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Capital Structure and Performance Implications of Special-Purpose Governments

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Capital Structure and Performance Implications of Special-Purpose Governments

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Abstract

We study the capital structure choices and resultant operating consequences of American special-purpose governments. In the United States, special-purpose governments have approximately $1 trillion of outstanding debt. These entities are established with Congressional authorization, rendering taxpaers ultimately responsible for satisfying their obligations. However, their debt is not recorded on any local, state, or Federal financial statements. Despite the enormity of these quasi-governmental units and the implications of their operating choices on the country's fiscal health, surprisingly little is known about their underlying decisions and attendant consequences. This dearth of knowledge motivates our study. We find that special-purpose governments follow a modified pecking-order theory of capital structure, first exhausting internal funding before issuing debt. These units then use an equity-like instrument to fund investment. Moreover, their capital structure is associated with operating outcomes, providing evidence that the financing decisions of these entities have operational consequences of import for the country's fiscal position.

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1.0 Introduction

Do special-purpose governments (SPGs) resemble corporations in terms of capital structure? If so, what are the implications of those financing choices on performance? Moreover, why should anyone care? SPGs are government entities that share similar objectives and organizational form with private-sector companies. Unlike their private counterparts, however, SPGs can levy taxes and issue off-balance sheet debt, so their activities have a *first-order* impact on America's fiscal health. SPGs also comprise a material proportion of America's aggregate financial position; one source estimates that aggregate SPG debt exceeds $1 trillion.[1] Despite the enormity of this growing sector of the public enterprise, decision-makers seeking information on the economic impact of SPGs encounter rather more questions than answers.

Beginning in the 1980s, a wave of of organizational, managerial, accounting, and financial reform swept through America's public sector (Christiaens and Rommel 2008). Many of these reforms declared a commitment to increased economic efficiency (similar to that found in private firms) in the public sector. Predictably, researchers responded with a spate of studies about the financial behavior of public-sector units, particularly the mysterious (and off-balance sheet) special-purpose goverments (e.g., Jones and Pendlebury 1991; Mosso 1999; Harris 2005; Lee and Plummer 2007; Plummer, Hutchison, and Patton 2007). Prior literature bifurcates into two streams, one focused on the impact of reform on SPGs' fiscal efficeiency and the second on the applicability of corporate-driven models of fiscal stewardship to special-purpose entities.

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[1] See https://goldwaterinstitute.org/article/out-of-sight-how-special-taxing-districts-circumve/

Although rich in conceptual implications, these studies largely ignore SPGs' capital structure choices. This paper aims to address that deficiency.

As previously discussed, SPGs resemble corporations, so one could safely predict that SPGs mimic the capital structure of private firms (e.g., Coase 1937). However, Axelrod (1992) explains that SPGs lack the market mechanism for discipline facing private firms. The question of whether these special-purpose entities mimic the corporate sector in capital structure and subsequent opaerating behavior is *ex ante* unclear.[2] Using a sample of transportion SPGs between 1999 and 2009, we find that SPGs follow Myers' and Majluf's pecking-order theory of capital structure (1984). When faced with a financing need, SPGs use internal capital before turning to debt markets and finally, intergovernmental revenue, or IGR, which arises in the form of grants or reimbursements for costs already incurred. We develop a model that accurately predicts SPGs' decision to finance growth using internal verus external funds in excess of 85% and correctly identifies the choice between debt and IGR in over 80% of instances. This model has significantly greater explanatory model than a naiive estimation of SPGs' capital structure choices.

Absent any operational impact of capital structure choices, the results of our predictive model are interesting but economically meaningless. However, we find that capital structure is systematically associated with operational outcomes. Specifically, we find that changes in debt predict contemporaneous increases in intergovernmental revenue and simultaneous declines in cash flows. One could plausibly argue that changes in IGR and cash flows will motivate SPGs to issue more debt; however, we find that IGR and cash flows are unassociated with debt issuance.

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[2] We use special-purpose goverments and special-purpose entities as synonyms.

We control for SPG growth and use the SPG as its own control, reducing concerns that a growing service base or unobservable entity characteristics drive reported results. Taken together, our results imply that SPGs mimic the pecking-order theory of capital finance followed by private-sector firms and that doing so is associated with a larger revenue base. These results should be of interest to policy-makers currently facing a shortage of empirical reseach addressing the impact of this increasingly-gargantuan sector on our nation's fiscal health.

