District Reliance by Service Function: A Study of Public Financing of American Special Districts

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Over the past several decades, special districts have proliferated and become the most rapidly growing type of local governments in the U.S. This study provides an exploratory investigation of special district finance reliance from two aspects, including expenditure reliance of general–purpose governments on special districts' service delivery and financing mode of special districts. Using financial data collected from the Bureau of Census, this study provides detailed descriptive analyses on temporal trends and geographical patterns of expenditure reliance and revenue financing mode for four service functions. From the perspective of expenditure reliance, this study shows that special districts have replaced the role of general–purpose governments. In terms of revenue modes, special districts tend to rely on user fees, equating payers and beneficiaries of services. Moreover, this study shows that on which revenue sources the districts rely the most vary by service function and geography.

Keywords: Special Districts, Service Function, Expenditure Reliance, Financing Modes

In the United States, local governments play an important role within the federal system by providing public services and goods to their constituents. As of 2012, the Census of Governments shows that 3,031 counties, 19,522 municipalities, 16,364 towns and townships, 37,203 special districts, and 12,884 independent school districts constitute the 89,004 local governments in the U.S. General–purpose governments, such as counties, municipalities, and townships, are considered the primary local service providers. Special districts are autonomous entities created through states' enabling legislation that have independent fiscal authority and separate budgets to finance public service provision and public goods production (Billings & Carroll, 2012). They provide more than 30 unique types of services, including housing and community development, fire, water, sanitation, and sewerage (Foster, 1997; McCabe, 2000). Since the 1960s, the number of special districts in the United States has continuously increased, while the number of general–purpose governments has remained constant (Bollens, 1986; Burns, 1994; Foster, 1997; Honadle, 2012; Nelson, 1990; Shi, 2018).

Given that special districts have proliferated in the local public sector, the importance of special districts and their roles in intergovernmental management should be well understood by practitioners and scholars in the field of public affairs and urban studies. There are several strands of studies about special districts. Some scholars focus on the adoption and creation of special districts and investigate the determinants of their growth (Berry, 2008; Bowler &

Burns, 1994; Carr, 2006; Donovan, 2004; Faulk & Killian, 2016; Feiock & Carr, 2001; Foster, 1997; Goodman, 2015; Lewis, 2000; MacManus, 1981; McCabe, 2000; Shi, 2017, 2018). Other scholars explore how specialized governance affects local fiscal outcomes (Farmer, 2018; Hendrick, et al., 2011; Jimenez, 2015; Nelson, 1987; Zax, 1989). These analytical efforts incorporate special districts as a part of the local governance landscape and highlight the fiscal consequences and urban impacts of having numerous special districts in the local public sector. Nevertheless, most researchers study special districts as a whole and focus on identifying the impetus for creating special districts over time, but they pay little attention to an enhanced understanding of their unique service types, which we refer to as "service function" in this study.

This article offers an exploratory study of special district finance reliance categorized by service functions. The idea of district finance reliance has two dimensions in this study. The first dimension is expenditure reliance, which is used to explore how general–purpose governments rely on expenditures of special districts for public service provisions of different service types. The other is financing mode, which is used to study major revenue sources of special districts of different service functions and to understand their financing structures. Using this two–dimensional perspective, we provide information on temporal trends and graphic analyses for four types of service functions of special districts, including (a) hospital, (b) housing and community development, (c) natural resources, and (d) sea and inland port facility. Data are collected from the Bureau of Census from 1972 to 2012 (at five–year intervals) and aggregated at the county level to explore how expenditure reliance and financing modes vary over time and across the nation.

With descriptive findings, this study contributes to the literature of special district and local government management in several ways. First, we find that the operation of special districts varies by service types at the county level. By focusing on four types of service functions, we find a few patterns of spending reliance and funding sources. The finding implies that special district creation not only might be a response to specialized service demands, but also may be contingent upon several factors. For example, there are likely to be environmental circumstances that represent specific demands for a particular service type, different revenue sources for specialized services and service characteristics, and absence of or weak patterns of statewide institutions that are important for the incorporation of special districts.

Secondly, we investigate fiscal features of special districts categorized by their service functions. Special districts are defined by the U.S. Census Bureau (2013) as "independent, special–purpose governmental units that exist as separate entities with substantial administrative and fiscal independence from general–purpose governments" (p. ix). To understand the reasons for the proliferation of special districts, the fiscal roles of special districts should not be overlooked. Fiscal independence of special districts means that they can determine their own budget, own level of taxation, user fees and charges, and issue debt without reviews from other governmental entities (Goodman, 2018). Most existing studies on special district finance have addressed whether they can be used as a fiscal strategy by general–purpose governments to circumvent fiscal constraints imposed by state governments. Some literature has investigated financial resource management and the fiscal health of special districts (Bauroth, 2007; Berry, 2009; Foster, 1997; Mehay, 1984; Shi, 2018; Trussel & Patrick, 2013). Notably, a few previous studies have categorized special districts based on service functions when they explored the revenue structures or expenditure patterns of special districts. By recognizing that special districts provide various types of special service functions and that they are important for general–purpose governments to finance a variety of specialized and single service functions, this study addresses special district finance based on types of service functions. This study thus can fill in the gap in this line of the literature on special districts.

This article is organized as follows. The next section provides a brief review of theories and

empirical findings of special district finance. The subsequent section describes the methodology, variables, and data sources for the study. The fourth section presents the findings of four specific service functions of special districts. The final section concludes with a discussion of the findings, research implications, limitations, and directions for future research.

Theoretical and Empirical Review of Relevant Special District Literature

Much of the theoretical understanding of special district creation and adoption in the United States begins with the Tiebout model. The model best describes interjurisdictional competition in the local public sector and recognizes that local governments compete for residents by offering the optimal service or tax packages in a fragmented governance setting (Tiebout, 1956). Influenced by the Tiebout model, there are two main strains of theoretical and empirical developments in which special districts are involved.

On the one hand, Oates (1972, 1977), in his "fiscal decentralization theorem," supports the highly decentralized provision of public goods and services in the local public sector. In the context of fiscal decentralization, local governments (including special districts) should be responsible for public service provision and production because they are closer to residents and are assumed to better match local service demands. From this public choice perspective, local governments tend to be more efficient, and government sizes become smaller because of Tiebout–style competition and fiscal decentralization.

