Abstract:
Development impact fees solve an important dilemma for growing communities: they raise revenue for the expansion of capital facilities necessary to serve new development without increasing the tax burden for existing residents. By shifting the cost of new development directly to new residents, impact fees satisfy demands that growth should pay its own way, and they reduce local officials’ electoral risk in approving development proposals. Impact fees may even serve as a growth control strategy by creating a disincentive for new development.

Previous analyses of impact fees have focused on their use by multifunction local governments as part of a comprehensive strategy for fiscal management and land use. But impact fees are not just a tool available to cities and counties. Limited purpose special districts can levy impact fees as well to finance the facilities required by a growing population.

This paper uses panel data on California public water utilities to evaluate the effects of governing structure on impact fee use. Results show that in most contexts, water districts charge higher water connection fees than cities and counties. Despite formal limitations on their responsibilities, water districts appear willing to pursue policies that have important implications for land use and growth. The relationship with governing structure is not universal, however; it is conditioned by the salience of growth issues in the community. I argue that this outcome is the product of strategic behavior on the part of developers as well as differences in responsiveness between special districts and general purpose governments.

Paper prepared for delivery at the 2005 Annual Meeting of the American Political Science Association, Washington, DC, September 1-4. I am grateful to Ellen Hanak of the Public Policy Institute of California for sharing the data analyzed in this paper. The financial support of a National Science Foundation Dissertation Improvement Grant (SES-0315293) made this research possible.
Rapid population growth poses a variety of political challenges for local communities, not least of which is the challenge of coordinating policy responses among independent, specialized governments that may divide responsibility for providing public goods and services in an area. In some communities, the same city or county government that has authority over land use decisions also provides the parks, fire protection, and water and sewer infrastructure required to serve new development. In other places, local governance is fragmented along functional lines, with multiple special districts each managing a single issue. These separate, independent governments have narrowly defined formal authority and no obligation to cooperate with one another, creating a formidable institutional hurdle for efforts to address multidimensional growth issues.

This paper examines how special districts behave when facing growth policy questions that cross the boundaries of a single issue dimension. Do special districts extend their policy scope beyond the issue for which they are formally responsible? If so, how do their patterns of policy responsiveness compare to those of cities and counties? Previous treatments of special districts have focused on the effects of functional specialization for policy outcomes within specific issue areas; they have not considered how the specification and multiplication of venues influences decision making on the multidimensional questions that arise over growth. Land use decisions are intertwined with all other local policy issues. In their everyday decisions about levels of services and how to pay for them, local governments influence the desirability of their community and the demand for growth. At the same time, new development requires the expansion of services and infrastructure, potentially affecting the quality and supply of services for existing residents, and it may have negative environmental and social impacts. Local governments must decide how to control and distribute these costs of growth.

Few growth decisions can be isolated from other local policy issues, yet a functionally fragmented governance system imposes a division of responsibilities that separates development approval from decisions about extending services to new development. These service decisions can have as important a role in a community’s overall growth policy as do individual project approvals. Thus special
districts have the opportunity to reach outside their formal functional jurisdiction to influence a community’s approach to growth. They may do so in order to support the growth agenda of the city or county they overlap, or district officials may act in opposition to the land use authority in response to constituent or interest group demands or their own private preferences. There is consensus in the literature that functional fragmentation should have an effect on growth outcomes, but the mechanisms and even the direction of that effect remain contested. Critics of special districts contend that districts are biased in favor of developers, expanding services and infrastructure as a means to promote growth, but it is not clear that special districts are any more progrowth than their neighboring general purpose governments. Conversely, some new regionalists regard the flexible boundaries of special districts as an asset for addressing complex regional growth issues, but functional fragmentation may pose a greater obstacle than geographic fragmentation to a coordinated approach to growth management.

