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You Don't Always Get What You Want: The Effect of Financial Incentives on State Fiscal Health

Research Article

Abstract: *Governments frequently use financial incentives to encourage the creation, expansion, or relocation of businesses within their borders. Research on financial incentives gives little clarity as to what impact these incentives may have on governments. While incentives may draw in more economic growth, they also pull resources from government coffers, and they may commit governments to future funding for public services that benefit the incentivized businesses. The authors use a panel of 32 states and data from 1990 to 2015 to understand how incentives affect states' fiscal health. They find that after controlling for the governmental, political, economic, and demographic characteristics of states, incentives draw resources away from states. Ultimately, the results show that financial incentives negatively affect the overall fiscal health of states.*

Evidence of Practice

- Governments frequently use financial incentives to encourage new business or the expansion of business within the district.
- The use of incentives has become increasingly common over the past few decades, leading governments to compete with each other to provide larger and larger incentives to entice businesses.
- Despite the widespread use of incentives, there is little evidence to suggest that they provide the intended economic returns to governments.
- Financing incentives leads governments to fiscally unhealthy positions by reducing the revenue available to them while increasing their expenditures.

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A key feature of most economic development strategies is that they recruit businesses that will create substantial benefits for local communities (Jensen and Malesky 2018). To attract new businesses, governments frequently offer financial and tax incentives to persuade businesses to relocate or expand or to encourage entrepreneurs to establish new businesses within a given region (Fox and Murray 2004; Leiser 2017). Although the incentives that governments offer may be costly, the potential benefit to the local economy leads to increased competition among governments, which may result in bidding wars (Buss 2001). This behavior was visible in the recent efforts of governments to entice Amazon to locate its "HQ2" within their communities. More than 200 municipalities submitted bids to host the new headquarters (Griswold 2017), with each providing a different set of incentives to encourage its selection (Jansen, Malesky, and Walsh 2015). In some cases, such as Maryland and New Jersey, states worked with their municipalities to incentivize their selection by Amazon further (McCartney and Wiggins 2018).

Governors tend to take on roles that place themselves as chiefly responsible for economic development within their states (Grady 1989; Taylor 2012). With the support of other politicians and economic developers, governors can tout the incentives as good economic policy (Buss 1999; Jensen and Malesky 2018; Noto 1991). With new business comes an expectation of new employment opportunities and improved quality of life for residents within the community; however, the incentives that bring the new business also place limitations on the offering governments. Tax incentives, for example, limit the revenue that is available to governments while also requiring additional expenditures to meet the increased demand for public services that comes with economic expansion (Buss 2001). When governments offer incentives, they become bound by the liabilities they have created. This opens the possibility of a dueling effect. That is, financial incentives may produce an economic boom for an area by inducing businesses to locate or expand, but they may also hinder the ability of governments to address financial hardships.

Research on the effects of the incentives that governments offer typically explores the economic implications of business expansion or focuses on the role of local governments (Buss 2001; Jensen 2017). As competition for economic development projects has tightened in the post–Great Recession environment, states have become increasingly involved in the economic development process. What this involvement means for states remains unclear. In this article, we develop an understanding of incentives by exploring the incentives that states offer and the implications of those incentives for their fiscal health. We hypothesize that offering incentives to businesses pulls tax revenues away from state governments. This draining of revenue, in turn, reduces the overall fiscal health of the governments and hinders their ability to deliver core public services while also providing their promised incentives.

To investigate the impact of financial incentives on states' fiscal health, we followed the literature and developed a multiple-model approach to capture the dimensions of states' financial positions. We then estimated these models using data from 32 states (accounting for more than 90 percent of the incentives that state governments offered) from 1990 to 2015. The analysis shows that concerns about the effects of incentives on state fiscal health are warranted. In each of the models, financial incentives negatively impacted fiscal health, but the extent of the effect varied based on the type of incentive. Research and development tax credits had the largest negative effect, followed by investment tax credits and property tax abatements. Job-training grants increased states' dependence on the federal government for additional funding, whereas job-creation credits had no significant effect on states' fiscal health.

This article bridges the gap between financial incentives and states' fiscal health by studying whether financial incentives affect the internal fiscal condition of states. The remainder of this study is organized as follows: in the next section, we use the literature on tax incentives and fiscal health to establish a theoretical explanation for the relationship. Next, we establish a model of state fiscal health that accounts for the effect of business incentives, and then we present the data and methodology necessary to estimate the model. We then describe the results of that analysis and draw conclusions about the impact of these fiscal incentives. The articles concludes with a discussion of the results, as well as implications for future research and considerations for state administrators and budgeters.

