# What Lies Beneath These Creatures of the State: Understanding the Death of Specialised Governments in the U.S*

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After analysing 35 years of census data on U.S. local government change, this study finds that the dissolution of special districts (specialised governments) or "exits" in U.S. counties are largely unrelated to demand factors. Using fixed effects regression specified at the all-county and urban county levels, we find that restrictions on the fiscal autonomy of cities are associated with decreases in the special district exit rate. There is also evidence that state grants of "broad" or "limited" functional home rule to cities increase special district dissolutions. These results appear to be driven by highly asset-specific functions. The findings are consistent with the circumvention argument made in the local autonomy literature and may indicate some service consolidation, albeit from a different perspective.

*Keywords*: Special districts, dissolution, local autonomy, boundary change

## INTRODUCTION

The number, size, and form of local governments are everchanging, particularly for special districts. Although somewhat rarer than special district creation, district dissolution does occur. Studying the dynamics of why a government would dissolve poses interesting challenges to the field of public administration and political science surrounding who holds the power to shape future service delivery arrangements. Studying and measuring subnational dynamics also allows scholars and practitioners to understand the values and demand for the decentralisation of local government instead of a more centralised system. Fragmentation, instead of consolidation, has proved to be the most common way to organise governments in a metropolitan area in the United States and is further evidenced by special districts' proliferation. However, this fragmentation and the somewhat temporary nature of special districts can lead to the abandonment of these governments. This research aims to shed light on the dynamics of this interesting phenomenon.

Tiebout (1956) developed one of the earliest theories about why metropolitan areas fragmented based on rational choice theory and residents "voting with their feet." Scholars such as Burns (1994) and Foster (1997) have paved the way in developing theories of local government growth and the creation of special districts based on this seminal work. In addition, several studies have explored their work further by examining both the creation and dissolution of special districts (Bollens 1957; Leigland 1994; Bauroth 2010; Shi 2017; Goodman and Leland 2019; Moldogaziev, Scott, and Greer 2019; Zhang 2019). This study builds upon this body of literature using 35 years of empirical data paired with dissolution or "exit" metrics derived from the industrial organisation's literature (Goodman 2020). Fundamentally, we ask if the dissolution pro-

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cess is merely district creation in reverse–are the same factors important in creating a special district just as important in dissolution?

Special districts that provide critical public services, such as transportation, water management, business development and housing, now constitute over forty per cent of all U.S. jurisdictions (Berman and West 2012; Maynard 2013; Shi 2018). This form of local government is the largest single form of local government in the United States, with just over 38,000 units and growing (Goodman 2019). The numbers have exploded, and this form of local government has grown much larger than any other, doubling in numbers since 1952 (Goodman and Leland 2019; Shi 2018). This is roughly twelve times larger than the number of counties and twice as large as the number of municipalities or towns/townships. Additionally, the growth over time in the number of special districts has been much higher than in other forms of local government. The growth in new special districts has slowed somewhat in recent years (since 2000) but shows little signs of abating. Or is there more to this story of growth? In any given 5-year period between 1977 and 2017, approximately 6 per cent of all special districts in the U.S. and 7 per cent of special districts in urban counties were dissolved, consolidated, or otherwise disappeared on average. This trend is compared against 17 to 20 per cent growth in new special districts, respectively, in any given 5-year period over the same period.[1]

The sizeable historical growth in special districts paired with consistent yet lower levels of dissolution suggest a churn in the market for special districts. The dissolution could reflect economic decline where fewer services are needed (Zhang 2019), especially in rural areas. This means possible changes in the demand for policy solutions or signals a need for reform and consolidation. This potential process suggests several factors that may be relevant in explaining the rate of special district dissolution in a particular area. Demand for services, state rules affecting local autonomy, and boundary change entrepreneurs are likely all influential in understanding if special districts are dissolved.

Previous research on special district dissolution can be organised into two distinct camps. The first closely aligns with the organisational mortality literature (Hannan and Freeman 1977). Individual organisational dissolutions are examined as a process of both internal and external constraints. Younger special districts are more susceptible to dissolution (Bauroth 2010; Moldogaziev, Scott, and Greer 2019). Larger jurisdictions may be able to stave off dissolution (Moldogaziev, Scott, and Greer 2019), as well as those with elected boards (Bauroth 2010). External rules forbidding the dissolution of districts with outstanding debt help to prolong their lives (Moldogaziev, Scott, and Greer 2019). More generally, governments with more resources and greater population density are less susceptible to dissolution (Zhang 2019). The second camp, closely aligned with the following analysis, examines special districts dissolution as a system-level phenomenon with largely external processes, private interests, or the influence of entrepreneurs leading to more or fewer dissolutions in a particular geographic aggregation. What little research exists in this particular literature focuses mainly on local demand, state rules, and the existence of boundary change entrepreneurs as important (Bauroth 2010). In general, all three factors are statistically associated with dissolution but in vastly different ways.

This analysis adds to the literature in several ways. First, a new means of measuring special district dissolution is introduced. Using techniques from the industrial organisations' literature, relative measures of dissolution based on the number of districts "at risk" are used based on Goodman (2020). Second, the long panel nature of the data allows for more robust tests of causal effects than previous cross-sectional literature. Finally, state restrictions on county governments are incorporated. Previous literature has examined the role of state restrictions on cities; however, county governments have been shown to be important in the creation of special districts (Farmer 2010). It is plausible that because counties are often administrative

1. Author's calculation from the U.S. Census of Governments (various years).

arms of the state (Benton 2002), state restrictions on counties are important in the dissolution of special districts.

The analysis proceeds as follows. First, the previous literature and theory about special districts are examined, with special attention paid to dissolution. Next, the data and empirical methodology are explained. Results are presented, and implications for future research are discussed.