This paper advances our understanding of the role of special districts in local growth politics by testing whether, and under what conditions, local governing arrangements have an effect on how the costs of growth get distributed. The empirical focus of the paper is a policy decision that lies at the intersection of water and land use policy—residential connection fees. Part of the larger category of development fees and land use exactions, connection fees are a charge to developers for a new connection to a water system. Developers pass the fee on to home buyers as part of the cost of new housing, and water utilities use the revenue to pay for system expansion. The effect is to shift the cost of water system expansion to new customers, rather than divide expansion costs among the entire customer base. Connection fees are a water pricing policy but even more importantly, a growth policy. By increasing costs to developers and new homeowners, connection fees provide a disincentive for growth. There is no reason for water utilities to set high connection fees if their policy aims focus solely on water; if a water system is nearing capacity, the utility could set a cap on the number of new connections or expand the system, spreading the cost among all customers. A decision to rely on connection fees to pay for system expansion indicates a policy scope that reaches beyond water issues. It also reflects responsiveness to the diffuse preferences of
a majority over the opposition of a concentrated and resource-rich group—in this case, developers who will bear the costs of higher connection fees.

Water connection fees thus make a nice test of special district behavior on multidimensional policy questions. Special districts that carefully observe the formal limitations on their authority should not rely heavily on connection fees, a revenue tool that has strong implications for growth policy. Since growth and land use policy universally fall under the jurisdiction of general purpose cities and counties, connection fee use by special districts represents an encroachment on the responsibilities of another local government, with or without that government’s consent. Moreover, I use water connection fees to evaluate claims made by special district critics that districts are beholden to developers. If these claims are true, we should not see districts choose this policy that developers strongly oppose.

Finally, this paper is part of a larger research agenda that examines the role of issue salience in conditioning the relationship between governing structure and policy responsiveness. Focusing on unidimensional water policy decisions, I have found that the effects of functional specialization are greatest for issues that the public considers least important (Mullin 2004). When an issue has low salience, special districts are more likely than general purpose governments to pursue policies that impose concentrated costs on private stakeholders and offer public benefits to a diffuse majority. Unbundling the issue from other dimensions of local policy heightens responsiveness to majority opinion and reduces the likelihood of capture by stakeholders with a concentrated interest in the issue. On highly salient policy issues, policy decisions are more responsive to majority preferences overall, regardless of institutional venue. High-salience issues rise to the top of the agenda of general purpose governments, reducing the return on stakeholder investments in lobbying and minimizing the bias towards private interests. In this paper I turn to the multidimensional policy of water connection fees to test if issue salience continues to play a role in conditioning the influence of governing structure when policy questions span the boundaries of a special district’s functional jurisdiction.
Using data from a biannual survey of California water utilities, I measure the influence of governing structure on the level of water connection fees. I find that in most contexts, water districts charge higher connection fees than cities and counties that operate water utilities. Despite formal limitations on their responsibilities, water districts appear willing to pursue policies that have important implications for land use and growth. The relationship with governing structure is not universal, however; it is conditioned by the salience of growth issues in the community. The difference in connection fee levels is greatest in communities with stable population, and disappears in communities under pressure from growth. I argue that this outcome is the product of strategic behavior on the part of developers as well as differences in responsiveness between special districts and general purpose governments.

The paper proceeds as follows. First I provide background on connection fees and review the literature on their determinants and effects, showing that connection fees (and impact fees more generally) are a common strategy for shifting the costs of growth to new residents. The subsequent section considers the role of special districts in local growth politics and offers competing hypotheses about special district responsiveness on multidimensional growth issues. Next I present and discuss my empirical model for testing these hypotheses. The paper concludes by considering the implications of this analysis for specialized governance and intergovernmental relations.

**Water System Connection Fees**

Water system connection fees are a response to the pressure that population growth places on a community’s water supply infrastructure. Historically, water systems were built using general revenues or bond financing, and the entire customer base shared in paying the cost of system construction and expansion. Existing residents subsidized water service for newcomers to a community, just as newcomers contributed to the maintenance and repair of facilities whose condition may have deteriorated before they arrived. As Altshuler and Gómez-Ibáñez (1993) describe, this arrangement reflected the dominant belief that the economic benefits of population growth outweighed the costs of providing public services for
new residents. The recent popularity of connection fees reflects a shift away from that belief. As more people come to believe that development does not pay its own way, they expect new residents to bear a larger share of the cost of expanding infrastructure to meet rising water demand.

