Does Government Funding Make Nonprofits Administratively Inefficient?

Revisiting the Link

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Manuscript Forthcoming at Nonprofit and Voluntary Sector Quarterly
Abstract

There is widespread concern that government funding bureaucratizes nonprofits and causes them to be administratively inefficient. This study brings together contrasting streams of literature and hypothesizes a curvilinear relationship between government funding and nonprofits’ administrative efficiency. Using a longitudinal dataset of United States Agency for International Development (USAID)-registered nonprofits, we find evidence for this nonlinear effect. In particular, as the proportion of a nonprofit’s government funding increases, its reported administrative expense ratio will initially increase, but after the proportion reaches one-third to two-thirds of total revenue (depending on the estimation strategy used), further increases in government funding reduce the reported administrative expense ratio. Nonprofits may maintain a favorable level of operating efficiency with either a low level or a high level of dependence on government funding. Our work adds to the literature on government-nonprofit funding relationship and offers practical implications for nonprofit management.
Introduction

In the past several decades, government and the nonprofit sector have become intertwined and interdependent. Under institutional arrangements such as third-party government (Salamon, 1995), contracting regime (Smith & Lipsky, 1993), and collaborative governance (Ansell & Gash, 2008), there is growing government financing of nonprofit activities in service delivery and policy implementation across multiple policy areas. The organizational impacts of government support on nonprofits have attracted substantial scholarly and practical attention. Although government funding offers various benefits to help nonprofits overcome voluntary failures (Salamon, 1995), concerns also abound regarding the risks of nonprofits’ dependence on government support for their identity and autonomy (e.g., Guo, 2007; Lu, 2018; Nikolic & Koontz, 2007; Smith, 2008; Verschuere & De Corte, 2014).

A widespread concern regarding nonprofit dependence on government funding is that government funding would bureaucratize nonprofits and result in their operational inefficiency. The core argument, as Frumkin and Kim (2002, p. 1) summarized, is that “government funding is a channel for the transmission of the perceived inefficiencies of the public sector to the universe of nonprofit service providers.” Indeed, nonprofits have to employ more professional staff and adopt sophisticated management practices to conform to the program and accounting requirements involved in applying for and managing government funding. This process may increase an organization’s administrative expense ratio (AER, the ratio of administrative expenses to total expenses – a potential indicator of administrative efficiency). A high AER (i.e., a high proportion of total spending allocated to administrative expenses) is sometimes considered a signal of inefficiency and waste, since it represents a diversion of organizational resources from program outputs (Tinkelman & Mankaney, 2007; Weisbrod & Dominguez, 1986). If government
funding leads to higher AERs, the increased administrative expenses may crowd out nonprofits’ charitable outputs and result in operating inefficiency.

However, this conventional wisdom has not gone unchallenged. Interdependence theory, for example, argues that government funding can boost nonprofit administrative efficiency in two ways (Salamon, 1995). First, government funding expands nonprofits’ capacity and allows them to scale up their operations. Second, the accountability mechanisms associated with government funding impose discipline and internal control, promoting an efficient use of resources. Indeed, the conventional concern is not well supported by empirical evidence (Ecer, Magro, & Sarpça, 2017; Frumkin & Kim, 2002). Surprisingly, very little published empirical research directly tests the effect of government support on nonprofit administrative efficiency.

The empirical basis for the research question is dominated largely by case studies based on interviews with nonprofit officials or on observations (e.g., Alexander et al., 1999; Grønbjerg, 1993; Smith & Lipsky, 1993). These foundational studies add important insights to the literature and contribute to grounded theory, but they cannot rule out counterfactual factors and thus contribute less to causal inferences (Salamon & Toepler, 2015; Toepler, 2018).

The present study attempts to address this gap. We argue that neither stream of literature reviewed above can completely capture the complex nature of government-nonprofit funding relationship (Smith & Grønbjerg, 2006). Rather, we predict that the impact of government funding on nonprofits’ AERs follows an inverted U-shaped pattern: as government funding received by nonprofits increases, nonprofits must devote more resources to investing in infrastructure and operations to meet funding requirements, and thus their AERs will increase. However, as the proportion of government funding in nonprofits continues to grow, economies of scale will affect the management of government funding and the accountability controls
associated with government funding will intensify. As a result, up to a certain point, further increases in government funding reduce AERs and boost administrative efficiency. In other words, government funding has a diminishing effect in raising administrative expenses.

We test this hypothesis using a panel dataset of U.S.-based nonprofits registered with the United States Agency for International Development (USAID) from 1995 to 2014. Different model specifications confirm the hypothesized nonlinear relationship in the form of an inverted U-shape. In particular, as the proportion of government funding in a nonprofit grows, the nonprofit’s reported AER first increases. However, when the proportion of government funding reaches one-third to two-thirds of total revenue (depending on the model specifications), any further increases in government funding reduce the reported AER. This finding indicates that nonprofits can achieve a favorable level of operating efficiency when having either a low level or a high level of dependence on government funding. Nonprofit managers may exercise caution regarding administrative efficiency when their organizations have a moderate level of government funding.