# PREVIOUS RESEARCH

## Institutional Context

The most common and nationally representative data on special districts comes from the *Census of Governments*. The U.S. Census Bureau defines a special district as governments that "are independent, special purpose governmental units that exist as separate entities with substantial administrative and fiscal independence from general purpose local governments" (U.S. Census Bureau 2019).[2] Their key characteristics are administrative and fiscal independence. *Fiscal independence* is achieved through the power to determine a budget, levy taxes, charge user fees, or issue debt without a review from another governmental entity. *Administrative independence* is achieved through fiscal independence plus having 1) an independently elected governing body, 2) a governing body representing two or more state or local governments, or 3) an appointed board with functions different from the appointing government. This definition excludes entities when fiscal or administrative independence is violated. Typically, administrative independence is violated through the composition of the governing body. The entity is classified as "dependent" in these cases, and its financial and employment data is added to the sponsoring government's information. Even with this limited definition, the Census of Governments data provide the best and most comprehensive data on special district activities in the United States.

The boundaries of local government are continually revisited and revised (Feiock and Carr 2001). Special districts' territorial flexibility is an important and unique characteristic (Bollens 1957; Olberding 2002; Mullin 2007; Bauroth 2010). Unlike cities or some towns, special districts may take on nearly any shape and may overlap other forms of local government, including other special districts. This allows special districts to take on near-infinite spatial arrangements and reflect reform. Additionally, territorial flexibility allows the collection of special districts serving any area to change rapidly over short distances. Two parcels located next to each other may enjoy vastly different public services at differing costs solely because of their inclusion (or exclusion) from various special districts. Special districts are also often free from many legal restrictions imposed on general-purpose local governments.[3] Special districts can typically be created to cover any land area without consideration of assessed value, population, or territorial size (Bollens 1957). Special district elections are exempt from the one person/one vote requirement (Briffault 1993; Burns 1994).[4] As a result, voting rights can be apportioned based on various factors, with owning property within the district being particularly popular (See Bauroth (2005) for a richer discussion on the uniqueness of special district elections).

2. This definition applies to independent school districts as well, but the Census Bureau accounts for these districts differently as they are more visible in the local community.

3. Cities and towns/townships.

4. *Salyer Land Co v. Tulare Basin Water Storage District*, 410 U.S. 719 (1973) and *Ball v. James*, 451 U.S. 355 (1981).

## Why Do Special Districts Dissolve?

On an individual level, there are several reasons why a special district might dissolve. Moldogaziev, Scott, and Greer (2019) explain that "liabilities" threaten organisations. Prior research on private and non-profit firms suggests newer firms are more susceptible to organisational mortality, also known as the liability of newness. Moldogaziev, Scott, and Greer (2019) find this result for special-purpose water districts, a highly capital-intensive service in Texas. The second liability is the liability of smallness or organisational size. Smaller organisations are more susceptible to organisational mortality because they may face limitations in attracting new customers or gathering the necessary financial resources to stave off eventual dissolution (Hager, Galaskiewicz, and Larson 2004). Initial founding conditions, particularly those that constrain an organisation, can hamper growth and increase the potential for failure (Mellahi and Wilkinson 2004; Moldogaziev, Scott, and Greer 2019). However, if these initial conditions provide for more autonomy, it is plausible that these conditions can provide the flexibility necessary to gather enough resources to stave off failure. Finally, the competitive landscape is seen to be important. As competition rises, the potential for organisational mortality increases as more organisations compete for a relatively constant set of resources (Moldogaziev, Scott, and Greer 2019); however, they find little evidence for this assertion in the realm of water district dissolutions.

At a more systemic level, Bauroth (2010) suggests three primary reasons why special districts might dissolve. First, if there is demand for the public services that are currently being provided, there is less incentive to dissolve a special district. This can be further generalised to all public services. Increased demand for public services can be met by creating new local governments (general or specialised), or the demand can be met by existing governments. This would suggest that a special district that may have been declining could see a resurgence if demand is strong enough, staving off dissolution.

Second, if special districts are a clever means to avoid state-imposed restrictions on general-purpose governments, we should expect the dissolution of special districts to be lower in places with more restrictions. There is a robust debate about whether special districts operate as a circumvention mechanism (see Shi (2017), Goodman (2018), and Goodman and Leland (2019) for more recent analyses); however, if districts work in this manner, there should be less incentive on the part of local politicians to reduce their option to attempt to circumvent these restrictions.[5] All else equal, imposing new state-level restrictions should lower the exit rate.

Finally, the existence of boundary change entrepreneurs may disrupt the dissolution of special districts (both blocking dissolution from the agenda and blocking the formal dissolution). As Schneider, Teske, and Mintrom (1995) explain, the benefits of engaging in public entrepreneurship must outweigh the costs of doing so. If boundary entrepreneurs perceive a significant financial benefit from the continued existence of special districts, they may choose to allocate their resources to support the cause. Feiock and Carr (2001) outline three groups of potential boundary actors: public officials, businesses, and residents/citizens organisations. We focus on businesses as boundary entrepreneurs. These actors often successfully influence local boundary change (see Burns (1994) for an example, albeit framed differently). Businesses (specifically developers and other real estate-associated industries) benefit financially from the continued existence of special districts, both as a service provider (infrastructure) and from what often comes along with special district development, real estate development.

Service-specific characteristics may interact with the three factors discussed above. Highly asset-specific services, those requiring specialised investments that are costly to adapt to other service functions (Brown

5. This may especially be the case for highly asset specific functions (see Park and Park (2021) for an analysis on special district creation). We discuss this further in the next section.

and Potoski 2003), may dissolve at different rates in the face of these three factors. Park and Park (2021) argue that special districts can be a tool to provide highly asset-specific service functions to areas willing to bear the high upfront costs and minimise any potential free riding of non-contributors. This assertion suggests that high asset-specific special districts should dissolve less often in the face of high service demand. Park and Park (2021) also argue that when faced with state fiscal restrictions, general-purpose governments may prefer using special districts for highly asset-specific functions because such districts allow the general-purpose governments to push the high upfront costs off onto an unrestricted (or less restricted) government. This assertion suggests that highly asset-specific special districts will dissolve less often in states with fiscal restrictions on general-purpose local governments.

