag}$	0.198	0.065	0.057	0.073
	(0.289)	(0.281)	(0.283)	(0.280)
Surplus Margin$_{lag}$	0.533**	0.662***	0.657***	0.648***
	(0.257)	(0.231)	(0.233)	(0.235)
Debt Ratio$_{lag}$	0.030	0.031	0.034*	0.039*
	(0.021)	(0.020)	(0.020)	(0.020)
HHI$_{Normalized\ 12\ source,\ lag}$	0.428	0.535	0.506	0.538
	(0.393)	(0.373)	(0.375)	(0.372)
Fulton or DeKalb County	0.633***	0.521***	0.465***	0.392**
	(0.160)	(0.155)	(0.159)	(0.160)
Human Services	0.201	0.015	0.009	−0.002
	(0.212)	(0.178)	(0.188)	(0.178)
Education	0.579**	0.404**	0.415**	0.435**
	(0.243)	(0.197)	(0.209)	(0.197)
Arts	0.772***	0.375	0.374	0.377
	(0.281)	(0.271)	(0.281)	(0.278)
Health	0.352	0.064	0.089	0.062
	(0.305)	(0.287)	(0.291)	(0.296)
Hospitals	0.488	0.649	0.611	0.546
	(1.720)	(1.681)	(1.638)	(1.665)
Environment	0.789***	0.302	0.301	0.387*
	(0.291)	(0.253)	(0.255)	(0.232)
International	−0.389	−0.702	−0.754	−0.817
	(1.455)	(1.240)	(1.227)	(1.205)
Mutual Benefit	2.199***	2.005***	1.952***	1.904***
	(0.209)	(0.180)	(0.191)	(0.187)
Public Benefit	0.488	0.167	0.156	0.141
	(0.297)	(0.254)	(0.258)	(0.260)

(*Continued*)

TABLE 3

Continued

VARIABLES	Model 1	Model 2	Model 3	Model 4
Constant	6.479***	7.297***	7.370***	7.407***
	(0.613)	(0.597)	(0.603)	(0.598)
Observations	725	725	725	725
sigma	2.099***	2.012***	2.007***	1.998***
	(0.058)	(0.057)	(0.057)	(0.057)
r(rho)^2	0.144	0.214	0.218	0.224

Note:
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.
Dependent Variable: ln(*Total Grants*)$_{2005}$.
Cluster-Robust Standard Errors in Parentheses (based on255 NTEE-CC subsector clusters).
Truncated Regression, truncated at a lower limit of 0.
Religious subsector is the subsector reference group.

organizations with positive fundraising expenses, following Ashley and Faulk (2010) and Tinkelman and Mankaney (2007), the effects of lagged fundraising expenses and debt ratio in the fully conditional model 8 are stronger, in the expected directions, and statistically significant ($b_{\text{ln(fundraising expenses)}} = 0.118$, $p < 0.05$; $b_{\text{debt ratio}} = -0.419$, $p < 0.1$), but this limits the sample to 433 observations. The effect of program expense ratio (efficiency) is also stronger in the restricted sample but remains statistically insignificant at the $p < 0.1$ level ($b_{\text{program expense ratio}} = 0.354$, $p > 0.1$). Under the sensitivity analysis, the effects and significance of other variables in the fully conditional model, including the key variables of interest are consistent in the restricted samples in terms of direction, magnitude, and statistical significance, with the exception of *Network Centrality* in the fully conditional Model 4, which is found to be stronger ($\alpha = 0.786$, $p < 0.05$) in the fully restricted sample.

Introducing lagged grants adds additional explanatory power to the base models as shown in Tables 3 and 4. The effect of lagged grants is moderate in both sets of models. Holding the other variables constant, a 1% increase in total grant amounts in 2000 is expected to increase total grant amounts in 2005 by around 0.13%. In Model 6, for a human services organization in Fulton or DeKalb County and holding the values of other control variables at their means, an additional grant in 2000 is expected to increase the number of grants by around a tenth of an additional grant in 2005.