The remaining sections are arranged as follows. The second section reviews the literature concerning the possible mechanisms through which government funding may affect nonprofit administrative efficiency. In section three, we introduce the data, measurement, and analytical method. Section four discusses the results of the quantitative analysis. Finally, we conclude the paper in section five with a discussion of the implications of the findings as well as the limitations of the analysis.

**Theoretical Framework**
Nonprofits’ administrative efficiency has received increasing scholarly and practical attention in recent years (e.g., Ashley & Van Slyke, 2012; Berlin, Masaoka, & Schumann, 2017; Chikoto & Neely, 2014; Eckhart-Queenan, Etzel, & Prasad, 2016; Tinkelman & Mankaney, 2007). The implicit assumption in this body of literature is that society does not favor nonprofits’ high AERs because organizations with more administrative expenses may not maximize their program outputs, which undermines their capacity to advance charitable purposes. In Weisbrod and Dominguez’s (1986, p. 87) seminal work, they defined administrative expenses as part of “the cost to a donor of purchasing one dollar’s worth of the organization’s output.” In this way, administrative expenses are considered a diversion of funds from programs: when an organization spends more on administration, fewer resources go to the provision of program outputs, and thus the price of output increases. AER is thus a potential indicator of an organization’s efficiency in turning its resources into final output, which is frequently used by donors, watchdog organizations, and other constituents as a measure of organizational accountability and legitimacy (e.g., Ashley & Van Slyke, 2012; Berlin et al., 2017; Gneezy, Keenan, & Gneezy, 2014; Bowman, 2006; Tinkelman & Mankaney, 2007).

It should be noted that the use of AER and other financial ratios to measure organizational efficiency is a contested topic in the literature. On one hand, the validity of these ratios in gauging organizational efficiency has been criticized. For example, Hager and Flack (2004) and Wing and Hager (2004) argued that these financial ratios involve technical flaws and thus the emphasis on the ratios would lead to undesired consequences. Gregory and Howard (2009) and Krishnan, Yetman, and Yetman (2006) suggested that nonprofits may engage in gaming behaviors to misreport their administrative and fundraising expenses in order to improve perceived legitimacy. On the other hand, no other alternative indicators seem to be widely used.
in the nonprofit literature (Coupet & Haynie, 2018; Liket & Maas, 2015). Thus, recent nonprofit studies still rely on AER as a proxy for organizational efficiency (e.g., Ashley & Van Slyke, 2012; Chikoto & Neely, 2014; Ecer, Magro, & Sarpça, 2017; Jacobs & Marudas, 2009; Tinkelman & Mankaney, 2007). Our study follows this practice while recognizing its potential bias.

In nonprofit scholarship and practice, government-nonprofit funding relationship is a significant topic. With government becoming a critical funding source for the nonprofit sector, a prevailing concern is that dependence on government funding can lead to loss of autonomy and other unintended consequences for nonprofits, ultimately eroding the sector’s fundamental values and functions in democratic governance (Alexander et al., 1999; Smith & Lipsky, 1993; Toepler, 2018). For example, scholars have explored the impact of government funding on various aspects of nonprofit operations, including governance, strategy making, financial behaviors, and policy advocacy (e.g., Andreoni & Payne, 2003; Guo, 2007; Lu, 2018; Nikolic & Koontz, 2007; Verschuere & De Corte, 2014).

An enduring argument on the pathological effect of government support contends that government funding bureaucratizes nonprofits and makes them inefficient. This line of thought originates from resource dependence theory, which posits that when nonprofits depend on government funding, their operations are necessarily influenced by government expectations and preferences (Pfeffer & Salancik, 1978). In particular, while managing government grants and contracts, nonprofits have to devote extensive efforts to satisfying government’s complex financial and programmatic accountability requirements. For example, nonprofits may have to rely on more professional staff with financial expertise, expand their administrative infrastructure (e.g., management systems and physical facilities), and formalize their internal operations.
Moreover, because government accountability and reporting requirements are often the same for small, medium, and large contracts and grants, small government grants can result in disproportionately high administrative costs.

Indeed, compared to other funding sources, government funding is usually considered by nonprofits to be extremely onerous to manage. After a review of nonprofit funding sources, Grønbjerg (1993, p. 197) wrote that “the complexity and amount of effort involved in securing and managing public grants and contracts pose high overhead costs.” In Boris et al.’s (2010) national study of U.S. government-nonprofit contracting in human services, over 70% of nonprofits reported that the application and reporting process required for government funding was too complex and time consuming. In sum, government funding increases pressure on nonprofits to improve their infrastructure and operations. As a result, increasing investments in new infrastructure and growing managerial formalization push administrative expenses to a high level. As administrative expenses grow, a smaller proportion of total spending is allocated to program expenses, leading to lower administrative efficiency. As Frumkin and Kim (2002, p. 8) summarized, “When one considers the costs associated with bidding on and winning contracts and the challenges of meeting accountability and reporting demands once funds do arrive, nonprofits face major challenges in their ability to operate efficiently under government funding.”