# DATA SOURCES, VARIABLES, & EMPIRICAL STRATEGY

## Data Sources & Variables

The *Census of Governments* is the largest and most comprehensive database of information on special districts. Conducted every five years in years ending in "2" and "7" by the U.S. Census Bureau, the Census of Governments collects organisational, financial, and employment information on all local governments in the United States. While there are numerous potential issues with the Census of Governments data as it pertains to special districts (see Leigland (1990b), Sacks (1990), and Leigland (1990a)for an overview of this debate), the Census Bureau imposes several constraints on the definition of a special district that allows for comparison across time and space. As mentioned previously, all organisations in the Census of Governments beyond dependent school districts must have administrative and financial independence from other public organisations. This definitional requirement allows an "apples-to-apples" comparison of districts across states that may have vastly different state-specific definitions of a special district. Relatedly, the Census Bureau is transparent about its process of delineating administrative and financial independence (See U.S. Census Bureau (2019) for the most recent iteration of this reporting). The combination of these two factors makes the Census of Governments data attractive for cross-state, time-series analyses, even with the deficiencies in the data.

Following Goodman (2020), the Census *Government Integrated Directory* is the basis for whether a special district has been created or dissolved. The directory is continuously updated and allows for tracking public organisations across time, even if their names change. A special district is registered as "created" the first year it appears in the GID. In actuality, a special district may be created at any point between two Census of Governments, but it is registered at the end of the period. A special district is registered as "dissolved" if it fails to show up in the Census of Governments data for more than one consecutive round of data collection. The Census Bureau make a significant effort to clean the Census of Governments data and eliminate non-response, resulting in a cleaner estimation of exits.

Historically, the literature on special districts has not incorporated the concept of measurement of change and instead relies on count data. Using count data does not necessarily give enough detail about the nature of dissolution's impact on the local government landscape. A single dissolution in a county with numerous special districts may not be very disruptive. In contrast, a single dissolution in a county with only 2 or 3 districts may lead to significantly more disruption. A measure is necessary to enumerate the number of dissolved districts as a function of the total number of districts "at risk" of dissolution at any given time.Goodman (2020) constructs special district creation and dissolution measures based on the indus-

trial organisations' literature on firm entry and exit (Dunne, Roberts, and Samuelson 1988). The following components are derived from the Census of Government data outlined above.

$$\begin{aligned} NX_{it-1} &= \text{number of special districts dissolved in county } i \text{ between census years } t-1 \text{ and } t \\ NT_{it} &= \text{total number of special districts in county } i \text{ between census years } t-1 \text{ and } t \end{aligned}$$

These components are used to make the final measures of exit. They are based on the number of special districts dissolved and total number of districts.

$$XR_{it-1} = \frac{NX_{it-1}}{NT_{it-1}} \tag{1}$$

The exit rate ($XR$) is specified with the total number of special districts in the previous period. This represents the total pool of districts that could potentially exit in the following period. In addition to the overall rate, exiting districts are broken down by asset specificity.[6] Consistent with the theoretical discussion above, we expect high asset-specific special districts to have a lower exit rate in the face of increased service demand. Their high investment costs make their dissolution in the face of continuing demand for services costly. Second, we expect high asset-specific special districts to have a lower exit rate in the face of increased fiscal restrictions on general-purpose governments.

As explained above, three forces potentially lead to special district dissolution or exits: demands for special district services, state institutional arrangements, and boundary change entrepreneurs. Consistent with Goodman and Leland (2019) and Goodman (2018), nine variables form the group of special district demand-related variables (see table 1 for data sources and complete definitions). These include population, per capita personal income, population density, population growth, job per capita, and measures of heterogeneity of age and race. These are all standard variables to measure the demand for local public services. Increases in any of these variables should be associated with increased demand for special district services, lowering the exit rate. The final two variables, the usage of townships and the change in the number of cities, operationalise alternatives to special districts. Townships are a more limited form of local government, often without the full powers of a municipality. Previous research has suggested that special districts can complement townships, filling service delivery gaps created by their more limited powers (Carr 2006; Goodman 2018). As such, the usage of townships should be associated with a lower special district exit rate. Finally, new municipalities may serve as replacements for a collection of special districts, particularly on the urban fringe. If this is correct, an increase in the number of municipalities should be associated with an increase in the exit rate of special districts.

To operationalise the state-level institutions that grant or restrict powers of general-purpose local governments, three variables representing grants (positive or increasing local autonomy or negative, reducing local autonomy) of fiscal or functional autonomy are presented. These data are primarily from the now-defunct Advisory Commission on Intergovernmental Relations (ACIR). The first is negative grants of fiscal autonomy, which are operationalised as potentially binding tax and expenditure limitations (TELs) imposed on cities or counties (Mullins and Wallin 2004). As not all TELs have the potential to alter the behaviour of local government materially, the focus is on only the TELs (or combination of TELs) that potentially bind, altering city or county behaviour relative to special districts. As Mullins and Wallin (2004)

6. District functions are matched to the services enumerated by Brown and Potoski (2003). High asset specificity districts rank greater than 3 in their ranking. For those functions that cannot be matched, the authors have determined whether they are high or low. The matches and rankings are available in appendix A.