Section 2.0 provides a background of SPGs for readers unfamiliar with this organizational form; Section 3.0 discusses the theoretical derivation of the model to predict capital structure. Section 4.0 contains a description of our data sources; section 5.0 expounds on our results, and we conclude with suggestions for additional research in section 6.0

Section 2.0 Background on SPGs

SPGs are hybrid organizations, characterized by features of both corporate and governmental entities, who provide services generally associated with the private sector (such as utilities, waste management, and transportation). Although they are established by legislation, SPGs remain legally autonomous from the establishing government and its agents, or politicians. Managers of SPGs are elected or appointed, and these organizations can issue debt leveraged against their own assets and earning power rather than the full faith and credit of the establishing government. SPGs charge fees and rents for services rendered and engage in intergovernmental revenue accumulation, which represents a monetary transfer from another government body

received in the form of a grant or as reimbursement for costs incurred. Finally, they often have the ability to levy taxes.

Eger (2006) describes SPGs as self-supporting, revenue-generating structures. Prior literature explains that their unique organizational form allows SPGs to set their own capital structure independently of their establishing governments, sometimes leading to the creation of SPGs as a financing vehicle that isolates politicans from electoral consequences of poor public-sector financial management (e.g., Bennett and DiLorenzo 1982a; Eger 2006; Eger and Feiock 2010). According to one estimate, there are over 37,000 special-purpose governments (excluding school districts) with over $1 *trillion* of outstanding debt.[3] Moreover, SPGs are not required to report their activities on the financial statements of any munipality, leading to a shortage of data about the full extent of their operations. The givesn estimates on the number of special entities and the extent of their financial obligations likely represents a conservative measure of the magnitude of SPGs' activities.

In addition to financing investment using debt, SPGs can deploy internal cash flows (similar to a firm's free cash flows) and IGR. Although the word revenue appears in the acronym, "IGR," this stream of funding represents a wealth transfer from one governmental entity to another rather than sales revenue in the traditional sense. For example, suppose there exist two SPGs, A and B. A pays $1,000 of IGR to entity B. A originally accessed the $1,000 through one of two vehicles: The $1,000 was either collected as a tax or was paid by users of A's service (such as

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[3] See footnote 1.

waste disposal).[4] In both cases, the transfer originates from the taxpayer, who has a direct interest in the SPG's capital structure decisions because they affect her future cash flows and an indirect interest because she is now a quasi-owner of the SPG via a capital infusion. As this simple example illustrates, IGR of special-purpose entities resembles equity in privately-held firms in that it is a tool *primarily* intended to raise capital that encumbers the *incidental* consequence of creating a higher-order ownership interest.[5] Thus, SPGs have an equity-like financing option available to them in addition to internal funding and debt sources.

Although SPGs share organizational forms and profit-maximizing objectives with private-sector entities, the preceeding discussion shows that they differ in several important ways. Perhaps most importantly, SPGs lack a disciplining mechanism corresponding to those found in traditional corporations (Axelrod 1992). Due to the divergent incentives corresponding to differences in the principal-agent relationship, the extent to which SPGs will imitate the pecking-order theory of capital structure and the implications of those financing decisions on operational performance remain *ex ante* unclear. One could reasonably hypothesize that these entities will follow a pecking order when raising capital and will suffer operating consequences similar to those found in their private-sector counterparts. However, a thoughtful person could argue the opposite based on the insulation from market discipline and exacerbation of agency problems caused by the extreme separation between the principal and agents. These plausible yet conflicting predictions highlight how little we know about SPGs and motivate the remainder of our study.

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[4] We deliberately ignore the case where the $1,000 represents IGR from a third government to A. However, the reasoning in the remainder of the example remains the same regardless of whether one traces the sum in question back to its origination in the government.

[5] Whether taxpayers correctly value this ownership stake in SPGs is an interesting topic that exceeds the scope of this paper.

Section 3.0 Theoretial Model of SPGs' Capital Structure

To develop a coherent strategy of capital structure, one must first understand the milieu surrounding SPGs. As we previously explained, legislative bodies establish SPGs to provide public goods and services. Prior to the SPG's establishiment, private-sector firms usually fulfill such services. Enabling legislation limits the special-purpose entity's mission, but the methods of operation in service of that mission remain fully under the SPG's control. Government regulations typically applicable to public-sector agencies don't apply to SPGs, conferring substantial operational flexibility. SPGs are also insulated from regulations pertaining to governmental financial reporting, further increasing their flexibility and isolating managers from the financial reporting consequences of capital structure choices that correspond to private-sector firms.

Given the similarities between SPGs and the private sector, borrowing likely exerts parallel pressures in both organizational forms. Perfectly-functioning markets in both settings render owners (suppliers of internal capital) indifferent between debt and external financing (e.g., Ricardo 1951 and Modigliani and Miller 1958). Under imperfect cirumstances, however, debt and financial distress costs increase concomitantly (Castanias 1983 and Sitglitz 1972). In practice, economic entities weigh the beneficial tax shield from interest deductions against increased distress costs when selecting the optimal mix of capital. Although SPGs are non-taxable and therefore obtain no interest deduction on debt, incurring future obligations as a financing tool offers several benefits.