However, this line of reasoning does not go unchallenged. Interdependence theory argues that the interaction between government and nonprofits is a complementary one (Salamon, 1995). As a result, the working relationship between government and nonprofits is mutually dependent and beneficial. As Salamon (1995) argued, voluntary actions are sometimes insufficient and inefficient, limiting their capacity to address social problems alone, partially
because of philanthropic amateurism. The use of amateur approaches to organizational management and service delivery can lead to inefficient operations and lower concerns for accountability. In this situation, working with government helps nonprofits overcome this weakness. First, government provides a reliable flow of resources to nonprofits, which can help them expand their services and allow them to take advantage of economies of scale. Second, the accountability control mechanisms (such as performance measures and administrative reporting) associated with government funding impose quality standards and professional requirements on nonprofit recipients, introducing more discipline to internal operations and promoting efficient use of resources. In sum, government funding can improve nonprofits’ internal management capacity and boost their operational efficiency.

Some empirical evidence supports the interdependence line of argument. For example, Sloan and Grizzle (2014) found that faith-based and community-based organizations in Kentucky that received higher levels of federal grants allocated a larger proportion of their expenses to program costs than administrative costs. Parsons et al.’s (2017) survey study of 200 U.S. nonprofit executive directors reported that managers of government-funded organizations are more sensitive to their administrative expenditures and perceive greater pressure to achieve favorable AERs. Ecer, Magro, and Sarpça (2017) analyzed Form 990 data and reported nonprofits with more government grants have lower AERs and lower overhead cost ratios.

[Figure 1 Here]

Figure 1 summarizes the two competing lines of argument. Indeed, these bodies of literature, despite highlighting the complexity of government-nonprofit funding relationship, indicate that the net effect of government funding on nonprofit administrative efficiency remains unclear. We propose that the relationship between government funding and a nonprofit’s AER is
not linearly positive or negative but rather curvilinear, following an inverted U-shaped pattern. The initial upward slope of the inverted U-shape, representing a positive relationship between government funding and AER, can be explained by the resource dependence strand of reasoning. Nonprofits with limited government funding experience have to invest more in infrastructure and formalize operations in order to meet accountability requirements and achieve favorable positions in the competition for funding. In this way, dealing with additional government funding is costly. As a result, with other factors remaining the same, as a nonprofit receives more government funding, the organization incurs higher administrative costs and its AER increases.

In addition, the interdependence line of reasoning helps explain how the upward slope eventually changes direction. Indeed, although meeting government funding requirements is expensive, nonprofits that have accumulated a certain amount of government funding may take advantage of economies of scale when managing government funding. Once nonprofits possess adequate capacity and experience to meet general funding requirements, additional government funding will not require significant additional investment. For example, certain costs associated with obtaining government funding (such as annual audits and professional qualifications) are relatively fixed and tend to remain stable as government funding increases. Again, with all required infrastructure and accountability controls in place, the effect of government accountability mechanisms intensifies. As a result, after an organization accrues a sufficient amount of government funding, the rate at which government funding generates administrative costs will diminish as government funding continues to increase, and thus the curve slopes downwards. Given these arguments, we posit an underlying inverted U-shaped relationship between government funding and a nonprofit’s AER.
Methodology

We tested the hypothesis using a longitudinal dataset of private voluntary organizations (PVOs) registered with USAID from 1995 to 2014. By definition, PVOs are tax-exempt nonprofits that leverage their expertise and private funding to address development challenges abroad. Since the interwar period, these organizations have had a history of engaging in international assistance and development (McCleary & Barro, 2008; Stoddard, 2012). In addition to providing independent charitable services to address global humanitarian and development needs, PVOs establish working relationships with USAID to implement foreign assistance programs. To compete for USAID funding, all potential PVOs must apply to the USAID’s PVO Registry and pass a screening process to determine eligibility. For example, as of September 1, 2016 there were 597 PVOs registered with USAID (USAID, 2017). We collected data from USAID’s Report of Voluntary Agencies Engaged in Overseas Relief and Development (VolAg Report), which provides an annual snapshot of the financial activities (i.e., breakdown of expenditures and revenues) of each PVO registered with USAID. To increase the comparability of the organizations in our dataset, we only focused on the PVOs that are organized under U.S. laws and have headquarters in the United States.

Although the VolAg Report data were collected from PVOs’ self-reported information provided during the annual registration process, the data have several unique advantages. First, all the reported financial information must be supported by audited financial statements and is subject to USAID review, which makes the data more reliable than purely self-reported financial information. Second, the data include government grants, contracts, and in-kind support and report funding from all government sources. Such nuances allow us to capture government funding in a more comprehensive way. Third, since all PVOs, regardless of their size, must
register with USAID to compete for funding, the data include organizations of all sizes. Certainly, the data have limitations. In particular, the data do not provide rich information on organizational characteristics and local conditions in foreign countries where nonprofits operate, but the longitudinal nature of the data allows us to control for the effect of time-invariant variables, which mitigates potential omitted variable bias.