Table 1: Data Sources & Variables

| Variable | Source | Definition |
|---|---|---|
| Exit rate | COG | See equation 1. |
| *Institutions* | | |
| Mun. TEL | MW | Potentially binding tax and expenditure limitation imposed on municipalities, 1 if yes. |
| Cnt. TEL | MW | Potentially binding tax and expenditure limitation imposed on counties, 1 if yes. |
| Mun. debt limit | ACIR | Local debt limit as a function of assessed value imposed on municipalities, 1 if yes. |
| Cnt. debt limit | ACIR | Local debt limit as a function of assessed value imposed on counties, 1 if yes. |
| Mun. functional home rule | KRH | A state grants municipalities the power to exercise local self government in a broad or limited manner, 1 if yes. |
| Cnt. functional home rule | KRH | A state grants counties the power to exercise local self government in a broad or limited manner, 1 if yes. |
| *Entrepreneurs* | | |
| Location quotient, NAICS 236 | CBP | See equation 2. |
| Location quotient, NAICS 237 | CBP | See equation 2. |
| Location quotient, NAICS 238 | CBP | See equation 2. |
| Location quotient, NAICS 531 | CBP | See equation 2. |
| *Demand-related variables* | | |
| Personal income, per capita | REIS | Personal income ($1,000s) divided by population. |
| Population (1000s) | REIS | Population estimate. |
| Population density | Census | Population divided by county land area. |
| Jobs, per capita | REIS | Non-farm employment divided by population. |
| Age Index | SEER | A Leik index of age, 17 5-year categories plus age 0 and age 85+. |
| Race Index | SEER | A Leik index of race, 3 categories (white, Black, other). |
| Use of towns | COG | State uses the township form of local government, 1 if yes. |
| Chg. in cities | COG | Difference in the number of cities in a county, $t-1$ to $t$. |

*Notes*: ACIR = Advisory Commission on Intergovernmental Relations (1993); CBP = County Business Patterns, various years; COG = Census of Governments, various years; KRH = Krane, Rigos, and Hill (2001); MW = Mullins and Wallin (2004); REIS = Regional Economic Information System, various years; SEER = Surveillance, Epidemiology, and End Results (SEER) Program, various years. NAICS 236 = Construction of Buildings; NAICS 237 = Heavy and Civil Engineering Construction; NAICS 238 = Specialty Trade Contractors; NAICS 531 = Real Estate.

explain, general revenue or expenditure limits, property tax levy limits, or the combination of any overall or specific limit and an assessment limit are all potentially binding. The data on TELs presented by Mullins and Wallin (2004) is updated to 2017 using the Lincoln Institute for Land Policy's Significant Features of the Property Tax data. The second negative grant of fiscal autonomy is operationalised as state-imposed local debt limits originally sourced from Advisory Commission on Intergovernmental Relations (1993) and heavily updated by Goodman (2018) and Goodman and Leland (2019).[7] A local debt limit is indicated if the state limits city or county bonded debt as a function of assessed value. The final institution is grants of functional autonomy to cities or counties. The presence of functional autonomy for cities or counties is indicated if a state grants local governments the power to exercise local self-government (i.e. choose the services they wish to provide) in a broad or limited manner and is sourced from Krane, Rigos, and Hill (2001). As explained above, the extant literature generally hypothesises that reducing local autonomy is associated with increased creation/usage of special districts as a circumvention mechanism. This may be especially so for highly asset-specific districts. If special district dissolution is special district creation in reverse, these reductions of autonomy should stave off dissolutions as the usefulness of special districts as circumvention mechanisms remain. Therefore, it is hypothesised that reductions of local autonomy[8] be associated with a lower special district exit rate, all else equal.

To operationalise the importance of boundary change entrepreneurs in a county, the location quotient ($LQ$) is used, a common technique in the economic development and regional science literatures to measure a region's industrial specialisation relative to the national economy. It is commonly defined as the ratio of industry employment to total employment in an area divided by the ratio of total industry employment to total employment (Isserman 1977). In this analysis, the LQ is used to measure whether specific industries are more prevalent in a county than the average county in the U.S. Consistent with Burns' (1994) finding that "developers" are often important entrepreneurs in the special district creation process, four 3-digit NAICS industry subsectors[9] are chosen to represent the concentration of such entrepreneurs in a county. They are Construction of Buildings (NAICS 236), Heavy and Civil Engineering Construction (NAICS 237), Specialty Trade Contractors (NAICS 238), and Real Estate (NAICS 531) subsectors. The first three are the components of the NAICS 23 Construction sector. The final subsector comprises those firms/employees engaged in selling or leasing real estate. All four subsectors stand to financially benefit from the existence of special districts, either directly through their employment in infrastructure-related projects or indirectly through the potential increase in real estate values derived from higher infrastructure or service provision. We speculate that the likelihood of boundary change entrepreneurship is higher in counties with an over-representation of these industries. All else equal, it should be associated with a lower rate of special district dissolution.

The location quotient ($LQ$) is defined as follows.

$$LQ_{jk} = \frac{E_{jk}}{E_j} \Big/ \frac{E_k}{E} \tag{2}$$

7. Data available at https://github.com/cbgoodman/localdebtlimits/

8. The imposition of TELs or debt limits or the restriction of functional autonomy.

9. There are two important complications to this method. First is the transition from the Standard Industrial Classification (SIC) system to North American Industry Classification System (NAICS) in 1997 that altered the classifications of industry. Second, small industries in small areas are often not reported for data privacy reasons. I use the method outlined in Eckert et al. (2020) to impute the missing industry data where applicable and to harmonize the pre-1997 County Business Patterns data to NAICS.

Where the $E_{jk}/E_j$ is the ratio of employment in industry subsector $k$ to total employment in county $j$ and $E_k/E$ is the ratio of total employment in industry $k$ to all employment ($E$). A value of $LQ = 1$ indicates the concentration of the industry $k$ in county $j$ is the same as the national concentration (i.e., industry $k$ is no more or less important to the local economy than it is nationally). A value of $LQ > 1$ indicates a higher concentration of industry $k$ in county $j$ relative to national concentration, suggesting that industry $k$ is more important to the local economy than in the national economy. A value of $LQ < 1$ indicates a lower concentration in industry $k$ in county $j$ relative to the national economy.

## Sample Construction

There are two primary samples in this analysis. First, a panel of nearly all counties in the contiguous United States is used. Second, a panel of all metropolitan counties in the United States is used. "Urban" is defined as a county belonging to a primary metropolitan statistical area using OMB's 1999 definition. The panel of all counties consists of 3,048 counties or county-equivalents with an unbalanced panel of 27,309 observations and is inclusive of all seven Census of Governments from 1977 to 2017. The urban counties sample consists of 802 counties with an unbalanced panel of 7,171 observations.