The debt illusion hypothesis describes the first mechanism linking SPGs' incentives to capital structure choices. According to this framework, taxpayers underestimate the present value

of debt. Voters' inability to correctly value the debt of governmental bodies leads them to favor debt over taxes, which they perceive to be more costly (e.g., Buchanan 1964; Dollery and Worthington 1995). The illusion of debt's lower costliness shifts the tax burden of this financing tool from current to future taxpayers, raising questions about intergenerational equity (e.g., Barro 1979; Buchanan 1958, 1976). However, prospect theory and evolutionary psychology both charactertize human beings as having a short-term orientation (e.g., Kahneman 2013). Due to this short-termism, the lower perceived cost of debt is likely to dominate concerns about cross-generational consequences of capital structure choices. Even citizens well aware of the debt illusion hypothesis and intergenerational concerns arising from governmental liabilities may still prefer that public entities issue bonds rather than levy taxes to satisfy financing needs. Beyond the ability to shift costs to future tapayers, bonds benefit current constituents because interest earnings remain tax-exempt at both the federal and sub-federal levels. Taken together, the debt illusion and tax-exempt status of SPGs' debt support our prediction that these entities will, indeed, exhibit preferences in capital structure.

Hereonout, we take as given that SPGs have capital structure preferences. This conjecture naturally motivates the question as to *how* these preferences will manifest in practice. Myers' and Majluf's (1984) pecking-order theory illuminates this query.[6] According to this theory, information asymmetry drives capital structure choices because external capital incurs adverse selection costs that render it more expensive relative to internal funding. Rational outsiders are well aware that they know less than informed insiders, so they demand a premium in return for their capital infusion. Because external funds are more expensive, firms will prefer less-costly

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[6] Ample evidence supports the applicability and validity of the pecking-order theory to entities' capital structure choices (e.g., Leary and Roberts 2010).

internal funding and will hold excess reserves to meet their investment needs. We illustrate the

modified pecking-order theory of SPGs' capital structure in Figure 1.[7]

[Figure 1 about here]

As depicted in the figure, special-purpose entities will first finance investments with

internal resources (cash and liquid assets), until the limit represented by point A. Government

entities usually have minimum cash reserves and these requirements often extend to SPGs, so

special entities are unlikely to fully exhaust internal funding sources (Axelrod 1992; Doig 1983;

Walsh 1978). To accommodate for a cash reserve policy, we define point A as follows:

$$0 = Investment_{it} - [Internal\ Sources_{it-1} - (\gamma_{it}^{S} + u_{it})], \qquad (1)$$

where i and t index SPGs and years, u_{it} is a mean-zero disturbance term, and

$$Internal\ Sources_{it} = Fund\ Balances_{it-1} + Cash\ Flow_{it}. \qquad (2)$$

Equation (1) implies that SPGs will use internal sources to fund investment up to the point

$(\gamma_{it}^{S} + u_{it})$. At this point, internal funds are exchaused conditional on the existing cash reserve

policy (Mensah et al. 1994). According to a strict definition, $\gamma_{it}^{S} = 0$; however, we relax this

assumption in accordance with public finance literature indicating that this equivalence need not

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[7] SPGs display a modified version of Myers' and Majluf's original pecking order because IGR replaces equity in the public sphere.

always hold. In other words, investment often differs from available internal funding (Doig 1983; Walsh 1978).

After depleting internal funds, SPGs will turn to external funding sources. The choice between internal and external funds can be represented as:

$$External_{it} = \begin{cases} 1 \ Investment_{it} \geq A_{it} \\ 0 \ Otherwise, \end{cases} \tag{3}$$

where

$$A_{it} = Internal \ Sources_{it-1} - (\gamma^S_{it} + u_{it}). \tag{4}$$

Equation (3) represents the initial step of the pecking-order theory; that is, investment is funded by debt ($External = 1$) if internal sources are insufficient to meet the need. The debt threshold, point B of Figure 1, is constructed as the point where

$$0 = Investment - (Internal \ Sources_{it-1} - \gamma^S_{it} - u_{it}) - (\gamma^D_{it} + v_{it} - Debt_{it-1}). \tag{5}$$

Equation (5) indicates that SPGs will issue debt in excess of their existing debt level, $Debt_{it-1}$, up to the point $\gamma^D_{it} + v_{it}$. In other words, Figure 1, point B, represents the sum of point A and the amount of debt the SPG can issue conditional upon existing debt levels. A strict interpretation of equation (5) leads one to conclude that γ^D_{it} is infinite, as an SPG would never

seek to secure equity capital under these conditions. However, credit risk and outstanding debt increase correspondingly, imposing ever-larger financial distress costs on borrowers (e.g., Warner 1977; Weiss 1990). Because of distress costs of debt, γ_{it}^{D} is an indicator of the SPG's ability to issue debt up to the point that the entity maintains "reserve borrowing power" (Myers 1984, 589). This constraint nullifies the conclusion that γ_{it}^{D} approaches infinity.