As shown in subsequent models in each table, part of the effect of past grants is explained by the character of those past grants—specifically, when past grants afford organizations greater network centrality and originate from high-status foundations. As shown in Model 3 in Table 3 and Model 7 in Table 4, lagged *Network Centrality* has a significant impact on future grants earned, and the expected impact of lagged grants is reduced. Based on a coefficient of 0.69 in Model 3 and holding the other variables constant, an organization with *Network Centrality* of 1 in 2000 is expected to earn roughly 69% greater total grant amounts from the foundations in the network in 2005. When computing the expected value of total grant amounts using all coefficients from

TABLE 4
Regression Results Explaining the Number of Grants Received in 2005

VARIABLES	Model 5	Model 6	Model 7	Model 8
Network Centrality$_{2000}$			0.548***	0.473**
			(0.209)	(0.205)
Top Ten Grant$_{2000}$				0.325***
				(0.119)
N Grants$_{2000}$		0.144***	0.090***	0.067**
		(0.023)	(0.030)	(0.027)
ln(Total Assets)$_{lag}$	0.162***	0.105***	0.115***	0.110***
	(0.028)	(0.027)	(0.026)	(0.027)
ln(Age)$_{2005}$	−0.053	−0.127*	−0.144*	−0.149**
	(0.072)	(0.076)	(0.074)	(0.075)
ln(Fundraising Expenses)$_{lag}$	0.066***	0.051***	0.049***	0.046***
	(0.013)	(0.012)	(0.013)	(0.013)
ln(Government Grants)$_{lag}$	0.002	−0.001	−0.004	−0.003
	(0.008)	(0.008)	(0.008)	(0.008)
Program Expense Ratio$_{lag}$	0.361	0.398	0.375	0.345
	(0.261)	(0.261)	(0.265)	(0.269)
Surplus Margin$_{lag}$	0.191	0.208	0.211	0.259*
	(0.160)	(0.157)	(0.157)	(0.154)
Debt Ratio$_{lag}$	0.040***	0.036***	0.040***	0.042***
	(0.014)	(0.012)	(0.013)	(0.013)
HHI$_{Normalized\ 12\ source,\ lag}$	−0.367	−0.387*	−0.404*	−0.375*
	(0.231)	(0.222)	(0.217)	(0.218)
Fulton or DeKalb County	0.596***	0.465***	0.421***	0.370***
	(0.099)	(0.108)	(0.109)	(0.110)
Human Services	1.020***	0.912***	0.872**	0.851***
	(0.341)	(0.334)	(0.353)	(0.328)
Education	1.006***	1.034***	0.990***	0.984***
	(0.355)	(0.343)	(0.356)	(0.335)
Arts	1.461***	1.096***	1.110***	1.103***
	(0.356)	(0.347)	(0.365)	(0.342)
Health	1.112***	1.027***	1.024***	0.987***
	(0.339)	(0.335)	(0.355)	(0.331)
Hospitals	1.377**	1.570**	1.473**	1.444**
	(0.665)	(0.652)	(0.644)	(0.649)
Environment	1.359***	1.152***	1.097***	1.117***
	(0.360)	(0.342)	(0.360)	(0.331)
International	0.478	0.448	0.302	0.252
	(0.400)	(0.469)	(0.447)	(0.399)
Mutual Benefit	−18.52***	−13.70***	−13.34***	−28.08***
	(0.341)	(0.350)	(0.344)	(0.320)
Public Benefit	1.303***	1.085***	1.062***	1.036***
	(0.370)	(0.369)	(0.383)	(0.364)

(*Continued*)

TABLE 4

Continued

VARIABLES	Model 5	Model 6	Model 7	Model 8
Constant	−4.270***	−3.159***	−3.148***	−3.065***
	(0.497)	(0.469)	(0.484)	(0.461)
Observations	725	725	725	725

Note:
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$.
Dependent Variable: *Number of Grants*$_{2005}$.
Cluster-Robust Standard Errors in Parentheses (based on 255 NTEE-CC subsector clusters).
Zero-Truncated Poisson Regression.
Religious subsector is the subsector reference group.

Model 3, a human services organization in the central counties with the sample mean values of other variables and *Network Centrality* of 0 is expected to earn around $19,000 in total grants in 2005. An organization with the same values of the other variables in the model and *Network Centrality* of 1 is expected to earn $37,000. But even smaller increases in *Network Centrality* have a significant effect. Controlling the other variables at their means as noted earlier, an organization with the sample average *Network Centrality* of 0.15 is expected to earn around $21,000 in total grants. An organization with a standard deviation (0.27) increase in *Network Centrality* is expected to earn around $25,000, or 20% greater total grant amounts.