With the influence of devolution at the federal level and the forces of reinvention to meet local demands for services among local governments, the rise of special districts is the most salient feature of local government structure. The demands for governmental entities that are specialized in providing one or a few services over time has increased (Mitchell, 1992). A few states (e.g., Florida) limit the creation of special districts as an alternative service delivery mechanism, while others (e.g., Virginia) do not use special districts nearly as much as others (e.g., Illinois and Texas). Regardless, the increased presence of special districts across the nation can be considered part of a shift in the institutional means of delivering public services in the past several decades (Burns, 1994; Miranda & Lerner, 1995).

Whether the creation of numerous special districts will improve allocative efficiency is a critical issue within the public choice literature (Mullin, 2008; Ostrom, et al., 1961; Tullock, 1969). Many scholars have examined how the presence of numerous special districts affects state or local fiscal outcomes in the U.S. (Berry, 2008; Boyne, 1992; Hendrick et al., 2011; Jimenez & Hendrick, 2010; Shi & Hendrick, 2020). Most studies find that an increase in special districts leads to a larger government size in terms of debt, own–source revenues, and expenditure levels (Berry, 2008; Campbell, 2004; Dolan, 1990; Eberts & Gronberg, 1988; Goodman, 2015; Hendrick et al., 2011; Jimenez & Hendrick, 2010; Zax, 1989).

One explanation offered by Berry (2008) presumes that the tax base is a common–pool resource, where numerous special districts exploit a common tax base shared with general–purpose governments. Without a centralized authority managing the overall tax effort, multiple special districts and local governments vie for tax revenues, and no single entity considers the impact of their own tax effort on the other entities, resulting in an over–spending issue within the same fiscal pool. Along with Berry (2008), scholars also argue that Tiebout–style competition does not exist among special districts, because homeowners are unlikely to move to a different location in search of a particular type of public service (Hendrick et al., 2011; Jimenez, 2016). Among these studies, the number of special districts is considered an institutional tool that may affect fiscal outcomes measured either by expenditures or debt levels.

On the other hand, Burns (1994) builds upon the Tiebout model to create a political economy explanation for the formation of new local governments, especially for special districts. In Burns's model, interest groups seek to create local governments to get access to power to meet their objectives. Citizens want additional special districts to satisfy their service demands when general–purpose governments are unable to provide them (Shi, 2017). Real estate developers want to provide infrastructure investment to increase property values and access to the powers of new governments, which can be achieved through the formation of special districts (Burns, 1994). When general–purpose governments are constrained by state regulations and fiscal policies, special districts are created to act as a fiscal tool for providing services and increasing fiscal flexibility (Bowler & Donovan, 2004; Burns, 1994; Shi, 2017).

Burns's (1994) theoretical framework on special districts has directed scholars to examine how the local autonomy of general–purpose governments influence the creation and growth of special districts (Carr, 2006; Feiock & Carr, 2001; Foster, 1997; McCabe, 1997). Among these empirical studies, most scholars investigate the link between fiscal rules and special district formation using regression analysis. One example of fiscal rules is tax and expenditure limitations (TELs), which were imposed by state governments to restrict excessive local government expansion and reliance on budget deficits. The theoretical model implies that municipalities or counties create special districts to circumvent the TELs and shift some fiscal and service burdens (Bowler & Donovan, 2004; Goodman & Leland, 2019). Empirical studies provide mixed results. While some studies find that the stringency of TELs leads to the growth of special districts (Bowler & Donovan, 2004; Carr, 2006; MacManus, 1981; McCabe, 2000; Nelson, 1990), other studies fail to find evidence to support such a relationship (Berry, 2009;; Goodman, 2018; Heikkila & Ely, 2003; Lewis, 2000; Shi, 2018).

Although prior empirical studies have no conclusive findings, they still highlight certain relationships between fiscal limits and the formation of special districts. A few studies examined local government autonomy and its influence on the spending levels of special districts (Goodman, 2018; Mehay, 1984; Shi, 2018). Mehay (1984) argued that the spending levels of special districts in California depend on the level of political autonomy. Goodman (2018) tested whether local fiscal autonomy influences the spending level of special districts across the U.S. using conventional regression methods. His findings show that fiscal institutions, such as tax and expenditure limitations, limits on debt issuance, and functional autonomy for both municipalities and counties have little or no effect on the spending share. In contrast, Shi (2018) used a negative binominal model and found that states with more restrictive TELs imposed on local general–purpose governments lead special districts to have greater total expenditures and higher current operational expenditures. Also, governments with home rule authority are likely to rely less on the fiscal capacities of special districts (Shi, 2018). These studies provided some interesting findings of special district expenditure levels, but they did not explore these financial features based on their service functions.

A limited number of studies have investigated special district finance across certain service function types (Foster, 1997; Mehay, 1984; Mullin, 2005). Mehay's (1984) study demonstrated that both fire protection and parks and recreation special districts tend to spend less when board members are elected directly through local ballots than when the members are appointed by the general–purpose government leadership. Mullin (2005) found that water special districts in California levy higher user fees, as measured in constant, 2000 dollars for a single–family residence, than cities and counties in areas where the service is extended. Mullin (2005) examined user fees as revenue sources for special districts and found that these fees do not reflect how important this revenue source is to the different types of districts in relation to other revenue sources. Foster (1997) examined spending levels of special districts for 15 service functions based on the service classification from the Bureau of Census. Foster (1997) found several patterns of expenditure reliance (e.g., spending of special districts over total local governments for a service function) by service function, which measures the relative spending size of special districts. Foster (1997) found that service functions with high district

reliance include transit, port, and airport services, whereas services with low reliance include highway, parking, and sanitation. However, as she focused on spending at the MSA level in 1987, her analysis does not provide detailed patterns of district spending over years at the lower levels of government.

Methodology

Data Source

Because state and local governments rarely collect data on special districts over a long time period, only the U.S. Bureau of Census provides the most accessible and necessary data to conduct the analysis. Every five years, the Bureau of Census conducts a comprehensive government unit survey to collect information on the location and types of local governments and offices. More importantly, this survey covers all local government types including special districts across the nation and includes the number of active governments by type, by state and county, and by numerical data for each type of special district. Thus, data from this source were collected for the time period from 1972 to 2012 at five–year intervals to classify service function codes and to collect financial data of special districts.