Theoretical Development

Financial incentives are the grants, tax credits, abatements, tax refunds, and other financially oriented tools that governments use to induce the desired behavior or outcome from a business (Buss 2001; Hellerstein and Coenen 1996). Although attention to incentives has increased in recent years, governments have a long history of using incentives to influence the decisions of businesses to relocate or expand (Buss 2001). In colonial America, for example, towns used bounties to attract craftsmen and entrepreneurs, and by 1800, states were offering capital and financing for infrastructure to private industries. Beginning in the 1930s, states offered tax-exempt bonds to attract new business, and the 1950s saw the creation of dozens of state authorities and corporations that focused on recruiting and developing businesses within the state. It was the unemployment crisis of the 1970s and the recessions of the early 1980s, however, that precipitated an intense interstate competition for business in which states used tax and other financial incentives as competitive tools (Buss 1999, 2001; Zheng and Warner 2010).

Economic developers and planners have encouraged the use of incentives as effective tools for economic development (Zheng and Warner 2010). Practically speaking, however, financial incentives also make good politics. To gain votes and reelection, politicians need to give the appearance that they are working to solve constituents' problems (Feiock, Lee, and Park 2012). One means of accomplishing this action is the expansion of the region's economy (see Prillaman and Meier 2014). Given the competition for business to expand that economy, public officials need to offer incentives to protect the state from losing business to other states and to shield the businesses within the state from outside competition or failure (Buss 2001; Clingermayer and Feiock 1995; Patrick 2014; Spindler and Forrester 1993). Whether a business chooses to accept an incentive or not, the offering of that incentive by the state gives politicians the appearance of taking action on behalf of their constituents.

Despite the widespread use of incentives, no clear consensus on the economic impact of incentives has emerged even after decades of research (see Glaeser 2001; Patrick 2014; Thomas 2011). The literature has often been plagued by issues of data on what incentives governments offered and what incentives businesses used (see Patrick 2014). The research that does exist has largely focused on economic responses, such as the relationship between financial incentives and economic development (see Prillaman and Meier 2014; Zheng and Warner 2010), the relationship between incentives and employment (see Hanson and Rohlin 2011; Patrick 2014), the relationship between incentives and business activities (see Harju and Kosonen 2012; Wilson 2009), or the diffusion of incentive policies (see Miller and Richard 2010).[1]

At the state level, constituents often view financial incentives as "free money," because they typically represent forgone revenue rather than expenditure (Buss 2001). Policy makers assume that reducing the tax burden will enable businesses to stimulate the economy more effectively (Prillaman and Meier 2014). Functionally, the expectation is that states forgo revenue in the present by offering incentives in exchange for more revenue later. However, as we noted earlier, the economic return on incentives is uncertain. Forgoing revenue without the certainty of a return on the investment opens the possibility that the costs to a government of offering an incentive may impact its financial resources, specifically its fiscal health.

A government's fiscal health refers to its ability to provide adequate services to balance its financial obligations with its available revenue (Hendrick 2004; Maher, Ebdon, and Bartle, Forthcoming; Maher and Nollenberger 2009; McDonald 2018).[2] There are four functions or dimensions of financial health:

> (1) the ability of the government to meet its immediate or short-term financial obligations, (2) the ability of the government to meet its financial obligations over a budgeted fiscal year, (3) the ability of the government to meet its

long-term financial obligations, and (4) the ability of the government to finance the base-level programs and services as required by law. (McDonald 2018, 47)

Perhaps the best understanding of fiscal health is the capacity of the government to meet the needs of the citizenry while considering the future demands it faces.

Financial incentives may also impact the fiscal health of a state in two ways. First, incentives may reduce the tax revenues of states. State taxpayers bear state incentive costs (Buss 2001; Buss and Bartok 1994; Watson 1995). While there are many ways for states to structure incentives, most take the form of tax credits or abatements (Buss 1999, 2001; Patrick 2014). Credits and abatements are preferable to other forms of incentives, as they require minimal budgetary approval and are subject to less political scrutiny than incentives that would require expenditures (Glaeser 2001; Patrick 2014). Not only does the decline in revenue hinder the state's fiscal health by artificially limiting its resources to provide services and to balance its future obligations, but it does so while not adjusting the budget to compensate.

Second, programs with direct links to the offering of incentives may increase state spending. Governments have frequently committed their resources toward benefiting businesses as part of incentive packages (Fisher and Peters 1997; Peters and Fisher 2004). This may include spending on services such as infrastructure to accompany the development that a business brings, as well as spending on expanded public services to meet the needs of citizens who gain employment at the incentivized company (Buss 2001; Fisher and Peters 1997; Peters and Fisher 2004). It may be possible to pay for the additional spending that comes with financial incentives by reducing government spending elsewhere; however, because of the nature of the budget process, new spending is not likely to come at the expense of existing programs (see Bland 2016; Mikesell 2017). As a result, government expenditures relating to incentives are likely to be expansions of the budget. The incentive package that Alabama awarded to Toyota and Mazda shows that this is happening (Harper and Woodyard 2018). Ultimately, any increase in spending by a government risks the financial condition of that government by minimizing the funds available to meet its liabilities.