Water connection fees are imposed by a water utility to cover the cost of facilities required to connect new residential buildings to an existing water system.\(^1\) They are just one example of the effort to shift the costs of growth to new residents. Communities throughout the nation are increasingly imposing development fees and land use exactions on developers seeking approval for project proposals. Altshuler and Gómez-Ibáñez (1993) report that the share of communities leveling land use exactions rose from ten percent in 1960 to 90 percent in the mid-1980s (124-25). Some of these exactions are in the form of in-kind goods and services, such as the construction of public facilities or the dedication of public land, but a 2000 survey conducted by the General Accounting Office (GAO) revealed that over half of counties and cities with population over 25,000 imposed monetary impact fees on developers seeking project approval. California is most reliant on this revenue source: over 90 percent of local governments surveyed by the GAO required developers to pay impact fees (General Accounting Office 2000). A 1999 survey revealed that average fees for a new single-family home in a sample of 89 California cities and counties totaled $24,325 (Landis et al. 1999). A few communities have treated exactions as a means for developers to subsidize some public resource the community could not otherwise provide, and thus much of the legal attention to exactions has focused on the nexus between the exaction and the state interest being advanced by the mandate. The Supreme Court has ruled that such a nexus needs to exist, and that requirement has been codified in California law.\(^2\)

---

\(^1\) There is no consensus on usage of the term “connection fee” and its relationship to impact fees. By some definitions, a connection fee refers only to the on-site costs of establishing a new residential connection (e.g., service lines from the street to the house, meters, and meter installation) and is distinguished from an impact fee that covers off-site costs. Following my data source, I refer only to the cost of off-site facilities necessary to produce, treat, and transmit water to new development. The distinction is often unclear in practice, and many local governments combine fees for on-site and off-site costs (Landis et al. 1999). The definition I employ makes water connection fees equivalent to impact fees for other local facilities such as schools, roads, and parks.

\(^2\) The cases establishing the nexus are *Nollan v. California Coastal Commission*, 483 U.S. 825 (1987) and *Dolan v. City of Tigard*, 512 U.S. 874 (1994). As the Court considered *Nollan*, the California Legislature passed A.B. 1600, the Mitigation Fee Act of 1987 (California Government Code §66000-66025), which established that a local agency must show a reasonable relationship between a fee’s source and its use.
As a financing tool for local government, exactions followed the spread of user fees, and both revenue sources reflect an effort to privatize the cost of public goods and services. Altshuler and Gómez-Ibáñez (1993) have identified several contributing factors for the rise of exactions, including increased resistance to new taxes, growing concern about the nation’s aging infrastructure, rising use of fiscal impact analysis by local governments, and mandates and cutbacks at the state and federal levels that reduced the number of alternative financing options available to local governments (see also Weschler et al. 1987). In California, the 1978 passage of Proposition 13 provided a boost to the growth of development fees by dramatically limiting local governments’ ability to collect property taxes. Within a year of Prop 13’s passage, a survey conducted by the California Building Industry Association revealed that the median bill for construction-related fees had risen 26 percent (Frieden 1983); respondents to a contemporaneous survey conducted by the Association of Bay Area Governments reported that their fees had doubled or even tripled during that time (Landis et al. 1999, 21).³

Most important in explaining the rise of impact fees, however, is the increased community resistance to growth that has emerged in recent decades. As the public has become more concerned about social and environmental costs of new development and more skeptical about its economic benefits, citizens have sought ways to slow down growth and shift its costs away from existing residents. Local governments view impact fees as a means to achieve both goals. They heighten the cost of residential development, sometimes adding tens of thousands of dollars per housing unit, thus increasing the developer’s investment risk and raising home prices for new residents. All of this may create a disincentive for developers to build in a community with high impact fees. When developers do proceed with a housing project, impact fees exempt existing residents from bearing the cost of expanding facilities and services to meet the growing demand. Impact fees are likely to receive broad support from citizens for reducing the public burden of financing infrastructure costs, and strong backing from

³ Proposition 218, passed in 1996, eliminated many of the fees that California local governments had adopted as alternative revenue sources after passage of Prop 13 by requiring voter approval for all taxes and most fees that are “property-related.” The courts are still defining what fees are property-related; a key decision in that endeavor has been Richmond v. Shasta Community Services District, 32 Cal. 4th 409 (2004), in which the California Supreme Court upheld that water connection fees are not subject to Prop 218’s vote requirement.
environmentalists and antigrowth interests for providing a disincentive to further development. As Altshuler and Gómez-Ibáñez (1993) describe, the fees offer an attractive policy solution for local officials seeking to accommodate new development without losing the support of their constituents:

In searching for positions that can attract broad support, local officials invariably feel pressured to demonstrate that all of the projected infrastructure needs associated with growth will be met without placing new fiscal burdens on, or reducing any of the amenities and services enjoyed by, existing local residents. It is here that exactions come in. By obtaining developer commitments to finance public facilities and services, local officials can maintain that they have protected the interest of current residents and, more generally, that they are “managing” growth rather than caving in to either developers or antigrowth extremists (47).