We requested VolAg Reports published between 1997 and 2016, which include information on the registered PVOs for the period from 1995 to 2014. After retrieving all the data from the VolAg Reports (11,368 observations), we cleaned the data using the following strategies suggested in previous studies (Andreoni & Payne, 2003; Heutel, 2014; Jacobs & Marudas, 2009; Tinkelman & Mankaney, 2007): (1) We eliminated 34 observations that reported a negative value for private contributions, government contracts, government grants, other government support, total revenue, administrative expenses, program expenses, or fundraising expenses. (2) We excluded 1,195 observations with zero administrative or fundraising expenses because zero overhead costs are considered suspicious and controversial. (3) We deleted 115 observations representing organizations with zero government funding for all years for which the organization was included in the sample, because those organizations never had government funding experience and thus the observations do not contribute to variation in government funding. (4) We used the consumer price index to adjust all the financial data to 2014-year values for inflation. After cleaning missing data, our final sample consisted of a panel of 704 organizations with 4,884 observations for the period from 1995 to 2014.

We employ the following empirical model to explore our research question:

\[ AER_{i,t} = \alpha + \beta_1 Government\ Funding_{i,t-1} + \beta_2 Government\ Funding_{i,t-1}^2 + \gamma NPO_{i,t-1} + \epsilon_{i,t} \]

where the dependent variable \( AER \) is calculated as the proportion of total expenses used for administrative and management purposes for organization \( i \) in year \( t \), the main independent
variable *Government Funding* is calculated as the proportion of revenue from all government sources (contracts, grants, in-kind support from USAID and other federal agencies) to total revenue for organization $i$ in lagged year $t-1$, the variable *Government Funding* is the squared term of *Government Funding*, used to identify the nonlinear relationship between AER and government funding, and $NPO$ is a vector of control variables including *Organization Size* (total revenue in log form), *Private Contribution* (the proportion of revenue from private donations, both in-kind and cash contributions), *Private Revenue* (the proportion of revenue from program services, such as service fees and membership dues), *Fundraising Expense* (the proportion of expenses for fundraising), and *Program Expense* (the proportion of expenses for both domestic and overseas programs).

We believe an organization’s budgetary or financial decisions (including its decision regarding administrative expenses) for year $t$ is most likely to be affected by its financial situation in year $t-1$, among others. Therefore, following the literature (e.g., Ashley & Van Slyke, 2012; Frumkin & Kim, 2002; McCleary & Barro, 2008), all the right-side variables are taken with a one-year lag. One important advantage of this treatment is that it allows us to better explore the causality rather than simply the correlation between variables.

**Results**

We report summary statistics and correlations for all the variables in Tables 1 and 2. In particular, our dependent variable $AER$ has a mean of 10.59% and a median of 9.33%, and its distribution is quite flat, with the 75th percentile being approximately 3 times larger than the 25th percentile. There has been some concern in the literature regarding nonprofits’ tendency to underreport administrative expenses to meet funders’ expectations (e.g., Gregory & Howard, 2009; Krishnan,
Yetman, & Yetman, 2006; Parsons et al., 2017). Although our data from VolAg Reports had to be consistent with nonprofits’ audited statements and are subject to USAID review, we cannot fully rule out the possibility of data misreporting. However, the descriptive statistics for the AER seem largely comparable to those in other empirical studies (e.g., Ashley & Van Slyke, 2012; Bowman, 2006; Chikoto & Neely, 2014; Tinkelman & Mankaney, 2007), which increases our confidence in the data reliability. The key independent variable Government Funding has a mean of 25.01% and a median of 20.51% and varies more widely among organizations, with the 75th percentile being approximately 15 times greater than the 25th percentile. The correlation between government funding and AER is positive ($r = 0.11$), which seems to concur with the conventional assumption that government funding may make nonprofits administratively inefficient by increasing their AERs.

[Tables 1 and 2 Here]

Following the practice suggested by Haans, Pieters, and He (2016) to explore U-shaped relationships, we conducted a linear and quadratic prediction plot (see Figure 2). Consistent with the correlation analysis, the linear prediction indicates a decidedly positive correlation between a nonprofit’s AER and its government funding. We then proceeded to investigate whether the linear curve obscures important information by conducting a quadratic prediction. Interestingly, the relationship between AER and government funding exhibits an inverted U-shaped curve, suggesting that AER reverses after government funding reaches a turning point. Our preliminary observation from the fitted line indicates that the apex occurs at the point when government funding reaches approximately 50% of total revenue.

[Figure 2 Here]
To further identify whether the relationship is statistically significant, we conducted a regression analysis. Following common practice in econometric analysis of panel data, we first estimated the coefficients in the econometric model using fixed-effects and random-effects models (Cameron & Trivedi, 2009). Table 3 displays the regression results. We first explored the linear association between government funding and AER by excluding the squared term. The Hausman test reports a $p$ value of 0.000 with a Chi-squared value of 245, rejecting the null hypothesis that the random-effects estimation is as consistent as that of the fixed-effects model. Therefore, it seems that the fixed-effects specification is more accurate. Column (1) shows that the fixed-effects estimation finds a positive linear association between government funding and AER at a 10% significance level. The coefficient of government funding is 0.119, indicating that on average a 1% increase in the percentage of government funding will lead to an approximately 0.119% increase in AER. This linear specification indicates that administrative efficiency slightly decreases as government funding increases, which seems consistent with the conventional assumption.