Researchers into fiscal health within the public administration literature have noted that a reduction in revenue or an increase in expenditure without a change in the other to compensate will always move the government into a fiscally unhealthy situation (see Maher et al. 2018; McDonald 2015). Unfortunately, as both Mikesell (2017) and Bland (2016) noted, the political nature of the budget process leads to few cuts. Based on the argument that incentives may impact the fiscal health of a state by reducing revenues or increasing expenditures, we hypothesize that:

Hypothesis 1: Financial incentives will have negative impacts on the fiscal health of states.

Model

Having established a theoretical relationship between the tax incentives that a state offers and that state's fiscal health, we turn our attention to the testing of that hypothesized effect. The first issue

of consideration is how best to model the relationship. Modeling the fiscal health of a government presents a challenge, as much of the literature has adopted an ad hoc approach, with each study modeling the determinants of fiscal health to fit the circumstances of the research or the availability of data (see Justice and Scorsone 2013; McDonald 2015, 2017). We propose to move beyond this limitation by using a systems approach to fiscal health.

A systems approach to fiscal health views state governments as open organizations that can both influence and be influenced by their environment (Clark 1994; Hendrick 2004; Nollenberger, Groves, and Valente 2003; Reitano 2018). In a systems approach, a government's outcome is a function of the community environment within which the government operates and of the policies and institutions that comprise the government's fiscal policy space. Of importance to the study at hand, one benefit of a systems approach to understanding a government's fiscal health is the ability to account for the effect of tax incentives while also accounting for other factors that are impacting its fiscal health (e.g., the political and economic environment of the state).

Research into the governmental environment by Maser (1985, 1998) and by McDonald and Gabrini (2014) points to the political, economic, and socioeconomic conditions of a community as key environmental characteristics that help drive government action (see also Gabrini 2010; McDonald 2015; Wang, Dennis, and Tu 2007). The political condition of a state establishes the direction in which the government moves, as partisan politics and the party composition of the state legislature and state government establish the political equilibrium that governs the creation, adoption, and implementation of the policy. Economic conditions refer to the general strength of the state economy, including the wealth and income capacity of its residents. A state's economic condition becomes reflected in its tax base, with a strong base allowing for the expansion of public services or an expansion of tax relief to residents and corporations. Regarding the demographic conditions of the state, the priorities and preferences of households can fluctuate based on their demographic composition, allowing for shifts in what public goods and services the residents of a state expect the government to provide as the composition of the state changes.

The fiscal health literature adds to these points by noting the role of state governments in the system. A state's community environment may influence the resources that are available to its government, but the government plays a role in the system by deciding how to utilize those resources. Contrary to the political characteristics of a state, government characteristics are a reflection of the management of the state government. In a fiscal health context, the role of government in the system is a function of its policies and the institutional constraints that are in place to guide its behavior (Brien 2018; Hendrick and Crawford 2014; McDonald 2015). Utilizing the internal and external environmental characteristics of a state, the system produces the following model:

$$F_{i,t} = \alpha + \beta_1 I_{i,t} + \beta_2 G_{i,t} + \beta_3 P_{i,t} + \beta_4 E_{i,t} + \beta_5 D_{i,t} + \varepsilon,$$

where the dependent variable, $F_{i,t}$, represents the fiscal health of state i in year t. To capture the influence of the tax incentives a

state offers on its fiscal health most effectively, the model separates the incentives from other governmental influences. Thus, the variable I accounts for the effect of the incentives and G captures the presence of all other governmental influences. The remaining variables, P, E, and D capture the political, economic, and demographic conditions, respectively, of state i in year t.

Data and Methods

A second issue to consider in the testing of our hypothesis is the appropriate data and the method of estimation. To estimate the model, we used a sample based on the states included in the W. E. Upjohn Institute's Panel Database on Incentives and Taxes (PDIT). The PDIT database is a record of the incentives state and local governments offer to businesses to encourage economic development (Bartik 2017). The database includes data for 32 states from 1990 to 2015. Although the database does not cover all states, the data in the PDIT account for more than 90 percent of the incentives states offer. (An overview of which states we included in our analysis is provided in figure 1.)

To account for the financial incentives that states offer, we used all five categories of incentives in the PDIT. These are job-creation tax credits, investment tax credits, research and development (R&D) tax credits, property tax abatements, and job-training grants. Brief definitions of the categories of incentives follow. Job-creation tax credits refer to tax credits that businesses may receive when they create new jobs within a state. Investment tax credits are tax-related incentives that allow individuals and businesses to deduct a percentage of their investments from their tax liability. Research and development tax credits refer to the tax incentives that are available to businesses to conduct research and development within the state. A property tax abatement is a temporary reduction or elimination of property taxes, and states award job-training grants to businesses to cover expenses relating to training new employees for positions (for additional information on the categories and their measurement, see Bartik 2017). Within the data set, each category represents a percentage of value added and reflects both the export- and non-export-related incentives that states offer. Table 1 provides an overview of the variables and their definitions, and table 2 provides the descriptive statistics for the variables of this study.