Approaches to Identify Special District Service Types

After identifying the primary data source for the various special districts, we use two approaches to categorize the individual service types for each special district. The Bureau of the Census gives each special district a unique function code. These codes are a set of nominal indicators of service functions which includes 34 single functions and 4 mixed functions (function code descriptions appear in U.S. Census Bureau, 2006, p. 31). We start with this function code–based approach. Table 1 provides a summary of service types provided by special districts and their corresponding functions. As illustrated in Table 1, a district with a function code of 40 represents hospital services, and the function code of 50 represents housing and community development services in the special district data provided by the Census.

We also employ an expenditure–based approach to complement the function code–based approach. This is used to identify a special district's service function by its expenditure values (U.S. Census Bureau, 2006). In this approach, expenditure items for special districts with numerical values above zero indicate the services associated with public spending, whereas activities with zero (or unfiled) spending mean no services were provided. When we used this expenditure–based approach, we find that each nonzero expenditure matches with activity codes that represent the types of services a government agency provides (U.S. Census Bureau, 2006).

A combination of these approaches can increase the accuracy of the study and ensure its reliability. The expenditure–based approach identifies financing and business–related services from the function code–based approach. The service types that are only available with certain function codes (e.g., industrial development, mortgage credit) do not provide actual service as they exist for taxing purposes. On the other hand, the function code–based approach may exclude some indirect cost items, such as staffing, legislative, and legal services from the expenditure–based approach, which are not service functions but administrative activities. Applying both approaches reveals that there are 22 single service functions providing actual services to citizens (see Table 1).

We select four service functions for which general–purpose governments rely upon special districts the most to investigate the financial aspects of these districts based on expenditure

Table 1. An Overview of Service Functions Provided by Special Districts, 1972–2012

Function Code	Service Function	Expenditure Reliance (%)	Primary Revenue Source
01	Air transportation	14.77	User fees
03	Miscellaneous commercial activities	12.06	User fees
04	Corrections	0.13	Intergovernmental Revenue (IGR)
24	Local fire protection	11.94	Property tax
32	Health	5.08	Property tax
40	Hospitals	28.39	User fees
44	Regular highways	0.93	Property tax
45	Toll highways	21.98	User fees
50	Housing and community development	55.43	IGR
52	Libraries	14.98	Property tax
59	Natural resources	34.22	Property tax
60	Parking facilities	2.35	User fees
61	Parks and recreation	4.55	Property tax
62	Police protection	> 0.01	IGR
77	Public welfare institutions	8.94	User fees
79	Other public welfare	0.76	User fees
80	Sewerage	8.35	User fees
81	Solid waste management	3.38	User fees
87	Sea and inland port facilities	42.34	User fees
91	Water supply utility	14.21	User fees
92	Electric power utility	8.40	User fees
93	Gas supply utility	7.40	User fees
94	Public mass transit utility	6.78	IGR

reliance (Table 1). These functions include hospital (HOSP), housing and community development (HOUS), natural resources (RES), and sea and inland port facilities (PORT).

Unit of Analysis—County

We use the county as the unit of analysis to investigate financial reliance that highlights the relationship among different local government types. A review of special district studies indicates that scholars have chosen state (Berry, 2008; Bowler & Donovan, 2004; Carr, 2006; McCabe, 2000; Shi, 2018), metropolitan statistical area (Foster, 1997), or county (Goodman, 2018) as the unit of analysis. Since this study focuses on specific services, using states means that some units have only a few special districts of a particular service function, and may cause these units to be overrepresented in the empirical findings. Using metropolitan areas as units, though they are composed of multiple counties, fails to include less populated municipalities. Most special districts serve either the subcounty level or the county level (Carr, 2006). The county–level analysis can help us capture special districts across multiple municipalities within a county, as well as account for boundary changes over time. This study includes 3,109 counties for each of nine yearly observations taken at five–year intervals from 1972 to 2012.

Variables

We developed several variables for each service function to measure the general concept of finance reliance. The first variable is expenditure reliance, which refers to the degree to which general–purpose governments rely on the spending from special districts for a given service function, or the extent to which special districts contribute to the delivery of local public services. It is measured as the share of special district spending over the countywide total expenditure for each service function (Foster, 1997).

The second set of variables reflects financing modes, and is used to explore special districts' revenue structure. We measure financing mode as the proportion of each type of individual revenue source over the total revenue of all special districts, which is a measure to understand relative size of each revenue source rather than an absolute dollar measure. Each revenue source from all special districts in a county with a given service function is aggregated at the county level and then divided by the total revenues of the districts. Local revenue sources reflect local governments' choices in service provision. Although the local property tax has been the most important revenue source for a long time, most state and local governments impose institutional and fiscal restrictions (e.g., tax and expenditure limitations), thus districts' reliance on the property tax may indicate that special districts provide services that affect the local economy and welfare (Berry, 2008). Also, increased reliance on user fees among state and local governments may suggest more privatization of public services by shifting the cost of those services to the actual beneficiaries (Mullin, 2005).

We find that primary revenue sources for special districts include the property tax; intergovernmental revenue as a sum of transfers from federal, state, and other local governments; user fees; and all others, such as local sales tax and income tax (Bartle, et al., 2011). Nevertheless, few previous studies have investigated revenue sources for each special district service type. Each major revenue source indicates different aspects of the local specialized services. Reliance on user fees indicates that a service function from special districts operates like enterprise districts that provide specific benefits to their customers. Intergovernmental revenue indicates that several general–purpose governments subsidize public goods and services that might have been provided by the state and federal governments for the broader area. Lastly, reliance on the property tax may represent the services' spillover effects that are potentially capitalized into local properties.

Two additional variables are included in the analyses to investigate the growth and decline of special districts along with the expenditure reliance on special districts and the revenue structure composed of the four financing modes. These two variables—the number of special districts (accounting for counts of distinctive special districts' Federal Information Processing System (FIPS) codes at the county level) and the Hirschman-Herfindahl Index (HHI)—are used to demonstrate the extent of revenue source diversification (Carroll, 2009). The HHI is calculated as:

$$HHI = \frac{1 - \sum_{i=1}^{4} R_i^2}{0.75}$$

where *i* indexes four different revenue sources (property tax, intergovernmental revenue, user fees, and all others), and *R* refers to the percentage share of a revenue type from the total amount of revenue. A HHI value closer to zero is indicative of greater revenue source concentration, while a value closer to one indicates greater revenue source diversification. These two variables are also measured for different service functions every five years from 1972 to 2012.