These findings are consistent with those when we are explaining the number of grants earned in Model 7. For a human services organization in the central counties and holding the other variables at their means, an organization with *Network Centrality* of 1 is expected to earn around one more grant than an organization with *Network Centrality* of 0. As a point of comparison, this effect is approximately the same as the expected increase in grants from a standard deviation increase in organizational size. Additionally, for larger organizations, the expected increase in the number of grants gained from greater *Network Centrality* is greater.

After controlling for organizational factors, status from the previous time period (*Network Centrality* in 2000) significantly improves an organization's chances of receiving greater foundation grants. As expected, some of this effect is explained by the status gained by receiving prior foundation grants from, and having direct ties with, high-status foundations. The fully conditional Model 4 in Table 3 and Model 8 in Table 4 include both status variables. Controlling for having received a *Top Ten Grant*, *Network Centrality* has a slightly weaker effect. However, a *Top Ten Grant* in 2000 provides an additional avenue for organizational status to impact future grants received. Based on the coefficient of 0.576 in Model 4, holding the organizational controls and *Network Centrality* constant, having received a *Top Ten Grant* in 2000 increases an organization's expected total grant amounts by around 58%. Using the model coefficients in Model 4, the computed expected value of total grant amounts in 2005 for a human services organization in the central counties and the

mean values of organizational control variables and *Network Centrality* is around $13,000 (or around 78%) greater for an organization that received a *Top Ten Grant* in 2000 compared to one that did not.

Based on the squared correlation between the predicted values and *Total Grants*$_{2005}$, r(rho)^2 (Statistical Consulting Group 2014), the final, fully conditional Model 4 explains around 22.4% of the variation in *Total Grants*. This is comparable to the r^2 that would be obtained in a standard OLS regression.[12] In comparison, Model 1, which only includes the organizational controls, explains 14.4% of the variation in the dependent variable. A model (not shown) with only *Network Centrality* and organizational controls (omitting lagged *Total Grants* and *Top Ten Grant*) explains 17.8% of the variation in *Total Grants*. Adding *Top Ten Grant* leads to 20.6 of the variation in *Total Grants* being explained, which is close to the explanation provided by Model 2, which includes lagged *Total Grants* without the status variables. Because the status variables are based on lagged grants, the rough comparability of the explanation they add compared to models with lagged grants is logical. As discussed earlier, *Network Centrality* and *Top Ten Grant* further contribute to our understanding of the avenues through which past grants influence future grant decisions.

DISCUSSION

An organization's status (network position) in 2000 is significantly related to the number of grants received in 2005. Controlling for organizational characteristics as well as past quantities of grants received, a central position in the funding network gives nonprofits an additional comparative advantage in markets in competitive grant markets. These findings yield several important implications for organizational and public management.

Perhaps the most obvious implication is that strategies to cultivate the kinds of relationships that help position an organization at the center of funding networks can pay off. In doing so, it makes it easier to secure additional resources, which conforms to the expectations from the literature on organizational status. This finding is no doubt unsurprising to nonprofit development officers who spend many hours cultivating relationships with grant officers at local foundations. It is also not likely to be surprising for foundation directors who rely on past experience and information that is shared within grantmaking networks in order to make prudent decisions about which nonprofits can use funds effectively.

It does, however, have theoretical significance and public management implications. The results provide empirical evidence that perceived organizational status, or a similar kind of legitimizing process, influences the decisions of foundations above and beyond other organizational determinants. In other words, decisions about which nonprofits to fund are not made solely based upon organizational characteristics and independent of the network effects that are inherent in organizational markets. Higher-status organizations can effectively spend less to earn the same amount of grants as lower-status actors, thereby making their fundraising expenses (and donors' dollars) go farther.

From an alternative perspective, status and network effects create an incumbent advantage that could lead to a cumulative advantage process that makes it difficult for small or less-known organizations to gain traction in grant markets. Since innovation tends to emerge from small organizations (Schumpeter 1943), such fundraising barriers for upstart organizations could stifle healthy ecological processes in nonprofit markets over time. Minority organizations or those that serve the most marginalized or disadvantaged populations within communities could also encounter barriers to funding, professionalization, and growth, particularly if they are lower-status nonprofits.