Table 2 provides descriptive statistics for the two samples. Overall, the two samples are reasonably consistent. The mean exit rates for special districts are similar, as are the fiscal and functional autonomy variables. Across all periods from 1977 to 2017, the mean exit rate for all counties is 5.5 per cent and 7.2 per cent for urban counties. Figure 1 demonstrates the mean exit rate for both samples across time. The trend is stable, with a slight downward trend in both samples in recent periods. Interestingly, the exit rates of highly asset-specific districts are larger than those with less asset specificity. On average, 3.6 per cent of highly asset-specific districts exit in any given year compared to 1.2 per cent of less asset-specific districts.

Cities and counties face similar levels of potentially binding TELs (62 and 61 per cent, respectively) and similar limitations on bonded debt (87 and 81 per cent, respectively). Municipalities have more functional home rule than counties. This trend has been well documented (Benton 2002); however, counties have gained autonomy as they modernise (Benton 2005). The average (urban) county has about 15 per cent (20 per cent) higher concentration than the national concentration of construction of buildings trades, 32 per cent (24 per cent) higher concentration in heavy and civil engineering, 6 per cent lower (16 per cent higher) concentration in speciality trades, and 45 per cent (27 per cent) lower concentration in real estate. The urban sample is wealthier, larger in population, denser, and has more jobs per capita than the all counties sample.

## Empirical Strategy

We first estimate a model of the special district exit rate as a function of demands for special district services, state-level institutions, and boundary entrepreneurs, including county and year fixed effects. This is most like Bauroth (2010) on the dissolution side and Goodman and Leland (2019) on the creation side.

$$XR_{it} = \alpha + \beta \boldsymbol{X}_{it} + \delta \boldsymbol{I}_{it} + \gamma \boldsymbol{E}_{it} + \phi_i + \tau_t + \varepsilon_{it} \tag{3}$$

Equation 3 has the exit rate as a function of demands for special district services ($\boldsymbol{X}_{it}$), institutions ($\boldsymbol{I}_{it}$), and the concentration of boundary change entrepreneurs ($\boldsymbol{E}_{it}$). County ($\phi_i$) and time ($\tau_t$) fixed effects are included; therefore, identification comes from within-county changes over time. Counties are compared to each other, and all share a common time effect. Equation 4 introduces MSA-specific time effects ($\tau_{mt}$),

Table 2: Descriptive statistics

| | (1) | | (2) | |
|---|---|---|---|---|
| | All county panel | | Urban county sample | |
| | Mean | St. Dev. | Mean | St. Dev. |
| Exit rate | 0.055 | 0.117 | 0.072 | 0.124 |
| Exit rate, high asset specificity | 0.036 | 0.116 | 0.044 | 0.114 |
| Exit rate, low asset specificity | 0.012 | 0.081 | 0.019 | 0.098 |
| | | | | |
| *Institutions* | | | | |
| Municipal TEL | 0.616 | 0.486 | 0.618 | 0.486 |
| County TEL | 0.609 | 0.488 | 0.612 | 0.487 |
| Municipal debt limit | 0.872 | 0.334 | 0.837 | 0.369 |
| County debt limit | 0.810 | 0.392 | 0.775 | 0.418 |
| Municipal functional home rule | 0.742 | 0.438 | 0.744 | 0.437 |
| County functional home rule | 0.446 | 0.497 | 0.444 | 0.497 |
| | | | | |
| *Entrepreneurs* | | | | |
| Location quotient, NAICS 236 | 1.148 | 1.332 | 1.197 | 0.883 |
| Location quotient, NAICS 237 | 1.324 | 2.613 | 1.235 | 1.777 |
| Location quotient, NAICS 238 | 0.942 | 0.795 | 1.161 | 0.625 |
| Location quotient, NAICS 531 | 0.549 | 0.929 | 0.734 | 0.629 |
| | | | | |
| *Demand-related variables* | | | | |
| Personal income, per capita | 32.579 | 10.242 | 37.322 | 11.338 |
| Population (1000s) | 85.276 | 280.534 | 251.583 | 505.102 |
| Population growth | 0.622 | 1.545 | 1.335 | 1.646 |
| Population density | 186.922 | 1283.542 | 577.906 | 2422.063 |
| Jobs, per capita | 0.486 | 0.147 | 0.499 | 0.149 |
| Age Index | 0.433 | 0.030 | 0.412 | 0.028 |
| Race Index | 0.128 | 0.147 | 0.157 | 0.133 |
| Use of towns (Yes=1) | 0.317 | 0.465 | 0.360 | 0.480 |
| Chg. In cities | 0.035 | 0.364 | 0.090 | 0.591 |
| | | | | |
| No. of counties | 3,048 | | 802 | |
| No. of states | 48 | | 47 | |

*Notes*: NAICS 236 = Construction of Buildings; NAICS 237 = Heavy and Civil Engineering Construction; NAICS 238 = Specialty Trade Contractors; NAICS 531 = Real Estate.