Analytical Method for Temporal Trends and Geographical Patterns

We use temporal trends and geographical patterns independently to present our findings. Our mixed use of descriptive analyses derives from each method's shortcomings. Since the trend analysis averages the financial variables, it is hard to know whether a trend represents some characteristics of overall counties and whether there are any regional and local patterns. Mapping may address this issue by visualizing patterns for each county, which may be limited to exhibit dynamic longitudinal changes of the financial variables.

We use six variables to describe the temporal trends of special districts at the county–level from 1972 to 2012. Table 2 provides the temporal trends of the average number of special

Table 2. Temporal Trends of Special District Numbers and Finances

Hospital (HOSP)									
Years	1972	1977	1982	1987	1992	1997	2002	2007	2012
No. of districts	658	717	817	771	733	762	711	671	647
Expenditure Reliance (%)	20.70	24.16	27.51	29.94	31.02	33.72	36.62	41.14	41.61
Prop. Tax (%)	9.55	8.03	7.59	9.42	6.88	12.53	13.29	16.20	15.08
IGR (%)	4.48	3.52	3.79	2.81	3.15	5.23	6.43	6.06	7.14
User fees (%)	85.95	88.44	88.62	87.65	89.92	82.05	79.89	77.06	77.04
HHI	31.32	26.37	25.98	27.81	23.28	38.52	42.54	47.01	47.32
Housing and Community Development (HOUS)									
Years	1972	1977	1982	1987	1992	1997	2002	2007	2012
No. of districts	2,271	2,412	3,265	3,447	3,452	3,469	3,399	3,391	3,384
Expenditure Reliance (%)	74.23	66.86	55.69	53.76	54.07	52.14	52.65	51.21	51.73
Prop. Tax (%)	0.33	1.14	0.91	1.03	0.59	0.63	0.68	0.84	0.91
IGR (%)	37.74	40.38	43.25	39.81	50.22	50.86	60.15	60.83	61.28
User fees (%)	62.00	58.48	55.84	59.16	49.13	48.46	39.08	38.22	37.59
HHI	59.13	61.94	62.61	61.42	63.32	63.32	60.78	60.55	60.40
Natural Resources (RES)									
Years	1972	1977	1982	1987	1992	1997	2002	2007	2012
No. of districts	134	179	157	153	192	210	218	336	416
Expenditure Reliance (%)	21.72	29.33	34.48	29.61	33.82	40.85	44.20	44.69	45.58
Prop. Tax (%)	57.79	48.49	44.92	56.11	29.66	37.04	41.76	36.03	39.48
IGR (%)	4.51	19.11	18.61	8.81	6.10	13.20	19.03	27.02	22.19
User fees (%)	34.79	32.40	36.47	35.09	62.84	42.44	31.94	34.08	33.99
HHI	67.94	77.94	78.82	69.32	64.21	83.26	85.96	85.18	84.90
Sea and Inland Port Facility									
Years	1972	1977	1982	1987	1992	1997	2002	2007	2012
No. of districts	162	166	163	166	135	138	139	142	133
Exp Reliance (%)	44.57	46.15	51.15	42.77	42.16	37.66	41.53	40.74	41.52
Prop. Tax (%)	44.40	36.95	29.37	28.46	23.04	26.42	20.61	18.21	19.89
IGR (%)	6.73	9.47	12.83	8.14	9.08	13.30	16.22	14.42	18.58
User fees (%)	48.50	53.58	57.80	63.21	67.83	60.18	61.93	65.45	60.74
HHI	70.44	70.91	70.48	64.19	59.89	68.88	68.54	64.71	69.67

districts, the national average of expenditure reliance, three major financing modes based on their mean values, and the HHI value of the financing modes for each function and each of the nine observation years. Function–specific findings will be discussed in the following section.

Maps are used to show geographical patterns of expenditure reliance and financing mode variables for the four service functions. The Topologically Integrated Geographic Encoding and Referencing (TIGER) of Census delineates county boundaries and is used to describe geographical patterns of these variables. Individual counties are identified based on Federal Information Processing System (FIPS) code. The FIPS code is a unique identifier used by the Bureau of the Census and is granted to individual local governments, including both general–purpose governments and special districts. Whereas the Census data are coded in FIPS, TIGER identifies counties by Geographic Entity Codes (GEOIDs). We convert FIPS codes for each county and special district into GEOID to map the variables at the county level. The reliance variables in 2012 are used to describe the most recent patterns of these reliance variables.

Findings

Special districts provide many unique types of services to residents, as shown by Table 1. The service functions with very low expenditure reliance on special districts include corrections, regular highways, and other public welfare, which are provided by general–purpose governments. Among the primary revenue sources used for these 22 service functions, user fees are the most important revenue source for most of these special districts, including air transportation, miscellaneous commercial activities, hospitals, toll highways, parking facilities, public welfare institutions, sewerage, solid waste management, as well as sea and inland port facilities. Services relying on the property tax include fire protection and parks and recreation, and are known to have high spillovers to users and properties. The following sections will explain the detailed patterns of the four selected service functions.

Hospital (HOSP)

Table 2 reveals that the average number of hospital special districts rose to a peak of 817 in 1982, and then decreased in the following decades. This decline in the number of hospital special districts may indicate either potential consolidations of proximate districts or the disenfranchisement of less competitive districts. Although the average number of hospital special districts has fluctuated over time, general–purpose governments' expenditure reliance on hospital districts has doubled from 20.07% in 1972 to 41.61% in 2012. The expenditure reliance of general–purpose governments on hospital special districts is so significant that it may imply a possible transfer from internal services to external agencies.

The HOSP districts have historically relied upon user fees as the primary revenue source, decreasing only slightly from just over 80% in the 1970s, 1980s, and 1990s, to about 77% in the 2000s. The small difference appears to be generally made up by an increased reliance upon property tax revenues. The values of HHI reflect the diversification in revenue reliance of special districts by showing that hospital special districts have diversified their revenue sources. The HHI of the HOSP function has remained around 25% until the early 1990s and then sharply increased, hitting 47%. In accordance with shares of individual financing modes, the funding sources have deconcentrated, and most of the dispersion derives from the decreased reliance on user fees, which remains the primary financing mode for HOSP districts.