We further investigated the non-linear relationship between government funding and AER by including the squared term of government funding. The Hausman test produced a $p$ value of 0.000 with a Chi-squared value of more than 600, again indicating that the fixed-effects specification produces more consistent estimations. The regression results in column (2) report the core findings of this paper. After controlling for the same variables as in the linear model, we find the coefficient of government funding remains positive and statistically significant, and the coefficient of government funding$^2$ is also statistically significant. The significance levels for both coefficients are 5%. This robust result reveals an inverted U-shaped curve between government funding and AER. Based on the estimations in column (2), we calculated that the
turning point occurs when a nonprofit’s percentage of government funding reaches approximately 60%.

[Table 3 Here]

In columns (1) and (2), we used one-year lagged explanatory variables to explain AER in order to better explore causality. However, we did acknowledge that timing is a challenge in nonprofit studies, because the data were reported on a yearly basis but the effect of government funding may not fall clearly within the same one-year period. To address this concern and check the robustness of our results, we estimated the regression model using current-year data to examine the synchronous effect of government funding and three-year moving average data to examine the long-term accumulative effect of government funding. Fixed-effects method was used to estimate the coefficients in both scenarios, with the results from the current-year model reported in columns (3) and (4) of Table 3 and the three-year-average model in columns (5) and (6). Overall, we find the results are very similar to the ones from the lagged-year model in columns (1) and (2). In particular, the coefficients of the squared term in Columns (4) and (6) are statistically significant and negative, indicating a robust inverted U-shape. After calculation, we find the turning point appears when the percentage of government funding reaches 58% in the current-year model and 66% in the three-year-average model, respectively, close to the 60% in lagged-year model.

We also noted that the fixed-effects estimation might not be able to address two additional methodological issues. First, it does not account for the persistence in the dependent variable, since AER in year \( t \) could be highly correlated to AER in year \( t-1 \). Second, the specification may suffer from endogeneity with respect to the regressors (e.g., the sum of administrative expense ratio, program expense ratio, and fundraising expense ratio is 100%),
which could potentially bias the estimation results. To address both issues, we included a lagged dependent variable on the right-hand side of the empirical model and employed the general method of moments (GMM) estimation for dynamic panel data. Econometrics literature suggests that GMM can be a good specification method to address potential endogeneity of regressors and avoid dynamic panel bias (Arellano & Bond, 1991; Holtz-Eakin, Newey, & Rosen, 1988; Nickell, 1981). Therefore, to check the robustness of our main finding, we further investigated the specification with the GMM estimation. The empirical model for the GMM estimation is as follows:

\[
AER_{it} = \alpha + \beta_1 AER_{i,t-1} + \beta_2 Government\ Funding_{i,t-1} + \beta_3 Government\ Funding^2_{i,t-1} + \gamma NPO_{it-1} + \epsilon_{it}
\]

For the GMM estimation to be valid, consistent, and efficient, two critical assumptions must be satisfied (Forbes, 2000; Roodman, 2009). First, regressors must be predetermined by at least one-time period. Second, the error terms should not be serially correlated. With regard to the first assumption, we simply used lagged values as respective instruments for all right-hand side variables. To test the second assumption, we first conducted the Sagan-Hansen test to examine the over-identifying restrictions. Under the null hypothesis of instrument validity, the asymptotical distribution can serve as a Chi-squared test in which the degree of freedom is the number of instruments minus the number of parameters. An alternative method is to conduct first-order and second-order serial correlation tests. The Sargan–Hansen test finds a Chi-squared value of 196.23 \((p > .1)\), indicating that there is no over-identification with too many instruments. The AR(2) test shows a \(z\) value of -0.71 \((p > .1)\) and thus fails to reject the null hypothesis, suggesting that the errors are not serially correlated.

[Table 4 Here]

Table 4 displays the regression results with the GMM estimation. In column (1), the coefficients are consistent with those from the fixed-effects estimations. In particular, the
coefficient of government funding is positive and statistically significant at the 10% level. This result implies that on average a 1% increase in the share of government funding leads to 0.131% increase in AER, which is very similar to the marginal effect under the fixed-effects model. In column (2), after including the squared term of government funding, we find a statistically significant nonlinear effect \( (p < .1) \). The turning point in the GMM estimation is when the percentage of government funding reaches approximately 36%. Although the significance level of the squared term is 10%, we believe that the GMM estimation provides a convincing robustness check, since it allows us to better address the dynamic panel and endogeneity problems suggested in the literature. Meanwhile, the GMM estimation’s turning point of 36% falls within the 95% confidence interval of the fixed-effects estimation’s turning point, which further confirms the consistency between the GMM estimation and the fixed-effects estimation.