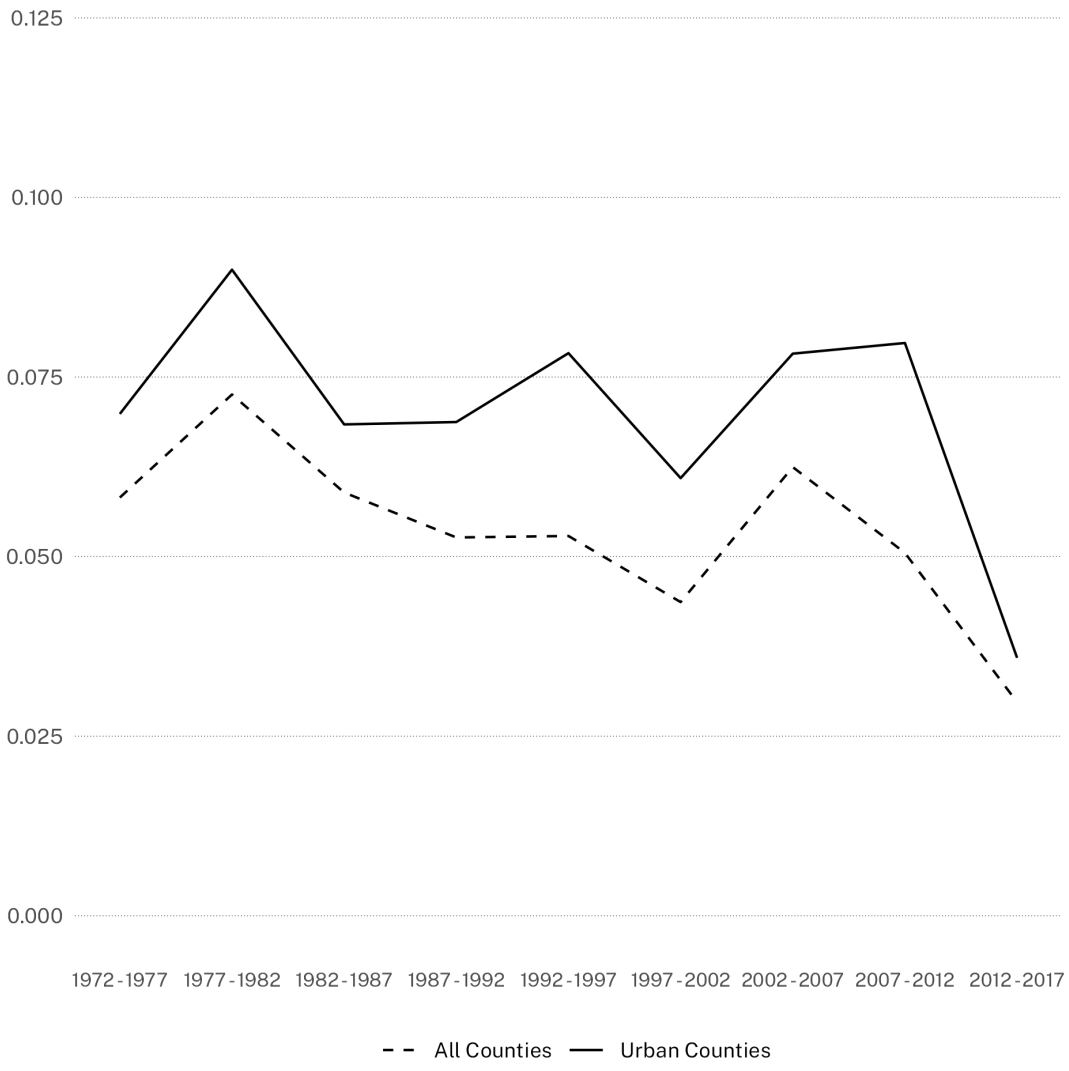


Figure 1: Exit Rate by Sample, 1977-2017

which limits the sample of data to only urban counties.

$$XR_{it} = \alpha + \beta \boldsymbol{X}_{it} + \delta \boldsymbol{I}_{it} + \gamma \boldsymbol{E}_{it} + \phi_i + \tau_{mt} + \varepsilon_{it} \tag{4}$$

The overall specification is the same as equation 3; however, introducing MSA-specific time effects ($\tau_{mt}$) eliminates the variation between MSAs and identifies $\beta$, $\delta$, and $\gamma$ based on the variation within individual MSAs. Since local autonomy is measured at the state level, the identification of these variables in equation 4 is predicated on MSAs that cross state lines. There were 35 such MSAs in 1999. The construction of the samples and specifications likely bias normally calculated standard errors. For both equations 3 and 4, standard errors are clustered on the state. This is to adjust the downward bias in standard errors due to serial autocorrelation in the special district exit rate and local autonomy being constant within each state.

## RESULTS

Table 3 reports the findings for two equations specified above, both overall and disaggregated by asset specificity. For the urban sample results, specifications have been displayed that include the equations with and without their respective unit××year fixed effects to demonstrate the effect of limiting the variation to only that within such aggregations. Unlike Bauroth's (2010) count-based findings, there is little evidence of a systematic relationship between demand-related variables and the rate of special district exit, overall or by asset specificity. However, the results change once the sample is disaggregated by asset specificity. Among highly asset-specific district types, greater variation in age and race in a county is associated with an increase in the exit rate. Similarly, among low asset-specific district types, greater variation in race in a county is associated with an increase in the exit rate. These results suggest that more racially diverse counties experience higher rates of special district dissolutions.

Among urban counties (regardless of which specification), the usage of townships is associated with the special district exit rate. In counties where the township form of local government is used, the special district exit rate is approximately three to four percentage points lower than in counties/states that do not authorise townships. This result appears to be confined mainly to asset-specific district types. This conclusion is mirrored by Carr (2006) and Goodman (2018), who finds that the usage of townships is a positive predictor of special district reliance. Paired together, urban counties with township governments rely more heavily on special districts, and the probability of dissolution is lower. These results reinforce that special districts can complement townships in the local intergovernmental service delivery arena, particularly among highly asset-specific service functions. No other demand-related variables are statistically associated with the all-county or urban county special district exit rate.

Potentially binding tax and expenditure limits focused on municipalities are associated with a 4.2 percentage point reduction in the special district exit rate. Once broken down by asset specificity, these results disappear. These results change somewhat in the urban county sample with potentially binding TELs associated with a reduction in the exit rate for all districts and highly asset-specific district types in particular. Our preferred specifications (five and seven) suggest potentially binding TELs on municipalities reduce the exit rate by about four percentage points. These results are similar to the count-based findings of Bauroth (2010) and broadly consistent with the argument of Park and Park (2021) that special districts can be a means to circumvent state restrictions for highly asset-specific functions. Potentially binding TELs imposed on county governments are statistically related to district exits among highly asset-specific districts; however, the coefficient is positive, suggesting these restrictions lead to an acceleration of district exits.