After reaching the saturation level of debt captured by Figure 1, point B, SPGs will deploy the special-entity equivalent of equity, known as IGR. As previously described, IGR shares a similar theoretical underpinnings as capital market equity. To the degree that the SPG manager's investment preferences align with those of IGR providers (other governmental entities), the manager will successfully deploy IGR as an equity-like source of capital. The cost of IGR depends on artifacts of the market in which SPGs complete for this source of capital funding. Oates (2008) and Volden (2007) find that IGR allocation occurs in a competitive market. According to Volden's model, IGR suppliers place policy costs on IGR recipients according to the supplier's own incentives. Similar to the private sector, information asymmetry largely drives the cost and accessibility of IGR.

Because of the differential costs of IGR arising from information asymmetries, intergovernmental funding of this nature affects fiscal decisions differently than own-source revenues (Inman 1979). Both theoretical and empirical literature demonstrate that entites respond asymmetrically to IGR, depending on the originating level of government from which the IGR arises (Stine 1984; Gamkhar and Oates 1996; Volden 1999; Gamkhar 2000). For example, since IGR in the form of matching grants has price effects, SPGs cannot pool them with lump-sum grants

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when evaluating revenue streams and making funding decisions. Due to the idiosyntractic treatment of different IGR sources, SPGs generally prefer local rather than supra-local IGR, as local transfers represent non-matching grants (Inman). Assuming SPGs have a strict preference for local IGR, the choice between debt and local IGR in the capital structure framework is

$$LocalIGR_{it} = \begin{cases} 1 \ Investment_{it} \geq B_{it} \\ 0 \ A_{it} \leq Investment_{it} < B_{it}, \end{cases}$$

(6)

where

$$B_{it} = (Internal \ Sources_{it-1} - \gamma_{it}^S - u_{it}) + (\gamma_{it}^D + v_{it} - Debt_{it-1}).$$

Equation (6) indicates that investment is financed with debt once the needed investment exceeds available internal sources. At and beyond B_{it}, SPGs will turn to local IGR capital. For parsimony's sake, we restate B_{it} as

$$B_{it} = Internal \ Sources_{it-1} - Debt_{it-1} - \gamma_{it}^{D*} + v_{it}^*,$$

(7)

where $\gamma_{it}^{D*} = \gamma_{it}^S - \gamma_{it}^D$ and $v_{it}^* = u_{it} - v_{it}$. Substituting Equation (4) into equation (3) discloses the decision between internal and external funding sources as

$$External_{it} = \begin{cases} 1 \ y_{1it}^* \geq 0 \\ 0 \ y_{1it}^* < 0, \end{cases}$$

(8)

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where

$$y_{1it}^{*} = Investment_{it} - Internal\ Sources_{it-1} + \gamma^{S}_{it} + u_{it}.$$

(9)

Further, substituting equation (7) into equation (6) indicates the following trade-off between debt and local IGR:

$$LocalIGR_{it} = \begin{cases} 1 & y_{2it}^{*} \geq 0 \\ 0 & y_{2it}^{*} < 0, \end{cases}$$

,

(10)

where

$$y_{2it}^{*} = Investment_{it} - Internal\ Sources_{it-1} + Debt_{it-1} + \gamma^{D*}_{it} - v_{it}^{*}.$$

(11)

According to Shyam-Sunder and Myers (1999), the slope coefficients on *Investment_{it}*, *Internal Sources_{it-1}*, and *Debt_{it-1}* are each equal to one. However, financial distress costs of debt force firms to recognize a tradeoff between the adverse selection costs of equity and the costs of increasing indebtedness (Myers 1984; Myers and Majluf 1984). When firms issue equity to remedy a financing deficit while also maintaining liquidity and debt capacity for future investment, the constraints on the coefficients of *Investment_{it}*, *Internal Sources_{it-1}*, and *Debt_{it-1}* are relaxed and need only be equal in their respective equations (Frank and Goyal 2003; Lemmon and Zender 2004; Leary and Roberts 2010).

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Following Leary and Roberts (2010), all error terms, u_{it}^* and v_{it}^*, are mean-zero, bivariate

standard normal with correlation ρ, resulting in a censored bivariate probit model. We define *Debt*

as the SPG's total debt from period *t*-1 to *t*, and *Local IGR* represents IGR from local sources

between *t-1* and *t*. We normalize these variables using the population that the SPG serves in *t-1*

(Woolridge 2002). Finally, we assume that SPGs that issue neither debt nor local IGR fund all

investments using internal capital (e.g., Chen and Zhao 2003; Hovakimian 2006; Korajczyk and

Levy 2003; Leary and Roberts 2005).