Central to this study is the measurement of fiscal health for each of the states in each year. There are several ways to define fiscal health, each reflecting the perspective the stakeholder wants to put forward (Maher and Nollenberger 2009; McDonald 2018, 2019; Wang, Dennis, and Tu 2007). In the absence of a clear and consistent measurement approach, we follow the works of Maher, Liao, Liao, and Jae (2018) and McDonald (2015) and include three broad indicators that capture the different dynamics of a government's financial position. They are the *efficiency ratio* (measured as the ratio

Table 1 Variable Definitions

| Variable	Measurement
Fiscal health indicators	
Efficiency ratio	Ratio of total expenditures to total revenue
Federal IGR dependence ratio	Ratio of federal intergovernmental revenues to total revenue
Debt ratio	Ratio of total debt to total assets
Financial incentives variables	
Job-creation tax credits	Percent of value added from incentives
Investment tax credits	Percent of value added from incentives
R&D tax credits	Percent of value added from incentives
Property tax abatements	Percent of value added from incentives
Job-training grants	Percent of value added from incentives
Governmental behavior	
Counties	Total number of counties in a state
Special districts	Total number of special districts in a state
TELs	Tax and Expenditure Limitation Index of the state
Annual budget	Dummy variable accounting for an annual budget process
Political conditions	
Democratic legislature	Dummy variable accounting for Democratic control of the legislature
Democratic governor	Dummy variable accounting for the presence of a Democratic governor
Annual legislature	Dummy variable accounting for an annual legislative session
Term limits	Dummy variable account for the presence of term limits
Economic conditions	
GSP	Gross state product per capita
GSPI	Gross state private investment per capita
Income	Personal income per capita
Unemployment	Unemployment rate
Demographic conditions	
Female population	Female share of the population
Minority population	Non-White share of the population
Population 65+	Share of the population aged 65 and older
Population 0–17	Share of the population aged 17 and younger
Population density	Population per square mile
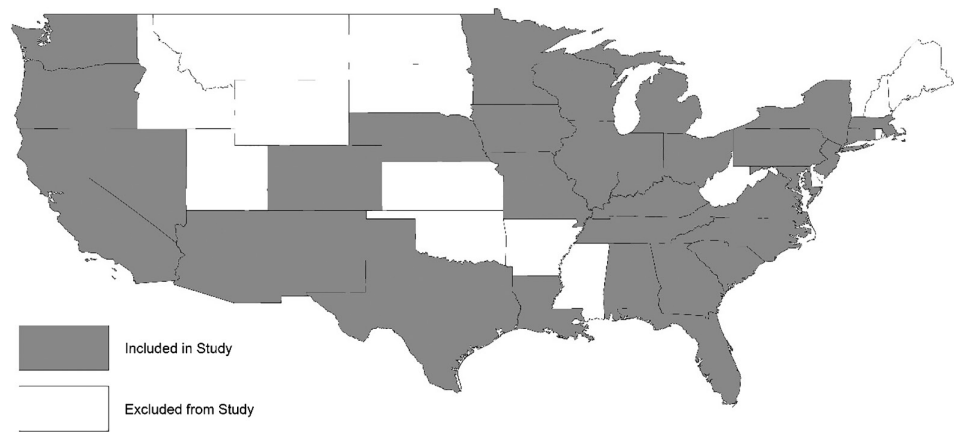
Figure 1 States Included in the Analysis

Table 2 Descriptive Statistics

Variable	Mean	SD	Min	Max
Fiscal health indicators				
Efficiency ratio	0.2222	0.9687	0.67000	4.1800
Federal IGR dependence ratio	0.2426	0.0715	0.1100	1.0101
Debt ratio	0.8971	2.4049	−55.9000	19.4000
Financial incentives variables				
Job-creation tax credits	0.0039	0.0060	0.0000	0.0200
Investment tax credits	0.0039	0.0052	0.0000	0.0300
R&D tax credits	0.0009	0.0012	0.0000	0.0100
Property tax abatements	0.0046	0.0068	0.0000	0.0280
Job-training grants	0.0011	0.0019	0.0000	0.0100
Governmental behavior				
Counties	73.5625	47.9903	8.0000	254.0000
Special districts	851.2091	768.4810	24.0000	3,327.0000
TELs	7.4171	6.7884	0.0000	27.0000
Annual budget	0.5938	0.4914	0.0000	1.0000
Political conditions				
Democratic legislature	0.4483	0.4976	0.0000	1.0000
Democratic governor	0.4712	0.4995	0.0000	1.0000
Annual legislature	0.8990	0.3015	0.0000	1.0000
Term limits	0.1575	0.3645	0.0000	1.0000
Economic conditions				
GSP	48,229.22	8,492.30	31,727.94	76,965.29
GSPI	8,374.65	1,752.09	4,847.43	14,558.22
Income	41,058.51	7,317.99	27,471.55	68,647.42
Unemployment	0.0589	0.0189	0.0230	0.1365
Demographic conditions				
Female population	0.5097	0.0061	0.4905	0.5209
Minority population	0.1761	0.0844	0.0289	0.3918
Population 65+	0.1297	0.0171	0.0954	0.1937
Population 0–17	0.2481	0.0163	0.2028	0.2981
Population density	190.4928	206.2830	11.0400	1,027.1700