As Never (2014) demonstrates, smaller organizations and those in minority census tracts are significantly more financially vulnerable. And as Garrow (2014) discusses, organizations in marginalized communities are also less likely to receive government grants. Extending the implications of our findings to other competitive resource markets in the sector, organizational status and network effects within markets could help explain the development of such resource barriers. From a public management perspective, inherent network processes in the allocation of competitive philanthropic and public funding could lead to unintended consequences, such as a lack of diversity or equity in the provision of nonprofit and public services.

From a management perspective and looking beyond the effects of status and networks, these findings present additional empirical evidence in the literature that organizations with greater financial health and greater fundraising expenses are more successful in philanthropic markets, all else being equal. Because of the structural barriers discussed earlier, it may be difficult for managers of organizations on the fringes of funding networks to quickly lead their organizations to greater financial health. Over the long term, however, managers, directors, and funders of such organizations could improve their organization's performance in philanthropic resource markets through making greater investments in fundraising capacity and making strategic decisions to improve the organization's overall financial health, even if incrementally.

Limitations of the Analysis

There are several important limitations of this study that result from the nature of the data and our attempt to empirically measure a tacit social construct like status. The primary contribution of this article is to articulate an adaptation of research on organizational status to the grant market context and demonstrate a feasible way to operationalize a network-analytic measure of status using publicly available tax data. We consider this analysis a step toward better understanding competitive resource markets in the nonprofit sector, but more work will be needed to further support the findings in grantmaking and other funding contexts.

The primary limitation to the analysis arises from the nature of the data collection process. Private foundations are notoriously secretive, so in order to construct a model of an entire grant market, we had to utilize archival tax data. As a result, we can only observe how many grants each nonprofit won; we cannot observe how many grants each nonprofit pursued. Consequently, the empirical model estimates the results using the revealed preferences of foundations from the characteristics of the

nonprofits that are funded and the variance in how many grants they receive. But we do not include information from nonprofits that did not receive grants from the foundations in the sample because we cannot differentiate nonprofits that applied and did not receive funding from nonprofits that did not apply for grants. Indeed, this same limitation applies to other studies on the distribution of public and private funding, including most studies we cite and draw upon for this analysis. Without information on organizations' appeals to donors, applications for foundation or government grants, or bids for contracts, we do not observe self-selection into (or out of) funding markets. If we included organizations that did not receive grants without knowing whether they applied for them or not, the estimates could be biased by this self-selection. As we discuss earlier, we know organizations in the final sample applied for funding because we limit our analysis to funded organizations in the year of the dependent variable, and we use truncated regression techniques to account for the truncated sample.

A preferable solution for this problem for future studies would be to collect all grant applications that were received by all foundations within a metropolitan area. However, this is not feasible since foundations are not required to share this information. If they did, the costs of such a study would be great. The method presented in this article could be extended, however, through a hybrid approach. The proxy measure of status is derived from a network-level measure of centrality and thus the full grant market network is needed to build the status variable. Archival tax data could be used to construct the grant market network necessary to generate the status measures. Once measures are calculated, they can be incorporated into a more focused analysis of grant success from a small sample of foundations that were willing to share all proposals, successful and unsuccessful, from a specific funding round. Again, this approach would be costly, but it would be possible.[13] We encourage such an approach in future research.

Similar to other studies we draw upon, as discussed in the literature review, we have chosen to operationalize status using network measures. Using publicly available tax data to observe status in grant markets through prior grant relationships is quite feasible, which we consider to be a major advantage of our approach. It is far from perfect, however, since it assumes that foundations have information from the network about previous grants a nonprofit has received. Many foundations request this information from nonprofits on grant applications, and directors and managers of foundations that serve similar nonprofit causes in the same metropolitan area are likely to overlap socially and professionally. Therefore, we believe the assumption that they know about nonprofits that have previously been funded in the network is tenable, but it does introduce the potential for measurement error in the status variable. Measurement error in an independent variable can result in attenuation bias, which pushes regression coefficients closer to zero and thus makes effects look smaller than they may be in reality. The alternative to a network analytic measure of status—surveying stakeholders about their perceptions of a nonprofit's status—would suffer from similar measurement problems.