## Table 3: Influences on special district exit rate

| | All county panel | | | Urban county sample | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | High Asset Specificity | Low Asset Specificity | | | High Asset Specificity | | Low Asset Specificity | |
| | All | | | All | | | | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| *Local Autonomy* | | | | | | | | | |
| Municipal TEL | −0.0415** | −0.0172 | −0.0031 | −0.0467** | −0.0432** | −0.0372** | −0.0377** | −0.0225 | −0.0298 |
| | (0.0102) | (0.0092) | (0.0100) | (0.0159) | (0.0133) | (0.0080) | (0.0100) | (0.0120) | (0.0223) |
| County TEL | 0.0136 | 0.0122 | 0.0059 | 0.0103 | 0.0173 | 0.0293** | 0.0308** | 0.0202 | 0.0260 |
| | (0.0084) | (0.0091) | (0.0103) | (0.0176) | (0.0138) | (0.0086) | (0.0102) | (0.0122) | (0.0225) |
| Municipal debt limit | −0.0042 | 0.0029 | −0.0011 | 0.0209 | −0.0218 | 0.0158 | 0.0044 | 0.0013 | 0.0041 |
| | (0.0182) | (0.0123) | (0.0031) | (0.0306) | (0.0178) | (0.0220) | (0.0299) | (0.0187) | (0.0097) |
| County debt limit | 0.0099 | −0.0018 | 0.0014 | −0.0040 | 0.0002 | 0.0013 | 0.0264 | 0.0062 | −0.0105 |
| | (0.0141) | (0.0087) | (0.0038) | (0.0188) | (0.0151) | (0.0098) | (0.0179) | (0.0154) | (0.0105) |
| Municipal functional home rule | 0.0417** | 0.0035 | −0.0084* | 0.0703* | 0.0200 | 0.0072 | −0.0164 | −0.0160 | −0.0116 |
| | (0.0144) | (0.0065) | (0.0040) | (0.0297) | (0.0203) | (0.0098) | (0.0206) | (0.0137) | (0.0084) |
| County functional home rule | 0.0139 | 0.0109 | 0.0052 | 0.0061 | 0.0052 | 0.0026 | 0.0046 | 0.0021 | −0.0006 |
| | (0.0115) | (0.0064) | (0.0056) | (0.0121) | (0.0124) | (0.0096) | (0.0077) | (0.0096) | (0.0107) |
| *Boundary Change Entrepreneurs* | | | | | | | | | |
| Location quotient, NAICS 236 | 0.0018* | 0.0018 | 0.0008 | 0.0010 | −0.0017 | 0.0007 | 0.0004 | 0.0010 | 0.0016 |
| | (0.0008) | (0.0014) | (0.0005) | (0.0023) | (0.0035) | (0.0018) | (0.0021) | (0.0019) | (0.0013) |
| Location quotient, NAICS 237 | 0.0003 | 0.0001 | −0.0005* | −0.0010 | −0.0003 | 0.0000 | 0.0000 | −0.0019* | −0.0017* |
| | (0.0003) | (0.0003) | (0.0002) | (0.0013) | (0.0015) | (0.0016) | (0.0015) | (0.0009) | (0.0008) |
| Location quotient, NAICS 238 | 0.0000 | −0.0005 | −0.0006 | 0.0051 | 0.0022 | −0.0027 | −0.0020 | −0.0010 | 0.0000 |
| | (0.0010) | (0.0013) | (0.0006) | (0.0029) | (0.0036) | (0.0028) | (0.0030) | (0.0030) | (0.0023) |
| Location quotient, NAICS 531 | 0.0010 | −0.0003 | −0.0003 | 0.0054 | 0.0033 | 0.0030 | 0.0021 | 0.0002 | 0.0018 |
| | (0.0010) | (0.0006) | (0.0003) | (0.0043) | (0.0045) | (0.0048) | (0.0049) | (0.0029) | (0.0019) |
| *Controls* | | | | | | | | | |
| Personal income, per capita | 0.0001 | 0.0000 | 0.0001 | 0.0008 | 0.0012 | 0.0004 | 0.0007 | 0.0002 | −0.0003 |
| | (0.0003) | (0.0002) | (0.0002) | (0.0005) | (0.0007) | (0.0004) | (0.0006) | (0.0004) | (0.0008) |
| Population (1000s) | 0.0000 | 0.0000 | 0.0000* | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000* | 0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| Population Growth | −0.0003 | −0.0002 | −0.0007 | 0.0008 | 0.0009 | −0.0010 | −0.0011 | −0.0024 | −0.0019 |
| | (0.0014) | (0.0009) | (0.0004) | (0.0017) | (0.0024) | (0.0012) | (0.0014) | (0.0013) | (0.0012) |
| Population density | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000 | 0.0000* | 0.0000 |
| | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) | (0.0000) |
| Jobs, per capita | −0.0433 | −0.0030 | −0.0169 | −0.0974* | −0.1277 | −0.0438 | −0.1005* | −0.0687* | −0.0823 |
| | (0.0217) | (0.0194) | (0.0103) | (0.0423) | (0.0662) | (0.0405) | (0.0464) | (0.0322) | (0.0626) |
| Age Index | 0.1060 | 0.2672** | 0.0441 | −0.2814 | −0.0800 | 0.0788 | 0.1305 | −0.1885 | −0.1914 |
| | (0.1486) | (0.0688) | (0.0445) | (0.3516) | (0.2842) | (0.1276) | (0.2228) | (0.1319) | (0.1997) |
| Race Index | 0.0096 | 0.0880** | 0.0492* | 0.0740 | 0.0825 | 0.1224* | 0.1814* | 0.0928* | 0.1214* |
| | (0.0399) | (0.0308) | (0.0235) | (0.0472) | (0.0778) | (0.0492) | (0.0754) | (0.0366) | (0.0499) |
| Chg. In cities | 0.0045 | 0.0024 | −0.0006 | 0.0057 | 0.0051 | 0.0042 | 0.0044 | 0.0004 | −0.0003 |
| | (0.0025) | (0.0022) | (0.0018) | (0.0031) | (0.0028) | (0.0022) | (0.0022) | (0.0021) | (0.0023) |
| Use of towns (Yes=1) | 0.0035 | −0.0072 | −0.0004 | −0.0234 | −0.0291* | −0.0311** | −0.0387** | −0.0244 | −0.0254 |
| | (0.0110) | (0.0130) | (0.0061) | (0.0266) | (0.0131) | (0.0069) | (0.0116) | (0.0498) | (0.0297) |
| MSA × period dummies | | | | | X | | X | | X |
| n | 27,309 | 27,309 | 27,309 | 7,171 | 7,171 | 7,171 | 7,171 | 7,171 | 7,171 |