Notes: Financial values expressed in 2015 per capita dollars.

of total expenditures to total revenue), the *federal intergovernmental revenue (IGR) dependence ratio* (measured as the ratio of federal IGR to total revenue), and the *debt ratio* (measured as the ratio of total debt to total assets). Data on state government expenditures and revenues came from the U.S. Census Bureau's Census of Governments; the data are expressed in 2015 constant dollars.

Next, we turned our attention to measuring the control variables in each of the four controls, beginning with the remaining nonfiscal governmental health conditions. The presence and type of governments within its border influence a state government's financial behavior. We captured this by the number of counties and the number of special districts, as reported by the U.S. Census Bureau. The tax and expenditure limitations (TELs) that a state imposes may hinder its fiscal health by limiting its access to revenue. To capture the effect of TELs, we utilized the TEL index of Maher, Deller, Stallmann, and Park (2016). This index places each state on a scale of how strict the state's TELs are. Accordingly, a state with a score of 0 indicates that there were no TELs during the year in question, whereas 1 onward represents the strictness of the TELs along a continuous scale (see also Maher, Park, and Harrold 2016). The last measure of governmental influence is the frequency of the budgetary process. We captured this as a dummy variable, assigning a value of 1 to states with an annual budget process and 0 to states in which the budget process is biennial.

The second group of control variables captured the political conditions of a state. We captured the political conditions with

the variables Democratic legislature, Democratic governor, annual legislature, and term limits. Democratic legislature refers to the political environment of the state's legislature, and we measured it using a dummy variable, where 1 signifies that the legislature has a Democratic majority and 0 signifies Republican or split control. Similarly, Democratic government accounted for the political control of the state's executive, and we measured it with a dummy variable, where 1 represents a Democratic governor in the given year and 0 represents a Republican or independent governor. The variable annual legislature accounts for the legislative cycle using a dummy to capture whether the state legislature holds an annual session. Here, 1 represents the presence of an annual session and 0 represents a biennial session. Lastly, term limits capture the impact that term limits have on political decision-making with a dummy variable. A value of 1 represents the presence of a term limit for the legislature and 0 its absence. Data on the Democratic control of the legislature, annual or biennial sessions, and the presence of term limits came from the National Council of State Legislatures. Data on Democratic control of the executive came from Ballotpedia's list of partisan control of governorships.

The third set of variables relate to the economic conditions of the state. Following previous work on measuring the macro economy of a government (see Jones 2017), these variables are economic output, investment, income, and unemployment. We measured economic output as a state's gross state product (GSP). Investment is the state's gross state private investment (GSPI), and we derived it following the process that McDonald and Miller (2010) established. Income refers to personal income. We derived the variables for economic output, investment, and income from the Regional Economic Accounts of the U.S. Bureau of Economic Analysis; we measured them on a per capita basis and expressed them in 2015 constant dollars. Finally, we measured unemployment as the annual average of the unemployed share of the state's labor population; we obtained the data from the U.S. Bureau of Labor Statistics.

In the fourth and final set of control variables, we followed the literature on fiscal health and control for demographic influences on the municipalities throughout the data set (see Maher, Deller, Stallman, and Park (2016); McDonald 2015, 2017), arguing that different demographic populations within a community have different sets of preferences (see also Tiebout 1956). These are female population, minority population, population over age 65, population under age 17, and population density. *Female population* refers to the female share of the total population, and *minority population* refers to the non-White share of the total population. *Population over age 65* and *population under age 17* both refer to their respective shares of the total population. *Population density* is the population of the state per square mile. All population estimates came from the Centers for Disease Control and Prevention's WONDER database. Square land miles came from the U.S. Census Bureau.