Another major limitation of this research is that we are not able to directly observe the mission performance of a nonprofit, objectively through evaluations or subjective

through measures of perception of effectiveness. As Podolny (2005) discusses, actual performance is likely to be positively correlated with status. This may be particularly true over time as higher-status organizations have greater access to resources to develop organizational capacity and as they receive higher quality feedback from other high-status funders and peer institutions. However, more research is needed to understand how program-related performance measures relate to perceptions of quality, as some work suggests there can be divergence (Burger and Owens 2010; Herman and Renz 1998; Jun and Shiau 2012). It is a compelling question because poor information may lead to situations where nonprofits can "capture" funders even when they fail to achieve meaningful program impacts. The evidence we present here demonstrates the relative stability of a tightly knit core of nonprofits at the center of a competitive market for resources. Whether or not this leads to net efficiencies, by rewarding those nonprofits that are best able to demonstrate their effectiveness and efficiency, or to inefficiencies, by not allowing opportunities for potentially effective and efficient nonprofits to enter, is an open question.

CONCLUSIONS

In this analysis, we tested previous models of donation behavior in the context of foundation grant markets. We extended these models by adding measures of organizational status in order to better understand organizational performance in acquiring competitively awarded funding within a metropolitan network of foundations and the organizations they fund. We find support for theory on organizational status as a key explanatory variable for organizational success in competitive markets. As found in the empirical research testing the effect of organizational status in other settings, nonprofits with preexisting connections to high-profile actors in the funding network are significantly more likely to earn greater funding. These network effects have a significant and substantive effect on grant awards, even controlling for organizational characteristics and other variables, such as past grant performance, which have been found to explain grantmaking in prior research. In this competitive funding market, positions of greater network centrality in the funding network give organizations a strong competitive edge.

The findings show that nonprofits that are highly embedded in grant markets can access resources at a lower relative cost than other nonprofits. Ease of access for core nonprofits can translate to spending more time on programs and capacity building, leading to a better organizational profile and reinforcing future success in seeking grants. Because resources are necessary to build capacity, organizations that are outside of the funding network are expected to have greater difficulties entering and being successful in raising funds. While beyond the scope of this study, this could lead to persistent challenges for organizations serving marginalized or minority interests, as well as smaller or under-professionalized organizations.

From a public management perspective, these findings inform our understanding of nonprofit resource attainment and more generally highlight how network structure may both facilitate repeat funding relationships and prevent market entry.

Grantmaking foundations generally achieve their own missions through grants that fund other organizations' programs. Therefore, in theory, they are able to capitalize on market-driven efficiencies, similar to those produced in the public sector, by contracting services in competitive bidding cycles. Contracting yields other efficiencies, such as allowing foundations the opportunity to flexibly adapt to changing conditions and strategically respond to new or emerging needs (Frumkin 2006; Sandfort 2008). However, the importance of status and the general stability of grant decisions over time create potentially strong entrance barriers in these markets. These findings may also extend to other competitive funding processes in the sector, such as the allocation of government grants. Future research needs to be conducted on the role of status in markets where nonprofits deliver significant public goods and services, since this may have consequences on the efficiency and effectiveness of the provision of these goods and services.

It is rational for funders to direct funding to effective nonprofits when resources are limited. Because rigorous performance data in the sector are difficult to collect and have not become widespread, funders tend to rely on other objective criteria, such as financial information (Gregory and Howard 2009). Because of the lack of concrete performance data, effectiveness in the sector is largely perceptual and based on organizations' reputations for success (Forbes 1998; Herman and Renz 1998; 2004; 2008; Willems, Boenigk, and Jegers 2014; Willems, Jegers, and Faulk 2014). Under these conditions, it makes sense that organizational status would be a key driver of success in nonprofit funding markets. The unintended consequences of such funding patterns for organizations and for public management therefore become important to understand, and we encourage future research in this area.

Our results have important implications for practice. In a 2004 study by the Center for Effective Philanthropy, nonprofits were found to spend an average of seven hours seeking a $10,000 grant, 12 hours seeking a $100,000 grant, and over 200 hours seeking a $1,000,000 grant (Bolduc, Buchanan, and Huang 2004). These numbers suggest that the return on investment from writing larger grants can be great. Yet our findings indicate that not all nonprofits can break into these high-return arenas. Even effective nonprofits may need to be embedded deep within grant markets in order to have access to greater numbers of grants and higher yields.