All samples include county fixed effects. Model 3 includes period fixed effects. Standard errors are clustered on the state. Significance levels: ** p<0.01, * p<0.05. NAICS 236 = Construction of Buildings; NAICS 237 = Heavy and Civil Engineering Construction; NAICS 238 = Specialty Trade Contractors; NAICS 531 = Real Estate.

This finding is the opposite of what was hypothesised and related to a finding by Goodman (2018). Goodman (2018) suggested that limitations of fiscal autonomy on counties may impose needed fiscal discipline for these less professionalised governments (relative to municipalities, see Benton (2002)) and, therefore, negate the need for special districts. Like the findings on townships presented above, the findings support Goodman (2018), albeit in the expected other direction.

Our results suggest that granting broad functional home rule status to municipalities increases the likelihood of special district exits in the all-county sample. The effect size is about half for urban counties overall. This finding disappears when the sample is disaggregated into high asset-specific types (overall or urban counties). When municipalities can provide more services, the need for specialised service delivery declines and districts exit. This finding supports the hypothesis that circumventing state-imposed restrictions drives special district growth. Absent such restrictions, special districts exit the local governance market.

The final group of variables related to the prevalence and actions of boundary change entrepreneurs. There is little evidence of a connection between the prevalence of boundary change entrepreneurs and the special district exit rate. An exception to this is the concentration of Heavy and Civil Engineering Construction employees in urban counties. A 0.1 unit increase in the NAICS 237 $LQ$ (implying a 10 per cent increase in industry concentration) is associated with a 0.05 to 0.017 percentage point decrease in low asset-specific special district exit rate overall and among urban counties, respectively. This finding is consistent with the argument that interest groups who stand to benefit from district provision of infrastructure lobby to keep such districts around. However, there is no overwhelming evidence suggesting boundary change entrepreneurs are influential in the special district dissolution process.

## DISCUSSION & CONCLUSION

This analysis aims to examine the dynamics underlying fragmentation in U.S. local governments and special districts in particular. Specifically, we examine whether special district dissolution is special district creation in reverse. Using a new-to-the-literature measure of special district exit, the results suggest a mixed answer to the question. Some reductions in local autonomy decrease the exit rate, consistent with prior results. Boundary change entrepreneurs can be influential, but the results appear context-specific and somewhat limited. Finally, demand-related variables are mainly unrelated to special district exits. This analysis also has its limitations. As is typical with much work on state-imposed limitations on local government, measuring these factors is somewhat blunt. Currently, more nuanced measures of local autonomy do not exist; however, their development and incorporation would significantly strengthen many analyses, including this one.

As Moldogaziev, Scott, and Greer (2019, 546) note, special district exits can be disruptive to the local public sector and understanding the factors associated with special district exit can help to provide critical information to policymakers and practitioners about how to "ensure the continuation of core governance tasks." This analysis suggests that some state-imposed rules on local governments are associated with special district exits. State lawmakers should be sensitive to how their actions, particularly regarding municipal restrictions, may trigger local public-sector disruptions. While it may not be their intention to impact special districts when deciding whether to limit general-purpose local governments, the results presented here suggest there are secondary effects that could have consequences for service delivery.

We still need to improve our understanding of why special district dissolves or merges. Future research should continue examining special district dissolution's influence on service disruption. In particular, what

does it mean for public administrators managing such changes to local government service delivery? We assume that service is transferred to another local government, either a new special district or existing general-purpose local governments through annexation or consolidation; however, based on these results, the topic needs continued exploration. Like understanding other government units, knowledge in this area will also benefit policymakers who decide which values, such as efficiency, performance, accountability, and equity, these arrangements will maximise.

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## APPENDIX A: SPECIAL DISTRICT FUNCTIONS AND ASSET SPECIFICITY ASSIGNMENT

High Asset Specificity

- 01 Air Transport
- 04 Correctional Institutions
- 05 Other Corrections
- 24 Fire Protection
- 32 Health
- 40 Hospitals
- 50 Housing and Community Development (author-coded)
- 51 Drainage
- 52 Libraries
- 62 Police Protection
- 63 Flood Control (author-coded)
- 64 Irrigation (author-coded)
- 77 Public Welfare Institutions
- 79 Other Public Welfare
- 80 Sewerage
- 81 Solid Waste Management
- 87 Sea and Inland Ports (author-coded)
- 91 Water Supply Utility
- 92 Electric Supply Utility
- 93 Gas Supply Utility
- 94 Public Transit

Low Asset Specificity

- 03 Misc. Commercial Activities (author-coded)
- 41 Industrial Development (author-coded)
- 42 Mortgage Credit (author-coded)
- 44 Regular Highways
- 45 Toll Highways
- 59 Other Natural Resources (author-coded)
- 60 Parking Facilities
- 61 Parks and Recreations
- 86 Reclamation (author-coded)
- 88 Soil and Water Conservation (author-coded)