Prior to estimating the model, we logged all the dependent variables to aid in the interpretation of the results. Additionally, we logged all independent variables that had a zero in an observation for ease of interpretation. Given the nature of the variables, we also tested the data for multicollinearity issues, though we did not find any significant correlations. Table 3, which provides the results in the next section, indicates which variables undertook the

Table 3 Regression Results of Fiscal Health Models

Variable	Efficiency		Federal IGR Dependence		Debt	
	Coef.	p>|z|	Coef.	p>|z|	Coef.	p>|z|
Financial incentives variables						
Job-creation tax credits	−0.9376	0.064	0.2426	0.396	−0.0775	0.482
Investment tax credits	4.8263	0.000	10.0232	0.000	11.9696	0.000
R&D tax credits	11.6887	0.035	53.9751	0.000	29.3324	0.004
Property tax abatements	2.0202	0.000	0.6376	0.261	5.6086	0.000
Job-training grants	−1.5019	0.257	7.6828	0.019	7.7660	0.056
Governmental behavior						
Counties (ln)	−0.0164	0.071	0.0877	0.000	−0.0434	0.038
Special districts (ln)	0.0042	0.215	0.1291	0.037	0.0139	0.079
TELs	−0.0014	0.086	0.0022	0.033	−0.0039	0.042
Annual budget	0.0172	0.062	0.0274	0.016	0.0527	0.006
Political conditions						
Democratic legislature	−0.0113	0.192	−0.0348	0.013	−0.4803	0.014
Democratic governor	0.0133	0.055	−0.0063	0.300	0.0391	0.018
Annual legislature	0.0472	0.000	0.0099	0.302	0.1157	0.000
Term limits	0.0261	0.089	0.0786	0.001	0.0415	0.104
Economic conditions						
GSP (ln)	1.0465	0.000	1.5971	0.000	1.6886	0.001
GSPI (ln)	−0.8994	0.000	−0.7532	0.001	−1.7485	0.000
Income (ln)	−0.0259	0.443	−0.5551	0.004	0.3123	0.183
Unemployment (ln)	−0.0251	0.339	0.1123	0.038	−0.0539	0.317
Demographic conditions						
Female population (ln)	0.4135	0.343	10.4964	0.000	1.3100	0.266
Minority population (ln)	0.0201	0.187	0.1039	0.000	0.0476	0.145
Population 65+ (ln)	−0.1580	0.099	0.1521	0.454	−0.5247	0.020
Population 0–17 (ln)	−0.1029	0.316	−0.5907	0.005	−0.3506	0.146
Population density (ln)	−0.0074	0.338	−0.1298	0.000	−0.0191	0.287
Constant	−3.1629	0.000	0.8791	0.225	−6.6164	0.000
R^2	0.30		0.50		0.25	

All p-values are given as a one-tailed test.

Results

Utilizing the data and the statistical approach previously discussed, we estimated the model of a state's fiscal health using each of the health ratios. The results of these regression analyses are in table 3. Overall, the model of fiscal health we developed for this study performs well. Not only does the model show significance with consistently high explanatory value across each of the financial ratios, as demonstrated by the R^2 for each series of estimates, but also the variables that researchers commonly accept as drivers of a government's financial condition are significant, and they are in the directions that the literature predicts.

The most important of the results is the effect of the types of financial incentives on fiscal health.[4] The results show that when a state uses financial incentives, the fiscal health of the state diminishes. The largest effect is from research and development tax credits. According to the results, a 1 percent increase in these tax credits negatively affects the efficiency ratio by approximately 11.7 percent. This finding is somewhat surprising but not all together unexpected. Research and development is a costly venture with no certainty of a payoff. While the incentives may encourage new development within the state, the lack of a payoff supports the finding that the incentive pulls resources out of the budget rather than bring them in.

Negative effects are also seen in the federal IGR dependence ratio and debt ratio of 53.9 percent and 29.4 percent, respectively. Investment tax credits also showed a significant and negative effect, such that a 1 percent increase in the credits increased the efficiency ratio by 4.8 percent, the federal IGR dependence ratio by 10.1 percent, and the debt ratio by 11.9 percent. Property tax abatements were found to have a significant effect only for the models of the efficiency ratio and debt ratio, increasing the ratios by 2 percent and 5.6 percent, respectively, with a 1 percent increase in the incentives, whereas job-training grants only impacted the federal IGR dependence, such that a 1 percent increase in the grants increased the state's dependence on federal funding by 7.7 percent. Interestingly, job-creation tax credits had no significant effect on the fiscal health of a state.

These findings are important because they demonstrate the capacity of a state to respond to fiscal crises and to shifts in the programs and services it may provide. This importance can be seen in an example of the debt service burden. When the debt ratio (measured as the ratio of total debt to total assets) gets larger, states have an increasingly hard time paying their bills and balancing their budgets. During an adverse fiscal shock, a debt burden puts states into potentially inflexible positions where they may be forced to choose between paying on the debt or risking default by providing core services to the population.

Aside from the effects of financial incentives, the results provide several other interesting findings. Previous research on state

transformation. To estimate the model, we followed the work of Beck and Katz (1995, 2011), utilizing a panel-corrected standard errors approach.[3]

governments has suggests that states may have engaged in the redistribution of the burden for public services to governments within their borders (Bowman and Kearney 2011; Reschovsky 2004). Since the start of the Great Recession, the literature on fiscal health has often pointed to this shirking of responsibilities as a way for states to maintain their solvency (see Singla and Stone 2018; Yusuf, O'Connell, and Abutabenjeh 2011). As county governments are administrative branches of the state (see National Association of Counties 2008), states may be able to reduce their expenditures and improve their overall fiscal health by reassigning their responsibilities to the counties. The presumption has been that the more county governments there are within a state, the more opportunities there are to pass the services along. Interestingly, there is some suggestion that this may be happening.