In addition, we also performed a number of other robustness checks. For example, since nonprofit studies are often swayed by influential observations (Tinkelman & Neely, 2011), we reran the fixed-effects models excluding the top 1% and bottom 1% of government funding and AER observations or replacing these observations with the threshold values of the top 1% and bottom 1%. Moreover, since the sample size for the GMM estimation is smaller than that for the fixed-effects estimations, we reran the fixed-effects models with the GMM sample to ensure that the different findings from the two estimation methods are not due to sample difference but due to a more accurate technique. All the results from these three checks are highly consistent with those reported in Table 3. In particular, the coefficients of government funding and its squared term are statistically significant at either 1% or 5% level, with the coefficient signs the same as those in Table 3. The turning points consistently appear when the percentage of government funding is approximately 60\%.
Overall, our empirical findings support the view that, all else being equal, government funding has a curvilinear inverted U-shaped relationship with AER. Depending on the estimation strategy used, the tipping point appears when government funding constitutes around one-third to two-thirds of a nonprofit’s total revenue. The results are robust and consistent across different specifications. Moreover, the numerical findings also indicate that the magnitude of the effect of government funding on AER seems to be quite modest.

**Discussion and Conclusion**

Government financing of nonprofit activities has been a significant topic in nonprofit scholarship and practice. Although engaging in collaboration with government offers a variety of tangible benefits to nonprofits, the concern regarding whether this working relationship will have undesired consequences on nonprofit operations and identity has persisted for decades. Within this large body of literature on government-nonprofit funding relationship, there is a longstanding belief that government funding makes nonprofits administratively inefficient, because nonprofits have to devote substantial resources to meeting funding requirements, which simultaneously crowds out the resources used for service outputs. However, despite the popularity of this belief, there is scarce empirical evidence testing the effect of government funding on nonprofits’ administrative efficiency. Without a robust empirical basis underlying this argument, conventional concern regarding the negative effect of government support cannot be justified.

In the present study, we attempt to revisit the link between government funding and nonprofit administrative efficiency. Our work adds several new insights to the literature on government-nonprofit funding relationship. First, we develop a more balanced analytical
framework underlying the effect of government funding on nonprofits’ administrative efficiency, drawing on the opposing effects proposed in the literature. We argue that these conflicting insights can be untangled by positing an inverse curvilinear U-shaped relationship: AER increases at low levels of government funding (due to investments in infrastructure and operations) but recedes after a certain level of government funding is reached (due to economies of scale and accountability control). Second, we test our hypothesis on the population of USAID-registered U.S.-based nonprofits between 1995 and 2014 and find strong support for the predicted curvilinear relationship. We calculate that, depending on the model specification, the tipping point appears when government funding reaches one-third to two-thirds of a nonprofit’s total revenue. Third, given that the magnitude of the relationship is largely modest, the finding suggests the enduring argument on the pathological impact of government funding on nonprofit administrative efficiency might be overstated. Overall, our results provide a more nuanced understanding of government funding’s effect on nonprofit efficiency.

Our research has important practical implications. The importance of government funding as a revenue stream for the nonprofit sector presents nonprofit leaders with two managerial challenges: how to secure government funding and how to manage their dependence on government funding. Our study sheds some light on both issues. First, the results imply that government funders may consider nonprofits’ administrative capacity when making funding decisions. The initial increases in AER at low levels of government funding can be because organizations with low levels of administrative infrastructure are less likely to receive government funding. However, once their administrative capacity exceeds a certain threshold, administrative costs become relatively stable, and AER decreases as government funding increases further. This finding suggests that nonprofits must establish a certain minimum level of
administrative capacity (such as formal structures and professional workforce) necessary to perform effectively and accountably in order to be well positioned in the competition for government funding (Lu, 2015). In sum, government funding might “follow” nonprofits’ administrative capacity.

Second, to manage funding dependence, our findings suggest a lower level of dependence (i.e., when government funding constitutes less than one-third of total revenue) is as beneficial as a higher level (i.e., when government funding constitutes more than two-thirds of total revenue). Therefore, to maintain a favorable degree of administrative efficiency while working with government funding, nonprofit managers could seek either a lower level of government funding to take advantage of limited infrastructure investment or a higher level of government funding to take advantage of economies of scale. In contrast, the worst scenario, according to our analysis, appears when nonprofits choose to have a moderate level of dependence (i.e., when the proportion of government funding is between one-third and two-thirds of total revenue). A possible reason could be that an organization with moderate dependence on government funding may suffer from managing multiple funding sources simultaneously, which would push administrative costs to a high level and experience managerial inefficiency (Chikoto & Neely, 2014). Nonprofit managers thus should exercise caution regarding operating efficiency when their organizations have a moderate level of government funding.

The present study has several major limitations, which may inform future research. First, the validity of using AER to measure administrative efficiency has been widely debated in the literature, even though other established measures have not yet been identified. We welcome future studies employing other measures to replicate our analysis to boost the validity of our findings. Second, we cannot fully rule out the possibility of data reporting in our data, although
the data from USAID’s VolAg reports have to be consistent with nonprofits’ audited statements and we performed data cleaning to improve data reliability. For example, nonprofits may under-report administrative spending to gain a favorable position in government funding allocation. Third, the reporting and accountability requirements associated with government funding may differ by funding programs and agencies and these requirements may be duplicate or inconsistent. In this way, administrative inefficiency can also be caused by different accountability regimes across multiple government funding streams, in addition to the level of government funding per se. Future research might dig into this effect. Fourth, our findings are based on the data of international development nonprofits. We acknowledge that nonprofits in other policy fields might confront distinct policy and resource environments (Stone & Sandfort, 2009). Therefore, although our work may inform government-nonprofit interactions in other policy fields, the generalizability of our findings to other fields requires verification in further research.