Figure 1 provides geographical patterns of financial variables in the year 2012. The top map of expenditure reliance shows that approximately a third of U.S. counties have at least one HOSP district, and these counties' expenditure reliance on HOSP districts maintain over 68%. Those counties that incorporated HOSP districts for 40 years or more constitute most of the counties that heavily relied on special districts in 2012. Roughly two thirds of entire counties do not provide hospital services through special districts. Those may have provided the service in alternative ways, such as internal provision from general–purpose governments, or nonprofit and for–profit organizations, or potentially merged with other types of districts to provide diverse service provision (Horwitz & Nichols, 2009). The bottom map of the financing mode shows that HOSP special districts are primarily funded by user fees. In comparison to the expenditure reliance map, HOSP districts that general–purpose governments rely upon heavily are primarily funded by user fees, whereas a few districts that provide lower levels of hospital services tend to rely on other revenue sources.

Housing and Community Development (HOUS)

HOUS special districts show a trajectory that is like that of the HOSP function. The number of HOUS districts rose to a peak in 1987 and then marginally decreased afterward. However, unlike the HOSP districts, general–purpose governments' expenditure reliance on HOUS districts decreased from over 74% in 1972 to about 52% in the 1990s and 2000s. This decline in expenditure reliance indicates that general–purpose governments also insource housing services.

Figure 1. Geographical Pattern of Reliance Variables for Hospital Special Districts (2012)
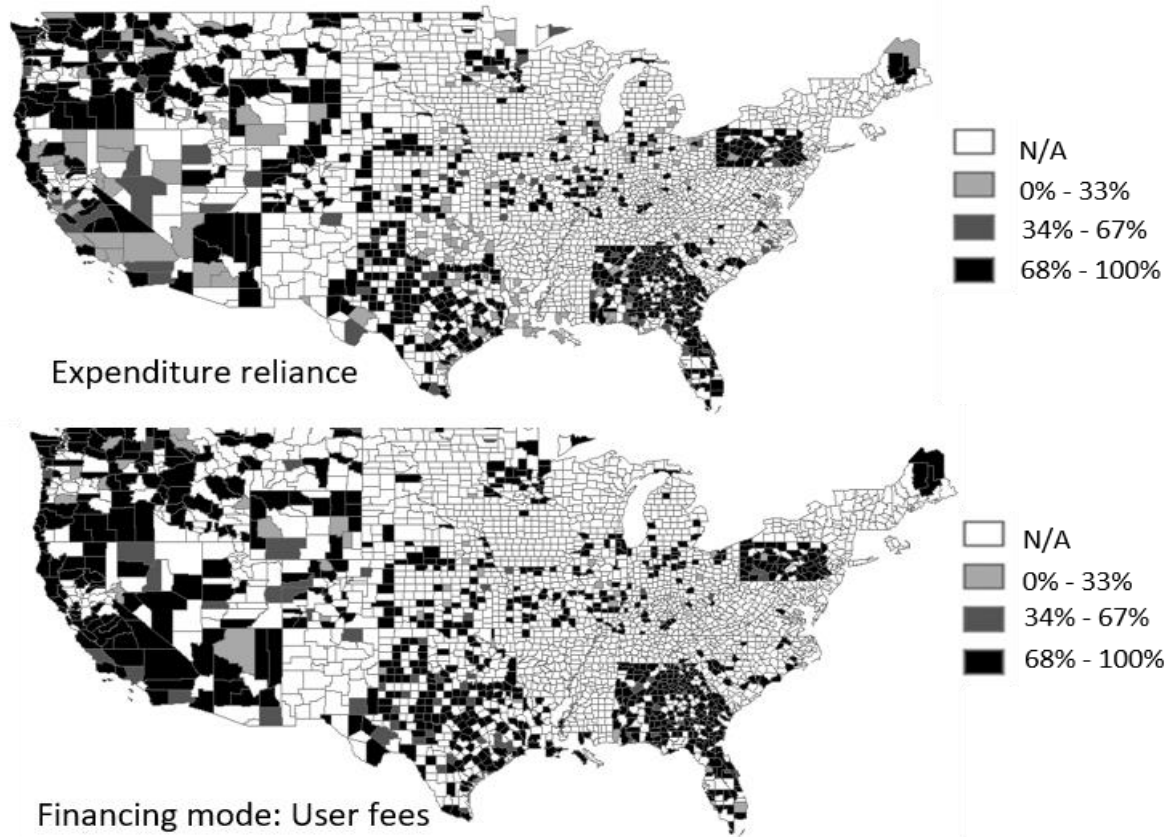

The value of HHI has changed only a little over time, showing that HOUS special districts replaced user fees with funds from other governmental entities. Their reliance on intergovernmental revenues increased steadily over time, from about 40% in the 1970s to over 50% in the 1990s and then to 60% in the 2000s. These trends indicate that housing services from the special district are no longer exclusively provided as a benefit good for those who pay for the service, but increasingly serve as the administrative arm for different levels of governments to provide collective services.

We do not find a unique geographical pattern of the financing mode for HOUS districts as they tend to operate similarly across the nation and have no correspondence between the financial variables. They provide substantial housing services on behalf of general–purpose governments, and are usually funded by intergovernmental revenue. Figure 2 maps the expenditure reliance variables of HOUS districts and their financing modes in 2012. More than half of the counties have established HOUS special districts, and their expenditure reliance ranges from 34% to 67%. This number corresponds to the national average of 51% illustrated in Table 2. From the financing modes map of 2012, the HOUS districts' reliance on intergovernmental revenues tend to be above 34%.

Natural Resource (RES)

Table 2 illustrates how the number of RES districts and general–purpose governments' expenditure reliance on this type of special district have continuously increased over time. This reveals the growing importance of RES special districts at the county level and indicates that these special districts have become increasingly responsible for the provision of services in lieu of the corresponding municipalities. Such increases in expenditure reliance look like that of hospital service, but the trend in the number of special districts differs.