For communities of funders and from a strategic funding perspective, these findings have other important implications. Maintaining these patterns of grantmaking behavior by the foundation sector could exacerbate the already uneven distribution of charitable resources across organizations. This is particularly important when considering other persistent challenges in metropolitan and regional governance related to the financing of minority organizations, resource disparities across socio-economic neighborhood divides, rural–urban inequalities, the delivery and distribution of public services, and the movement of high-need populations to outlying or harder-to-serve areas. We believe that these are important questions that networks of public and private funders may be able to better address through coordinated rather than diffuse efforts, especially when independent grantmaking processes lead to disproportionate funding patterns that favor embedded organizations and causes, as demonstrated in this analysis.

NOTES

1.   Organizational status is a concept from sociology that is distinct and separate from the concept of signaling theory in economics, which assumes actors intentionally spend effort on activities that signal their value to others. While both concepts were developed to explain behavior under conditions of uncertainty, these are two distinct theoretical perspectives. For example, a recent review of signaling theory from an economics perspective (Connelly et al. 2011) does not cover the sociological status literature. Conversely, literature reviews on status signals (Sauder, Lynn, and Podolny 2012; Piazza and Castellucci 2014) mention signaling theory in economics, but distance the sociological theories of status signals from that literature.

2.   Network statistics are calculated using the full grant network of the foundations and before restricting the data to the Atlanta 10-county area because network statistics are sensitive to missing data (Borgatti et al. 2006).

3.   Grants to institutions of higher education are excluded because many grants in higher education are awarded to individual researchers within the institutions instead of being based fully upon the organizations' characteristics.

4.   This may bias the estimates for the key variables of interest downward in the models shown because we do not observe organizations outside of the network that were denied funding. Without full grant application information (which is unavailable), self-selection is unobserved. Therefore, it is likely that estimates would be biased and lead to erroneous inferences if we were to include organizations that did not receive grants in 2005 (since we do not know whether they applied to foundations in the sample or not).

5.   The grant networks were created through a projection of the bipartite network using the "tnet" package available for the R statistical programming environment written by Opsahl (2009).

6.   In addition to the theoretical justification for the use of Eigenvector centrality, degree centrality measures are also perfectly collinear with the lagged dependent variable since degree centrality in this case represents the number of grants that a nonprofit has received, not taking into account the importance of the grantmaking institution.

7.   Twenty-nine organizations were missing in the 2004 990 files. Values for two organizations came from the 2003 file and 27 organizations' values came from 2005 data. Variables for government grants and program expenses were drawn from the Digitized 2003 (NCCS 2012b) or a custom 2005 database, because those variables are not in the 2004 file.

8.   The effect of fundraising expenses in this study may be biased downward since many organizations that earn grants report zero fundraising expenses, which may be inaccurate. As shown and discussed in Tinkelman and Mankaney (2007), fundraising expenses have a consistent and positive impact on charitable contributions in analyses of organizations with reliable fundraising expense data.

9.   Like the effect of fundraising expenses, the effect of debt ratio and other financial variables should be interpreted with caution in this analysis. As Tinkelman and Mankaney (2007) and Bowman (2011) discuss, it is common to restrict samples that rely on 990 data to allow for more confident inferences concerning the effects of financial variables by limiting the analysis to observations with more reliable data. However, since network statistics are sensitive to missing data and are the focus of this analysis, we use the full sample of organizations in the grant market in 2005 and discuss sensitivity analyses for financial variables of interest when their effects deviate from past studies.

10.   We thank an anonymous reviewer for encouraging us to include direct connections to high-status funders in addition to network centrality. It is important to recognize as

discussed earlier that, as with the amount of past grants, these constructs are related. And we thank Steve Kelman for pointing out that all three measures indicate an organization's status in the market in different ways. Similar to an organization's lagged grants, a past *Top Ten Grant* is a measure of past performance. Including the lagged *Top Ten Grant* measure recognizes that the top 10 foundations in the state are distinct from other funders and will have the most capacity to vet grants more carefully. Therefore, it is more competitive to win one. As a result, these grants convey more status than a grant of the same size from a smaller foundation. As a separate measure of status than eigenvector centrality, therefore, we are measuring status attained through distinct pathways with each of these variables. As shown in the analysis section, each significantly explains grant performance, even controlling for the other.

11. Sensitivity analysis using unadjusted standard errors and heteroskedasticity-robust (Huber-White) standard errors demonstrates consistent findings to those shown.

12. Sensitivity analysis demonstrates consistency between OLS regressions and the final truncated regressions, including the r^2 values.

13. For instance, Faulk, Stewart, and Boyer (2013) use data on all applications and funding decisions from a single foundation.

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