4.0 Data

We use two data sources to evalutate the capital structure of SPGs. Our first source of data

is the U.S. Census Bureau, Census of Governments from 1997-2009. A comprehensive Census of

Governments occurs every five years, but the U.S. Census Bureau randomly samples special-

purpose entities in non-census years. The Census of Governments data identifies SPGs with the

nomenclature "special-district governments." To be identified as a special-district government, an

entity must possess three attributes: Existence as an organized entity, governmental character,[8] and

substantial autonomy.[9] We use the Census of Governments data to assess the financial status of

SPGs, including levels of debt and IGR.

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[8] Governmental character is implied when officers of the entity are popularly elected or appointed by public officials. A high degree of organizational responsibility to the public is also evidence of governmental character, which can be demonstrated by requirements for public reporting or for accessibility of records to public inspection. Governmental character can be met if either the requirement regarding officers or public accountability is fulfilled. Therefore, the Census of Governments attributes this character to any entity having power to levy taxes, power to issue debt that pays interest exempt from federal taxation, or responsibility for performing a function commonly regarded as governmental in nature.

[9] An entity is determined to have substantial autonomy when it has fiscal and administrative independence, subject to statutory limitations by a state or local government. An entity is fiscally independent when its budget is determined without being subjected to review and detailed modification by local officials or governments. Furthermore, fiscal independence includes the entity's ability to levy taxes for its support, to fix and collect charges for its services, or to

Our second data sources comes from the National Transit Database (NTD) provided by the Federal Transit Administration, U.S. Department of Transportation. This database includes data pertaining to all transit entities, including special districts as defined by the Census of Governments. The NTD data includes information on population served, density, board membership, and passenger usage for transit SPGs. The Census of Governments and NTD data lack a common identifier, so we establish a crosswalk based on the FIPS (Federal Information Processing Standard) and the transit identification number (TRS ID) to allow us to merge the disparate datasets. Additionally, NTD data uses accrual-basis accounting, but the Census of Governments does not mandate this accounting basis. To address the divergent accounting bases inherent in our datasets, we manually checked against each transport entity's comprehensive annual financial report (CAFR) to assure a common full accrual accounting basis for all data. We adjusted revenue and spending data to 1997 dollars and normalized continuous variables by population served. Our final sample includes 70 transportation SPGs with a service population of at least 50,000 between 1996 and 2009.[10] Our sample represents 25% of mass-transit entities reported in the 1997 Census of Governments.[11]

Table 1 presents summary statistics for the transit SPGs. Consistent with a modified pecking-order approach to capital finance decisions, the largest percentage (41%) of financing

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issue debt without review by another local government. Administrative independence is closely tied to the selection of the entity's governing body. Administrative independence is determined when the entity has a popularly-elected governing body or has a governing body representing two or more state or local governments. Administrative independence can also occur with an appointed governing body if it performs functions that are essentially different from, and are not subject to, specification by its enabling government.

[10] Transportation SPGs with a service population of less than 50,000 are not required to report information to the NTD.
[11] The 1997 Census of Governments identified 34,683 "special district" governments. Of these, 282 were identified as mass transit entities.

decisions for SPGs rely on internal funds followed by debt (37%) and local IGR (22%). A minority of sample entities (less than one percent) use both debt and local IGR. SPG age (a proxy for growth and financing access) remains unchanged across different financing schemas. However, SPGs using local IGR financing have a negative fund balance (on average), while mean cash and securities balances appears similar to special-entities who rely on internal financing.

[Table 1 about here]

5.0 Results and Discussion of Additional Controls

Table 2.0 presents the results of our model of SPGs' capital structure decisions. As described in Bertomeu et al. (2011), financing decisions vary endogenously with firm-specific artifacts, including disclosure choices. Additionally, disclosure quality is inversely associated with the cost of capital, rendering external sources more attractive as the firm's disclosure policy simultaneously increases (e.g., Easley et al. 2002; Botosan 1997). We follow Niskanen (1968, 1971, 1979), who argues that matching grant funds affect the relative costliness of internal revenues and debt and include several proxies for matching funding in the form of Federal and state IGR.

To estimate the ability of our theoretical model to predict actual financing choices, we estimate equations (8) through (11) using maximum likelihood estimation and compare these estimates to a naïve model. Panel A of Table 2 presents the predictive accuracies of each model, while panels B and C present the corresponding internal-external and debt-local IGR equation parameter estimates for each of the three specified models.

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As Table 2 indicates, the naïve model correctly identifies 71.3% of the internal-external decisions and 63.8% of the debt-local IGR decisions. [12] However, our theoretical model substantially improves upon the naïve model. Models I through III indicate that the accuracy of the internal-external decision increases to greater than 89% and the debt-local IGR decision increases to about 83%. Although Model I's debt-local IGR decision ignores any fixed effects of time, location, or board influence, Models II and III, which include these fixed effects, do not provide any overall apparent improvement in the accuracy of the predictions. We note that error terms display significant correlation ($\rho = 0.68$, p-value=0.001), which supports our use of the bivariate probit (Leary and Roberts 2010).