Figure 2. Geographical Pattern of Reliance Variables for Housing and Community Development Special Districts (2012)
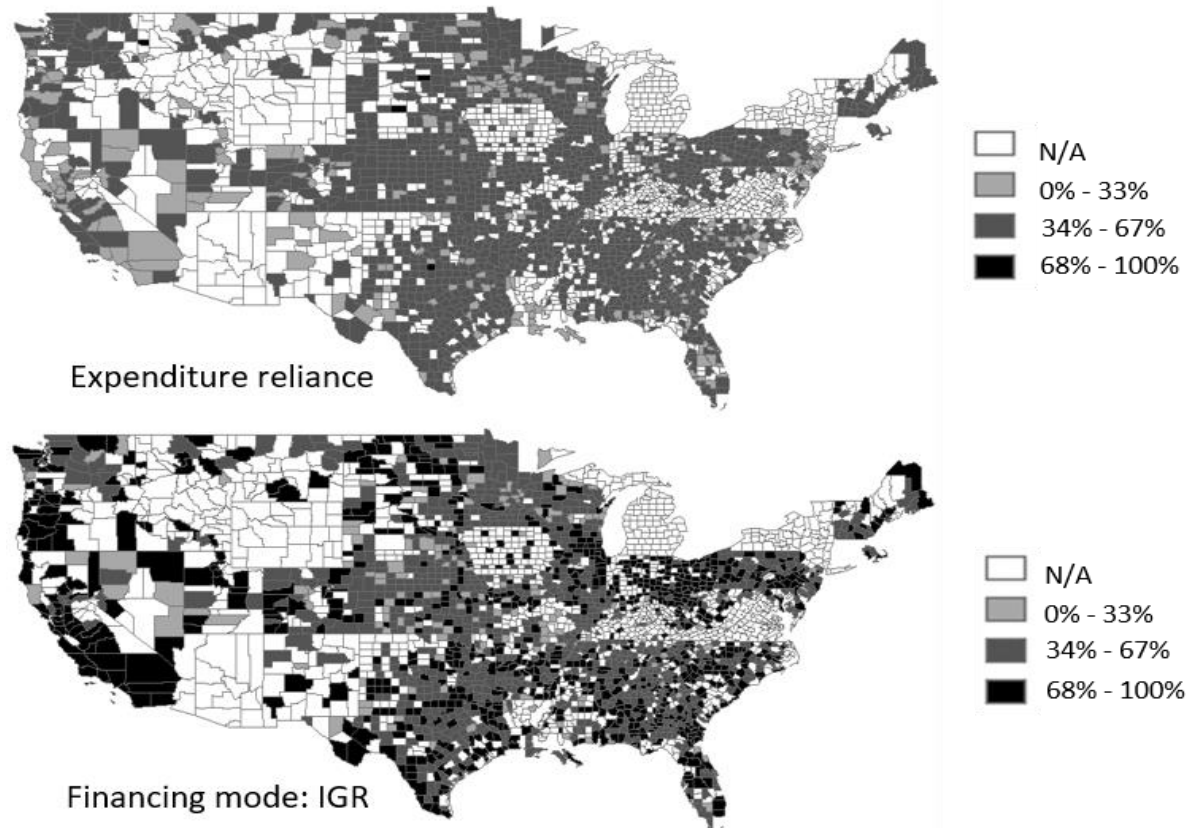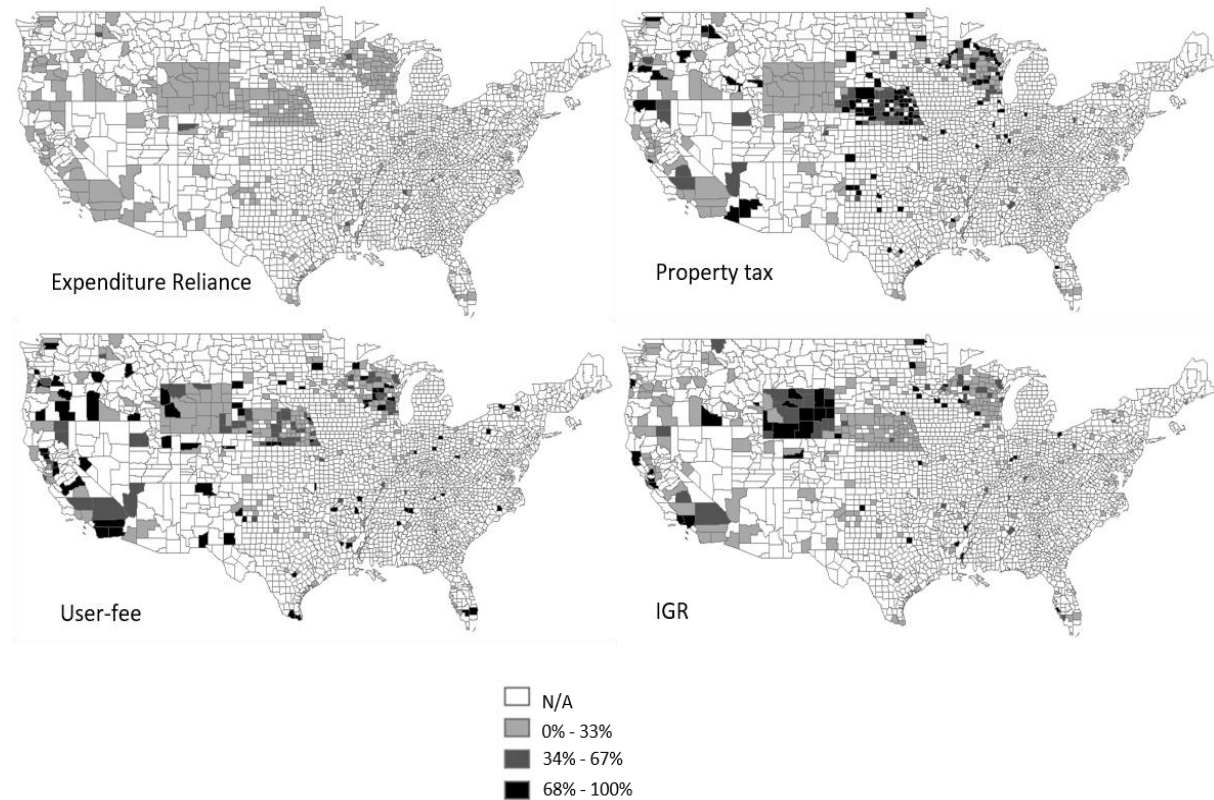

We find that RES districts have diversified their revenue structure. More than half of the total revenue of RES districts relied on the property tax in the 1970s, with the remainder funded primarily by user fees. While the average percentage share of user fees remained at approximately 37% over the past four decades, revenue reliance on the property tax decreased gradually as it was being displaced by intergovernmental transfers. Therefore, as the HHI indicates, a relatively greater variety of financing modes exist across RES special districts.

Figure 3 shows the geographic patterns of expenditure reliance and financing modes for RES districts, of which geographic details were not identified in the average values from the trends. Most counties with these districts are concentrated in a few states, such as Nebraska and Wyoming. In the map of expenditure reliance, almost all counties have less than 33% reliance on the management and preservation of RES special districts. A few counties with higher expenditure reliance on special districts have much higher district spending than the rest, as the average expenditure reliance is approximately 45% (Table 2). From the maps of financing modes, no single revenue source is a dominant source for RES districts. Rather, weak statewide patterns for intergovernmental transfer and the property tax are identified.