In sum, this study provides theoretical insights and empirical evidence of a curvilinear relationship between government funding and nonprofits’ administrative efficiency. Our work contributes to a better and more accurate understanding of the impact of government funding on nonprofit operations and, more broadly, government-nonprofit relations. Future research should endeavor to further account for this curvilinear relationship – especially its underlying mechanisms – both theoretically and empirically.
Notes:

1. For example, most government funding has restrictions on the percentage of funding that can be used for administrative purposes (see OMB Circular A-122, for example). Gregory and Howard (2009) found that government usually limits its reimbursement of overhead costs to up to 15% of the funding. As a nonprofit’s reliance on government funding increases, this restriction on overhead costs intensifies, hindering the growth of administrative costs.

2. Although PVOs may have different motivations to register with USAID, we believe it is reasonable to assume that these nonprofits hold similar attitudes towards working with government funding and are thus largely comparable in this regard.

3. More details on the documentation requirements with regard to PVO registration can be found in the Code of Federal Regulations, Title 22, Part 203.

4. It should be noted that government funding in our data refers to federal funding, since U.S. federal government is responsible for funding and executing U.S. foreign assistance activities. In-kind support includes USAID freight, P.L. 480 freight, and P.L. 480 donated food.

5. One control variable measuring the proportion of revenue from international organizations (such as the United Nations and the World Bank) was automatically dropped from the regression analysis because of multicollinearity problem. The mean variance inflation factor (VIF) of the model is 2.72, indicating no strong concern for multicollinearity.

6. Given space limitations, we cannot report these test results in the manuscript, but they are available upon request.
References:


Cameron, A. C., & Trivedi, P. K. (2009). *Microeconometrics using Stata*. College Station, TX: Stata Press.


<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Median</th>
<th>25&lt;sup&gt;th&lt;/sup&gt; quantile</th>
<th>75&lt;sup&gt;th&lt;/sup&gt; quantile</th>
<th>S.D.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administrative expense ratio (%)</td>
<td>10.59</td>
<td>9.33</td>
<td>4.15</td>
<td>13.42</td>
<td>7.47</td>
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<tr>
<td>Government funding (%)</td>
<td>25.01</td>
<td>20.51</td>
<td>2.97</td>
<td>43.85</td>
<td>25.99</td>
</tr>
<tr>
<td>Private contribution (%)</td>
<td>54.75</td>
<td>55.20</td>
<td>26.32</td>
<td>85.91</td>
<td>31.86</td>
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<tr>
<td>Private revenue (%)</td>
<td>12.74</td>
<td>3.41</td>
<td>.67</td>
<td>14.26</td>
<td>20.27</td>
</tr>
<tr>
<td>Program expense (%)</td>
<td>85.58</td>
<td>86.26</td>
<td>80.07</td>
<td>92.36</td>
<td>9.21</td>
</tr>
<tr>
<td>Fundraising expense (%)</td>
<td>4.82</td>
<td>3.05</td>
<td>.83</td>
<td>7.31</td>
<td>5.15</td>
</tr>
<tr>
<td>Organizational size (log)</td>
<td>16.37</td>
<td>16.29</td>
<td>15.01</td>
<td>17.74</td>
<td>1.87</td>
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Table 2. The Correlations between Variables (N=4,884)

<table>
<thead>
<tr>
<th>Variables</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Administrative expense ratio</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Government funding</td>
<td>.11</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Private contribution</td>
<td>-.27</td>
<td>-.65</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Private revenue</td>
<td>.23</td>
<td>-.22</td>
<td>-.44</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Program expense</td>
<td>-.83</td>
<td>.07</td>
<td>.06</td>
<td>-.19</td>
<td>1</td>
<td></td>
<td></td>
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<tr>
<td>6. Fundraising expense</td>
<td>.03</td>
<td>-.28</td>
<td>.27</td>
<td>.02</td>
<td>-.59</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>7. Organizational size</td>
<td>-.27</td>
<td>.11</td>
<td>-.01</td>
<td>.09</td>
<td>.24</td>
<td>-.03</td>
<td>1</td>
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Table 3. Regression Results (Fixed-Effects Estimation)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Lagged-year Model</th>
<th>Current-year Model</th>
<th>Three-year-average Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
</tr>
<tr>
<td>Government funding</td>
<td>0.119*</td>
<td>0.356**</td>
<td>0.112**</td>
</tr>
<tr>
<td></td>
<td>(0.071)</td>
<td>(0.144)</td>
<td>(0.052)</td>
</tr>
<tr>
<td>Government funding(^2)</td>
<td>--</td>
<td>-0.003**</td>
<td>--</td>
</tr>
<tr>
<td></td>
<td>(0.001)</td>
<td></td>
<td>(0.000)</td>
</tr>
<tr>
<td>Private contribution</td>
<td>-0.084</td>
<td>-0.084</td>
<td>-0.135**</td>
</tr>
<tr>
<td></td>
<td>(0.072)</td>
<td>(0.072)</td>
<td>(0.051)</td>
</tr>
<tr>
<td>Private revenue</td>
<td>0.002</td>
<td>0.004</td>
<td>0.091</td>
</tr>
<tr>
<td></td>
<td>(0.060)</td>
<td>(0.060)</td>
<td>(0.063)</td>
</tr>
<tr>
<td>Program expense</td>
<td>-0.428***</td>
<td>-0.427***</td>
<td>-0.394***</td>
</tr>
<tr>
<td></td>
<td>(0.136)</td>
<td>(0.136)</td>
<td>(0.132)</td>
</tr>
<tr>
<td>Fundraising expense</td>
<td>-0.439***</td>
<td>-0.436***</td>
<td>-0.409***</td>
</tr>
<tr>
<td></td>
<td>(0.032)</td>
<td>(0.034)</td>
<td>(0.032)</td>
</tr>
<tr>
<td>Organizational size</td>
<td>-0.285**</td>
<td>-0.618***</td>
<td>-0.288***</td>
</tr>
<tr>
<td></td>
<td>Column 1</td>
<td>Column 2</td>
<td>Column 3</td>
</tr>
<tr>
<td>----------------------</td>
<td>----------</td>
<td>----------</td>
<td>----------</td>
</tr>
<tr>
<td>Constant</td>
<td>48.991***</td>
<td>48.140***</td>
<td>69.611***</td>
</tr>
<tr>
<td></td>
<td>(2.341)</td>
<td>(2.381)</td>
<td>(1.326)</td>
</tr>
<tr>
<td>$R^2$</td>
<td>0.222</td>
<td>0.242</td>
<td>0.247</td>
</tr>
<tr>
<td>Organizations</td>
<td>682</td>
<td>682</td>
<td>704</td>
</tr>
<tr>
<td>Observations</td>
<td>4,704</td>
<td>4,704</td>
<td>4,884</td>
</tr>
</tbody>
</table>