Turning our attention to the pararmeter estimates reported in Table 2, we observe that the probabilities of using external funds and local IGR are positively correlated with SPGs' financing deficit (proxied using *PO*); specifically, the correlation between external funds/*PO* and local IGR/*PO* are 0.0059 and 0.0002 in Model I, Panels B and C, respectively . This positive correlation carries across all three model specifications. The negative sign of γ^S in Model I initially appears aberrant; however, governments often temporarily have negative cash holdings (Gore 2006). In general, controls for disclosure and matching grants display statistical significance. In all three models, matching grants display a positive relationship with SPGs' finacing choices.[13]

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[12] The naïve model assumes one could simply predict the more common outcome and be right the majority of the time, without knowing any additional inputs about the predictors.

[13] We theorize two mechanisms connecting matching grants to SPGs' financing decisions. In the first channel, matching grants impose incentives on SPGs that predispose these entities to certain financing choices. In the second mechanism, matching grants are a proxy for SPG size, which in turn captures the construct of access to finance markets. Disengtangling the drivers of the strong association between matching grants and capital structure

Interestingly, the debt versus local IGR decision in Model I indicates that neither taxing ability nor interest costs statistically impact the decision. That said, our results indicate that interest costs negatively impact the internal-external tradeoff, while SPGs' ability to tax positively predicts this decision path; both of these results are intuitively appealing.

Finally, we turn our attention to the impact of SPGs' capital structure on entity-specific operational outcomes. Prior literature finds that financing decisions share a strong predictive relationship with various private-sector firms outcomes, including changes in operational structure and outcomes (e.g., Ofek 1993; Opler and Titman 1994). Although we face a scarcity of operational data pertaining to SPGs, we evaluate the extent to which these entities' decision to employ debt affects operations in the form of local IGR and cash flows. We deploy a changes specification that uses the SPG as its own control. Continuous variables are scaled by population served, and we include indicators for the year and the region in which the SPG operates; standard errors are bootstrapped. Table 3 reports the results of regressing two proxies for operational performance, *ChgLocalIGR* and *ChgCF*, on the change in debt (*ChgLTDebt*) and controls. As indicated in column A of Table 3, *ChgLTDebt* and *ChgLocalIGR* are positively and significantly correlated (coefficient=0.144), while debt displays a negative association with cash flows (column B, coefficient= -0.148). In untabulated analyses, we regress *ChgLocalIGR* and *ChgCF* on a one-year lag of *ChgLTDebt* and our results remain the same, although the coefficient on debt/local IGR decreases marginally from significance at $p=0.01$ to $p=0.05$.

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represents an intuitive extension of our work and we are currently exploring this subject for a future iteration of our manuscript.

A reasonable person could argue that SPGs decide to issue debt and IGR simultaneously; therefore, it's plausible that while debt changes positively correlate with changes in IGR, the opposite might also be true, particularly if debt and IGR capture the construct of the entity's ability to access external finacing. To address this concern, we regress changes on debt on changes in both local IGR and cash flows; we report these results in Table 4, columns A and B. Neither *ChgLocalIGR* nor *ChgCF* is significantly associated with *ChgLTDebt*. Taken together, the results in Tables 3 and 4 suggest that SPGs' decision to issue debt shares a contemporaneous association with local IGR and cash flows, both key metrics of special-government entities' performance. We cannot conlude that operational measures of SPG performance impact contemporaneous debt changes, giving us some comfort that the results in Table 3 do not arise because of simultaneity bias.[14]

6.0 Conclusion

SPGs represent a novel organizational form that shares characteristics of private- and public-sector organizations. While they remain technically government entities, SPGs enjoy the operational flexibility of private-sector firms. Similar to their traditional counterparts, SPGs also fulfill a profit-maximizing objective and retain significant discretion over how they finance investment. To this end, these entities can issue debt without the constraints normally imposed on government borrowers, and they can also levy taxes. However, SPGs do not adhere to the same financial reporting requirements that encumber other governments. Much of their activity,

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[14] Resuts in Tables 3 and 4 are robust to including square miles served as a proxy for SPG size.

including debt issuance, never appears on any governments' financial statements, largely obscuring their operations from the public view.

Because of the unique lack of reporting requirements for SPGs, legislators and other policy-makers seeking information about the scope and activity of this Goliath-like sector of American government face a dearth of information. Being governmental entities, SPGs' financing decisions clearly impact our nation's fiscal position. To this end, we explore the extent to which SPGs follow a modified pecking-order theory of capital structure. We develop a novel model that displays significant predictive ability with regard to SPGs' decisions to use internal versus external funding and, beyong that, the choice to issue debt or use local IGR, an equity-like source of financing. Perhaps more importantly, we find some evidence that SPGs' debt predicts contemporaneous and subsequent changes in accounting-based measures of operations.