The number of counties within a state has a significant and positive influence on the state's efficiency and debt ratios. According to the results, a 1 percent increase in the number of counties in a state reduces its efficiency ratio by 1.6 percent and reduces its debt ratio by 4.3 percent. However, there is a negative impact in terms of a state's federal IGR dependence ratio, such that the same 1 percent increase in the number of counties is also expected to increase federal dependence by 8.8 percent. The number of special districts in a state also affects the state's federal dependence, whereby a 1 percent increase in the number of special districts is expected to increase the state's dependence by 12.9 percent while also increasing the debt ratio by 1.4 percent. One possibility for these findings is that states provide a baseline of public services and they pass additional services off to the counties. Special districts, however, are frequently used to provide new services or educational programming, which may require state involvement or support.

The remaining governmental variables provide consistently significant influence, with TELs providing a positive impact across all three measures of fiscal health. For example, a one-unit increase in a state's index score reduces its efficiency ratio by 0.1 percent. Additionally, the existence of an annual, rather than biennial, budget process in a state correlates with an overall reduction in its financial condition. Neither of these findings is surprising. Although many viewed TELs through the lens of restrictions on states' capacity to raise revenue, they may restrict the capability of states to spend (Maher, Stallaman, Deller, and Park 2017). As a result of these restrictions, states may not be able to spend their way as easily into fiscal distress. Similarly, an annual budget process allows states to adjust their priorities around citizen concerns more easily. As a result, they may also be more likely to overreact or carelessly spend compared with states that must budget for longer periods of time (see Kearns 1994; Kim and Wang 2015).

Concerning the influence of political characteristics on fiscal health, the estimates produce an interesting result. States with a Democratic majority in their legislature are healthier than their Republican majority counterparts. This can be seen in the significant impact of the Democratic legislature variable on the federal IGR dependence ratio and the debt service burden. Specifically, legislatures with Democratic majorities have a lower dependence on the federal government by 3.5 percent and a 48.0 percent lower debt ratio. When considering the effect of Democratic control of the executive, states with Democratic governors are shown to have a significant,

but negative, effect on fiscal health by increasing both the efficiency and debt ratios, by 1.3 percent and 3.9 percent, respectively. Presumably, this is tied to the Democratic values of social service and public responsibility over Republican values of financial control and constraint. The experience of legislatures with the political processes also impacts states' financial condition, with the variables for term limits and annual legislative sessions negatively affecting the overall fiscal health of states.

As with the impact of an annual budget session, states with an annual legislative session also exhibit reduced levels of fiscal health. Specifically, the presence of an annual legislative session negatively impacts both the efficiency and the debt ratios. On average, states with an annual legislative session experience an efficiency ratio that is 4.7 percent higher than states with a biennial session. Annual states also have a debt ratio that is 11.6 percent higher than other states. Last, the presence of term limits also has a negative impact by increasing the efficiency ratio by 2.6 percent and increasing the state's dependence on the federal government by 7.9 percent.

There is mixed empirical evidence for the economic conditions. The results of the analysis suggest that as GSP increases, the fiscal health of a state decreases. This can be seen in the significant impact that GSP has on all three measures of financial conditions. However, the results also suggest that as GSPI increases, the fiscal health also increases, as demonstrated with the significant effect across all three measures. One possibility for the dueling impact is the behavior of politicians. During good economic times, politicians may be more willing to increase public spending, which can produce a negative impact on GSP. Investments in the economy, on the other hand, are made with the expectation of a future return. Therefore, they may bring additional tax revenue to the government without an accompanying expectation of new services. This would produce the positive impact that we find for GSPI.

Turning to unemployment, the results suggest that a state's unemployment rate has links with the federal IGR dependence ratio. This suggests that an increase in unemployment requires the federal government to step in and provide more services, and it is consistent with the impact of job-training grants. Regarding income, it is generally hypothesized that areas with high income will also have high levels of consumption, which produces more tax revenue for the area. In turn, the increase in tax revenue should improve the government's financial position. Contrary to expectations, income was found to have a statistically significant impact on a states' dependence on the federal government.

Finally, each of the demographic variables has at least one significant impact on fiscal health. Both the share of the population that is female and the minority share of the population negatively impact fiscal health by increasing the state's financial dependence on the federal government. Conversely, the share of the population aged 17 and under and the state's population density both have significant ties with decreases in federal dependence. This, in turn, suggests that the two variables have a positive impact on the fiscal health of states. Interestingly, the share of the population aged 65 and older has a significant and positive impact on health, but this positive impact comes in the form of reducing the state's efficiency ratio and debt ratio. The overall findings of the demographic variables were

not that unexpected. Each segment of the population has its own preferences for public goods and services, which can then have a unique impact on the financial outcomes of governments (Tiebout 1956). Younger populations, for example, require additional funding for educational services which can be costly for state coffers. At the same time, what demand there is for public services by older populations are more closely aligned with health care related programming. While costly, these programs typically receive their funding through both federal and state governments, limiting the burden they place on state revenues.