Sea and Inland Port Facility (PORT)

Table 2 illustrates how the number of PORT districts declined after 1987, but the expenditure reliance remained steady at around 40%. These trends may indicate that neither general–purpose governments nor special districts stopped providing the port facility service in some counties, whereas the municipalities in the rest of counties with the service rarely changed their relative spending on this service area. The two major revenue sources of PORT districts are the property tax and user fees, but the percentage share of the property tax appears to have been displaced by intergovernmental revenues over the past several decades. The HHI of PORT districts remained around 70% except for a temporary decline in 1992.

Figure 3. Geographical Pattern of Reliance Variables for Natural Resource Special Districts (2012)


Sea and Inland Port Facility (PORT)

Table 2 illustrates how the number of PORT districts declined after 1987, but the expenditure reliance remained steady at around 40%. These trends may indicate that neither general–purpose governments nor special districts stopped providing the port facility service in some counties, whereas the municipalities in the rest of counties with the service rarely changed their relative spending on this service area. The two major revenue sources of PORT districts are the property tax and user fees, but the percentage share of the property tax appears to have been displaced by intergovernmental revenues over the past several decades. The HHI of PORT districts remained around 70% except for a temporary decline in 1992.

According to the map of expenditure reliance in Figure 4, the location of port facility districts is constrained to nearby major rivers, lakes, and coastal areas. Most local governments within these areas relied port facility service on special districts up to 68% in 2012. The map of financing mode in Figure 4 shows that the port facility districts mostly relied on user fees in 2012, but there are no locational differences. Some counties in the Pacific area relied on other revenue sources.

Discussion

The descriptive findings of the four service functions provide some evidence of special district finance that are correlated with their service types. First, among four service functions, some general patterns are identified. Our examination of expenditure reliance reveals that special districts have provided a substantial number of specialized services, displacing general–purpose governments of about 50% of the service. When examining finance modes, we find that user fees are a popular source of funding, but intergovernmental revenues have become

Figure 4. Geographical Pattern of Reliance Variables for Sea and Inland Port Facility Special Districts (2012)

Expenditure reliance

Financing mode: User fees
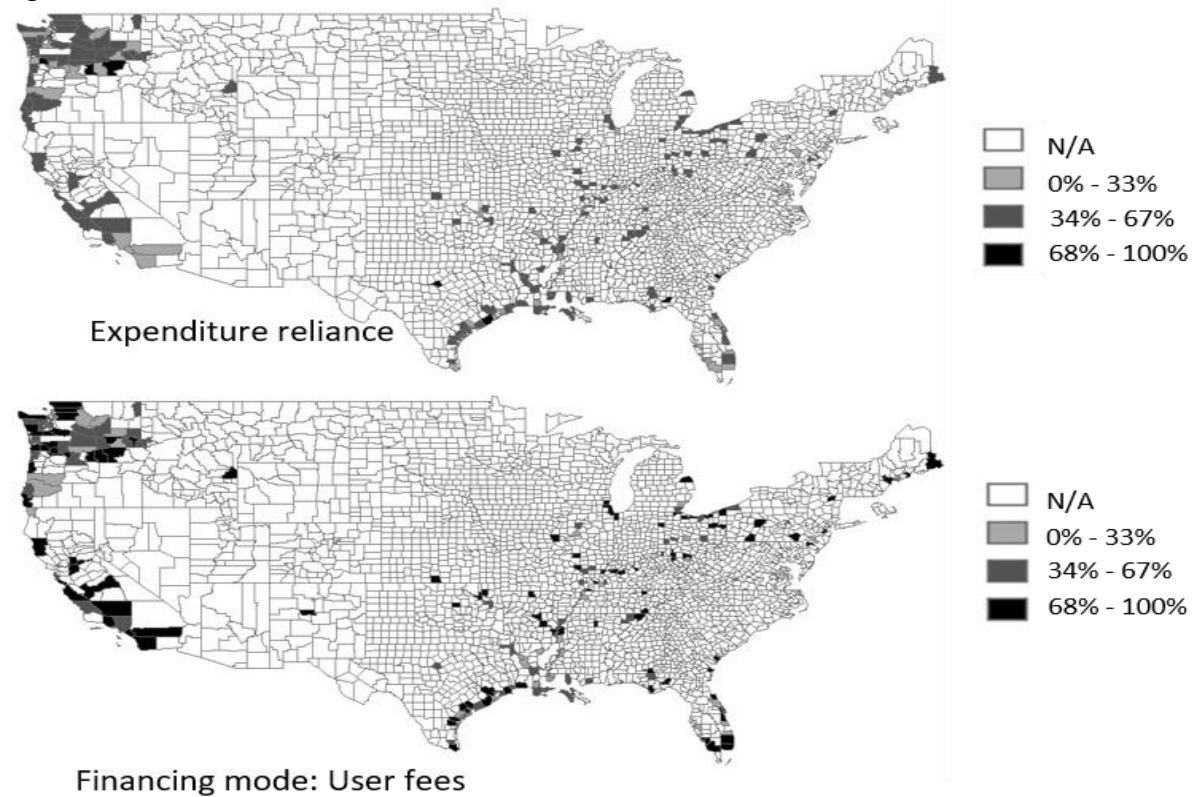
an increasingly important share of revenue source for three of the four service functions examined over this time period. The intergovernmental revenues source has displaced the revenue shares previously provided by property taxes and user fees, indicating that special districts increasingly provide less localized services.

Relatedly, the greater the extent to which general–purpose governments rely on special districts, the more diversified revenue sources are sought. Those services that are primarily funded through user fees (HOSP and PORT), which reflect revenues that more closely connected to the actual beneficiary of the service provision, tend to be substantially relied upon by special districts. The temporal trends demonstrate that, on average, HOSP and RES districts across the nation sought to diversify their revenue sources, while HOUS and PORT simply displaced the primary financing modes.

Second, connections among service characteristics, expenditure reliance, and financing modes are identified. As some studies categorize types of special districts by their functions' purposes, we find evidence to support the argument that analyzing financial aspects of special districts should focus on the unique characteristics (or nature) of each type of service (Bauroth, 2007; Foster, 1997). Some services readily distinguish beneficiaries and payers of the service. For the HOSP and PORT districts, greater allocative efficiency is expected through the provision of specialized public services based on user fees because this revenue source prevents overproducing a public good by excluding those who do not pay for the cost of service (Bland, 2013).