We restrict our analyses to transit-related SPGs; if these special-purpose organizations fundamentally differ from other SPGs (for example, because demand for transit is relatively elastic), our results may not apply uniformly outside of this research setting. However, we provide important evidence that SPGs do, indeed, systematically tradeoff the costs and benefits when making financing decisions. One recent estimate places the amount of outstanding national debt attributable to SPGs at $1 trillion. Taken together with our results, the size of special-entity operations implies an aggregate effect of SPG finance and resulting operational outcomes on America's macro-economy. We encourage researchers to expand our understanding of SPGs by exploring other characteristics that impact these entities' financing decisions and further investigating the supra-local effects of decisions on our nation's fiscal health.

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Figure 1: Graphical Representation of SPG Capital Structure
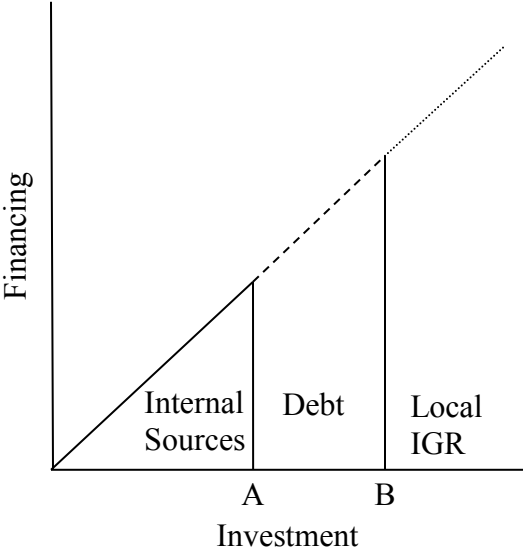
Table 1: Financing Decisions and SPG Characteristics						
Financing Decision	% of Observations	Investments	Cash Balance	Cash Flow	Fund Balance	Age
Internal	40.9%	30.6	76.7	59.7	5.5	28.3
Debt	36.9%	18.2	44.6	29.2	1.0	28.3
Local IGR	21.6%	37.2	75.1	45.8	(6.2)	30.2
Debt & Local IGR	0.6%	79.3	107.4	76.0	(8.9)	29.5
The sample is drawn from the Census of Governments with all variables normalized by population served with the exception of age. Debt issuance is defined as a change in total debt (long-term + short-term) from year *t-1* to *t* divided by population served. Local IGR in year *t* is defined as local IGR in *t* minus local IGR in *t-1*. Investments are defined as the sum of capital outlays plus investments in year *t*; Cash balance is defined as cash and marketable securities in year *t*; Cash flow for year *t* is defined as net change in cash and cash equivalents; Fund balance is defined as unrestricted net assets in *t-1*; age is defined as the number of years since a given SPE was established by the enabling government.						

Table 2: Parameter Estimates

Panel A: Prediction Accuracy			
	Model I	Model II	Model III
Internal	89.78%	90.65%	90.79%
External	90.12%	91.52%	90.48%
Correctly Classified	89.86%	90.86%	90.71%
Debt	83.04%	82.79%	82.93%
Local IGR	84.43%	84.17%	85.00%
Correctly Classified	83.29%	83.02%	83.29%

Panel B: Parameter Estimates *Internal -External Decision*	Coefficient	*t*-stat	Coefficient	*t*-stat	Coefficient	*t*-stat
Constant (γ^S)	-2.5017	-8.25	0.1413	8.07	0.1476	6.99
PO	0.0059	5.26	0.0063	5.28	0.0064	5.34
Sinking Fund	0.8314	3.99	0.7956	3.84	0.8140	3.95
Taxing Ability	0.2530	1.87	0.4512	2.45	0.4652	2.49
Interest	-0.9114	-3.25	-0.9181	-3.51	-0.9461	-3.09
Passenger Miles	0.0062	6.26	0.0067	6.06	0.0069	6.43
Federal IGR	0.0547	4.21	0.0568	4.17	0.0568	4.24
State IGR	0.0097	2.15	0.0098	2.21	0.0100	2.27

Panel C: Parameter Estimates *Debt -Local IGR Decision*						
	Coefficient	*t*-stat	Coefficient	*t*-stat	Coefficient	*t*-stat
Constant $(\gamma^D - \gamma^S)$	-2.4917	-8.24	-0.1014	-8.05	-0.0979	-6.98
PO	0.0002	3.44	0.0001	2.88	0.0001	2.99
Sinking Fund	0.8577	4.08	0.7953	3.83	0.8140	3.95
Taxing Ability	0.2046	1.50	0.4481	2.43	0.4624	2.46
Interest	-0.9512	-1.33	-0.9230	-3.52	-0.9556	-2.84
Passenger Miles	0.0062	6.23	0.0067	6.05	0.0069	6.41
Federal IGR	0.0542	4.19	0.0566	4.16	0.0567	4.19
State IGR	0.0097	2.15	0.0097	2.20	0.0100	2.27