Conclusion

State governments face a variety of challenges, such as changes in the demographic makeup of the community, availability of suitable employment for constituencies, shifts in the demand for public services, and a fluctuating economic climate. To overcome these challenges, governments may offer financial and tax incentives that can encourage the creation, expansion, or relocation of businesses within their borders (Fox and Murray 2004; Leiser 2017). Although the incentives states offer may be costly, the potential benefits they offer to the economy has resulted in their use as a standard economic development strategy. Previous work on financial incentives investigates the return on investment that incentives provided. Research also shows that while there may be some economic return, it is often less than governments expected or promised. Absent from this discussion, however, has been the financial implications on states for offering the incentives.

Financial incentives are typically tax credits, tax abatements, or grants. While these incentives may encourage the expansion of the state economy, they can also impact the financial resources of the state by limiting the revenue available to a government or requiring additional expenditures to fund the grants or to meet the demand for public services that comes with the economic expansion. This opens the possibility that while incentives may positively impact the economy, their use by states may also hinder the fiscal health of the government. Using a panel of 32 states and data from 1990 to 2015, we estimated the effects of five types of financial incentives on the fiscal health of a state across three models.

The results of the analysis show that financial incentives negatively impact the overall fiscal health of the states offering incentives. This is demonstrated through increases in the efficiency ratio, federal IGR dependence ratio, and debt ratio. Moreover, while the effects may appear small, it is important to note that even the smallest of changes in a financial ratio can have large and long-term impacts on a government. This has important implications for states considering the use of financial incentives, particularly those undergoing fiscal stress. While financial incentives may have an economic return on investment, they come with a high cost to the state's financial sustainability. Therefore, they are a financial tool that states should only use with caution.

While the results are promising, a degree of uncertainty remains. To account for the presence and size of the financial incentives states offer, we relied on a new data set that measures financial incentives not by how much states gave, but rather as a percent of the value that the incentive provides. Although the PDIT does not provide perfect measurement of state incentives, there has been no consistent measurement of incentives across governments prior to the release of the data set. While the PDIT is useful for the research question at hand, it also raises concerns regarding the true value of incentives. Offering an incentive and offering an incentive that is large enough to be meaningful may have very different impacts on governments' financial conditions. Issues of comparability and generalizability also need further work. Our data set accounts for 90 percent of financial incentives states offer, but the 10 percent of the incentives we do not account for come from 36 percent of the states. What is uncertain is why some states elect to offer fewer incentives than others, and whether the governmental dynamics of those states differ enough from high-incentivizing states to produce an alternative outcome.

To continue to improve our understanding of state behavior and the impact of financial incentives on fiscal health, additional work is necessary. In-depth research into the impact of a state's political climate on its decision to offer incentives and how it chooses to structure those incentives may provide clarity on the cause of the surprising and inconsistent results of party affiliation. Additionally, through case studies that focus on the financial aftermath of offering an incentive, we can begin to understand the societal factors and political environment that influence the decision to adopt or change a financial incentive and we can clarify what about an incentive causes the reduction in fiscal health. Over time, this could lead to an improved ability to design the incentives on offer or their abandonment as an economic strategy more effectively.

Notes

1. For a thorough review of the literature on financial incentives, see Bartik (1991), Glaeser (2001), Patrick (2014), Thomas (2011), and Zheng and Warner (2010).

2. For an expanded discussion of fiscal health, its definitions, its effects, and factors that create unhealthy governments, see Justice and Scorsone (2013); Maher, Liao, Liao, and Oh (2018); and McDonald (2017, 2018).

3. In estimating our model, we considered incorporating a lagged effect. We did not include a lagged effect in our estimated model for two reasons. First, we measured the data on incentives in terms of the value contributed in a given year, allowing for a direct tie between the cost of incentives in a given year and that year's fiscal health. Second, a statistical analysis using standard information criteria showed that no lag was statistically appropriate.

4. Care and consideration should go to the appropriate interpretation of the financial incentive variables. While we logged many of the variables for the analysis (see table 3), each incentive that we measured had at least one observation for which they equaled zero. Therefore, we could not log them. Given the format of the data, an interpretation of one unit would overestimate the effect of the financial incentive variables, and thus we needed to conduct the interpretation on a scaled basis. For example, a one-unit increase in research and development tax credits would increase the efficiency ratio by 1,168.9 percent. However, an increase of 1 percent in the credit would lead to an 11.7 percent increase in the ratio.

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