Notes: Organization and year fixed effects are controlled in each regression. Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. In lagged-year model, AER uses the observations at year $t$ and all the remaining variables use the observations at year $t-1$. In current-year model, all the variables use the observations at year $t$. In three-year-average model, AER uses the observations at year $t$, government funding and its squared term take the average values of the observations at year $t$, year $t-1$, and year $t-2$, and the other variables use the observations at year $t-1$. 

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<table>
<thead>
<tr>
<th>Variables</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AER ( t-1 )</td>
<td>0.102*</td>
<td>0.102*</td>
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<tr>
<td></td>
<td>(0.059)</td>
<td>(0.058)</td>
</tr>
<tr>
<td>Government funding ( t-1 )</td>
<td>0.131*</td>
<td>0.133***</td>
</tr>
<tr>
<td></td>
<td>(0.072)</td>
<td>(0.042)</td>
</tr>
<tr>
<td>Government funding(^2) ( t-1 )</td>
<td>--</td>
<td>-0.002*</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(0.001)</td>
</tr>
<tr>
<td>Private contribution ( t-1 )</td>
<td>-0.312</td>
<td>-0.201</td>
</tr>
<tr>
<td></td>
<td>(0.252)</td>
<td>(0.233)</td>
</tr>
<tr>
<td>Private revenue ( t-1 )</td>
<td>-0.215*</td>
<td>-0.163</td>
</tr>
<tr>
<td></td>
<td>(0.122)</td>
<td>(0.121)</td>
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<tr>
<td>Program expenses ( t-1 )</td>
<td>-0.310***</td>
<td>-0.294***</td>
</tr>
<tr>
<td></td>
<td>(0.104)</td>
<td>(0.104)</td>
</tr>
<tr>
<td>Fundraising expenses ( t-1 )</td>
<td>-0.333*</td>
<td>-0.272</td>
</tr>
<tr>
<td></td>
<td>(0.202)</td>
<td>(0.198)</td>
</tr>
<tr>
<td>Size ( t-1 )</td>
<td>0.362</td>
<td>0.492*</td>
</tr>
<tr>
<td></td>
<td>(0.237)</td>
<td>(0.279)</td>
</tr>
<tr>
<td>Arellano-Bond test for AR (2)</td>
<td>( z = -0.79 )</td>
<td>( z = -0.71 )</td>
</tr>
<tr>
<td>Sargan test</td>
<td>Prob &gt; chi2 = 0.00</td>
<td>Prob &gt; chi2 = 0.00</td>
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<tr>
<td>Organizations</td>
<td>488</td>
<td>488</td>
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<tr>
<td>Observations</td>
<td>3,455</td>
<td>3,455</td>
</tr>
</tbody>
</table>
Note: All regressions are two-step system GMM. Year dummies are included in each regression.

Standard errors in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$. 
Figure 1. Effects of Government Funding on Nonprofits’ Administrative Efficiency

- **Government funding** → **Administrative efficiency**
  
  **Resource dependence perspective (-):**
  - Infrastructure investment
  - Managerial sophistication

  **Interdependence perspective (+):**
  - Economies of scale
  - Accountability control

Note: “+” represents a positive effect and “-” represents a negative effect.
Figure 2: Prediction Plot of Government Funding and Administrative Expense Ratio

Notes: The solid and dotted lines indicate the linear and quadratic prediction values alongside 95% confidence intervals.