The sample is drawn from the Census of Governments with all variables normalized by population served. The table presents the prediction accuracy results and parameter estimates for the censored bivariate probit. PO is defined in Panel B as Investment minus Internal Funds in the External equation and in Panel C as Investment minus Internal Funds plus Debt in the Local IGR equation. Sinking Fund is defined as 1 if an SPE has a sinking fund policy and 0 if it does not; Taxing Ability is defined as 1 if the SPE has taxed its population served and 0 if it does not; Interest is defined as Interest Expense in year *t* divided by Total Debt in year *t*; Passenger Miles is defined as the total number of miles traveled by the SPE's physical assets in year *t*; Federal IGR is defined as federal intergovernmental matching revenue in year *t*; and State IGR is defined as state intergovernmental matching revenues in year *t*. Fixed effects are identified by three variables, Region as defined by the U.S. Census, Time, and Board as defined by the Census of Governments. *I(x)* is defined as an indicator variable.

Model I is defined in Panel B as:

$$External_{it} = \gamma^S + \beta_1 PO_{it} + \beta_2 SinkingFund_{it} + \beta_3 TaxingAbility_{it} + \beta_4 Interest_{it} + \beta_5 PassengerMiles_{it} + \beta_6 FederalIGR_{it}$$
$$+ \beta_7 StateIGR_{it} + u_{it}$$

Model II in Panel B as:

$$External_{it} = \gamma^S + \beta_1 PO_{it} + \beta_2 SinkingFund_{it} + \beta_3 TaxingAbility_{it} + \beta_4 Interest_{it} + \beta_5 PassengerMiles_{it} + \beta_6 FederalIGR_{it}$$
$$+ \beta_7 StateIGR_{it} + \sum_{j=1}^{J} \alpha_j I(Region = j) + \sum_{t=1}^{T} \lambda_t I(Time = t) + u_{it}$$

Model III in Panel B as:

$$External_{it} = \gamma^S + \beta_1 PO_{it} + \beta_2 SinkingFund_{it} + \beta_3 TaxingAbility_{it} + \beta_4 Interest_{it} + \beta_5 PassengerMiles_{it} + \beta_6 FederalIGR_{it}$$
$$+ \beta_7 StateIGR_{it} + \sum_{j=1}^{J} \alpha_j I(Region = j) + \sum_{t=1}^{T} \lambda_t I(Time = t) + \sum_{b=1}^{B} \delta_b I(Board = b) + u_{it}$$

Models I–III in Panel C are defined identically to Panel B with *LocalIGR*$_{it}$ as the left-hand side variable and (γ^D-γ^S) as the constant.

Table 3: Regression of Change in Operations on Change in Debt		
	A.	B.
	Dep. Var. = ChgLocalIGR	*Dep. Var. = ChgCashFlow*
ChgLTDebt	0.144***	-0.148*
	(0.019)	(0.078)
ChgCashFlow	0.139**	N/A
	(0.068)	
ChgLocalIGR	N/A	1.214**
		(0.572)
Year Dummies	Yes	Yes
Region Dummies	Yes	Yes
SPG FEs	Yes	Yes
R-squared	0.260	0.219

The sample is drawn from the Census of Governments and National Transit Database. The table presents the results of regressing the change in operations on change in debt and controls, where *ChgLocalIGR* is local intergovernmental revenue for year t less local intergovernmental revenue for t-1, *ChgCashFlow* is cash flow in year t less cash flow for t-1, and *ChgLTDebt* is long-term debt for year t less long-term debt for t-1. Continuous variables are normalized by population served. Bootstrapped standard errors are reported in parentheses; ***/**/* indicates statistical significance at 1%, 5%, and 10% (respectively).

Table 4: Regression of Change in Debt on Change in Operations	
	Dep. Var. = ChgLTDebt
ChgLocalIGR	0.608
	(0.478)
ChgCashFlow	-0.072
	(0.113)
Year Dummies	Yes
Region Dummies	Yes
SPG FEs	Yes
R-squared	0.135

The sample is drawn from the Census of Governments and the National Transit Database. The table presents the results of regressing the change in debt on change in operations, where *ChgLocalIGR* is local intergovernmental revenue for year t less local intergovernmental revenue for t-1, *ChgCashFlow* is cash flow in year t less cash flow for t-1, and *ChgLTDebt* is long-term debt for year t less long-term debt for t-1. Continuous variables are normalized by population served. Bootstrapped standard errors are reported in parentheses; ***/**/* indicates statistical significance at 1%, 5%, and 10% (respectively).