This finding implies that services of which provision methods can particularize the users is more efficient when provided by special districts, because the same services from the general–purpose governments are hard to separate but are provided as a set of services in general. However, the decreasing share of user fees for HOSP and PORT districts needs future

investigation on whether high expenditure reliance results from intensive cutbacks in general–purpose governments' spending for the service while districts' spending levels are constant, or simply the consequence of mergers among existing districts as indicated by the decreasing number of districts in Table 1.

The primary revenue sources may reflect the characteristics of each service function. For example, as hospital and port facility services generally connect those who benefit and pay for the services, it would be expected that they primarily rely on user fees as a revenue source. Natural resource and housing services, however, are relatively closer to public goods, and it would be expected that these special districts rely less on user fees and more heavily on property tax and sales tax revenues with less of an explicit link between the benefits and costs of service provision (Peterson, 1981).

Third, some services are specific to certain circumstances and location like PORT at the waterfront and RES close to where the natural resources exist (e.g., site specificity and physical specificity by Williamson, 1983). As the actual locations with service demands are much narrower, general–purpose governments must bear the cost-of-service provision throughout their entire jurisdictions though the vast majority of areas do not demand the service. The general–purpose governments may want to transfer costly services elsewhere if the service can be provided in the targeted area. It is less costly to incorporate a government that is specialized in a few service functions in a limited area. Accordingly, general–purpose governments rely on special districts to avoid inefficiency.

In our sample of selective service functions with high expenditure reliance, services related to urban development (HOUS), natural resource management (RES), and port facility operation (PORT) are constrained by the presence and availability of resources as well as services needed. These functions have less or little reliance on the property tax over time and greater variations in primary financing modes (see temporal trends in Table 2). In contrast, although Table 1 offers incomplete information to reveal the actual variation of reliance variable, service functions that are not affected by circumstances have a relatively lower reliance on special districts and tend to be financed by the property tax (e.g., fire protection, health, regular highway, and library).

Fourth, the distinct patterns of financial reliance variables provide evidence that differs from the extant theories of special district studies. For example, special districts have become a popular mode of local service delivery for certain types of service functions ever since the Tax Revolt Era in the late 1970s (Bollens, 1997; Honadle, 2012; MacManus, 1981). Our analysis shows that the number of housing and natural resource special districts has increased over time, while the number of hospital and port facility districts has decreased. More importantly, the extent to which the general–purpose governments' reliance on special districts differs depending on district service types. If the proliferation of special districts is considered by scholars as a strategic response of municipalities against state and local fiscal limits, there should be clear homogenous patterns in these financial variables within state borders. Instead, we find nonsystemic patterns of financial variables that vary by service function at the regional and local levels.

Conclusion

Our study examines several temporal trends in special district revenue and expenditure patterns. It investigates geographical patterns of special district finance for four types of services to demonstrate how diverse patterns of spending and funding sources have evolved over time. By focusing on individual service functions, both temporal trends and geographical patterns of our financial variables are different. Though not all service functions are investigated, this study demonstrates that the popular use of user fees associated with low

spillover and highly exclusive services tends to provide more public services on behalf of general–purpose governments.

This study is both exploratory and descriptive, with the purpose of enhancing a fundamental understanding of special district finance. Based on the trends and patterns of financial variables, we suggest some potential determinants of district finance, such as specific service demand and environmental circumstances associated with availability of services, and service characteristics, while we exclude state governments and institutions alike, they are important factors in special district creation.

This study has some limitations. In the analyses of special district finances, this study excludes multifunction special districts. For example, based on the nonzero expenditure approach, nearly 40% of the entire PORT districts are provided by multipurpose districts. It is therefore possible to decompose expenditure reliance information by service function using the activity code, but there is no approach to separate which revenue source is allocated for each function in the multipurpose districts. Further, this study excluded merged special districts with different service functions over time, for similar concerns. Although having the county as the unit of analysis effectively mitigated dynamic boundary changes of special districts at the subcounty level, this study equated the merged districts as dissolved cases.

Some future inferential research can be done based on the findings of the study. First, expenditure reliance and financing mode may illustrate a relationship between overlapping governments. Special districts help general–purpose governments to fulfill diverse service demands, but they compete for the same tax bases (Brien, 2017). As argued by Foster (1997), special districts provide services that general–purpose governments had not provided previously, or stopped providing at some point in time. This relationship, especially when examined by service function, can be tested using expenditure reliance on special districts (e.g., substitutive, or complementary relationship) and shared financing modes between two government types (e.g., competitive, or collaborative relationship). From this perspective, a special district incorporation can be understood as an outsourced service from general–purpose governments.

Second, specialized services by function can be classified differently. Foster (1997) categorizes special districts by purpose, such as by housekeeping, social welfare, and development areas, but her expenditure reliance within the groups did not exhibit common patterns. Also, when special districts provide public goods for a geographically bounded demand, conventional service characteristics, such as excludability and rivalry, may not thoroughly apply. Though yet generalizable from only four service functions, we still find a patterned relationship between district incorporation and both financing modes and expenditure reliance, and we suggest that revenue sources of special districts may indicate the nature of specialized services more precisely than the existing classification of services. Relatedly, including service characteristics, factors that lead to changes in financing modes and expenditure reliance of special districts need to be analyzed.

Finally, other financial aspects of special districts need to be investigated in future studies. Special district debt is not as frequently studied as special district expenditures in prior empirical analyses. Several studies demonstrate that special districts tend to issue debt more than other government types because of their political and fiscal independence (Shi, 2018). A potential area of future study may center around the fiscal health of special districts. For example, Trussel and Patrick (2013) focus on the fiscal condition of special districts, but their study concentrates on the likelihood of default, whereas the concept of fiscal health widely varies.

Notes

1. In Table 1, the function code is a set of nominal indicators embedded in the population information in the U.S. Government Finance data. Unlike the general–purpose government's population data for the estimated population of the jurisdiction, the population data for a special district corresponds to the service function it provides. Details of the coding are available in the U.S. Bureau of Census (2006) government finance and employment classification manual. Multifunction districts are not included. IGR represents intergovernmental revenues transferred from federal, state, and local governments.
2. In Figures 1–4, "N/A" refers to a county that does not provide the service through special districts.

Disclosure Statement

The authors declare that there are no conflicts of interest that relate to the research, authorship, or publication of this article.

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