Impact fees make decisions to approve new development somewhat more tolerable to those who oppose growth by transferring the costs of growth to future residents. Indeed, a recent analysis by Jeong (2004) found that population growth had a strong positive effect on impact fee adoption by Florida counties.

While they receive broad support from community residents, impact fees are likely to draw intense opposition from developers and large landowners. Who bears the cost of impact fees depends on local conditions in the housing market, but developers know that there is a risk they will absorb a portion of the fee if the market prohibits them from passing along the full fee as part of home prices. Moreover, unanticipated changes in impact fee levels might affect developers’ profits in the short run regardless of market conditions. If impact fees cause developers to receive lower returns on their investments, they will reduce their bids on land for new construction, reducing landowners’ profits. It is not surprising that proposals for new or increased impact fees often have drawn strong resistance from these groups (Porter 1987; Downs 1994, 11-12; Landis et al. 1999, 12, 110 fn. 8; Baden et al. 1999, 7-8).

Fees for the extension of water lines were one of the earliest examples of an exaction that shifted the burden of paying for new development from existing to incoming residents. A few communities had adopted water connection fees prior to 1960, long before impact fees became a common revenue source. Like other impact fees, however, reliance on water connection fees has risen in recent decades (Weschler

---

4 Impact fees are also more attractive than approving new development without providing for adequate public facilities. This policy choice occurs in many communities by default, and like funding infrastructure expansion through taxes or user fees, it imposes the cost of new development on new and existing residents alike (Altshuler and Gómez-Ibáñez 1993; Downs 1994).
et al. 1987, 23). In California, water connection fees as a share of local revenues rose from seven to ten percent between 1984 and 1997 (Landis et al. 1999, 12). Water connection fees are one of the most common forms of impact fee (Been 2004; Landis et al. 1999).

Unlike many other land use exactions, water connection fees raise no questions about the nexus between the fee and its purpose. Developers pay a connection fee for the ability to attach a new line to the system; the revenues cover the cost of infrastructure needed to provide service to the new development. California law assures this close link between the revenue source and its application. The Mitigation Fee Act of 1987 requires a local agency to identify the purpose of a connection fee, specify the relationship between the project and the infrastructure improvement being financed, and establish that funds will not exceed what is needed to pay for improvement. The act states that revenues from a connection fee may be used for extending lines and facilities but not to subsidize operating expenses, and they must be kept and administered in a separate account from other revenues of the local agency.

Connection fees are explicitly a mechanism for funding water system expansion—not for distributing the cost of system operations—and they reflect a policy position that development should pay its own way.

It falls clearly under the jurisdiction of a water utility to set the level of connection fees, but the scope of the policy decision reaches outside the single issue of water. Connection fees have more significance for growth policy than for water policy. A local agency focusing solely on water policy would have no clear reasons for charging connection fees. As a fixed cost, connection fees do not send market signals about preferred levels of consumption and thus would not be effective for encouraging water conservation. By not reflecting the marginal cost of extending water service, they fail to promote

---

5 Water connection fees that cover on-site connection costs are not subject to the Mitigation Fee Act’s nexus study requirements, but they must comply with accounting and public notice requirements in the Act. The nexus study requirements apply only to impact fees for off-site infrastructure improvements. In practice, localities often avoid the Act’s requirements by combining the two fees (Landis et al. 1999).

6 In some western states, communities are beginning to charge impact fees for the cost of obtaining new water supply, but California has taken a regulatory approach to ensuring water adequacy for new development. Recent legislation requires identification of a long-term supply prior to approval of large development projects.

7 The Mitigation Fee Act explicitly states that the legislative body of a California local agency must enact a new connection fee or a fee increase by ordinance or resolution; the body may not delegate authority for this decision.

8 It is worthwhile to note that private water companies typically do not charge connection fees.
Distributing the Costs of Growth

9 Impact fees also tend to be regressive. They typically impose the same fee regardless of home price, thus contributing to a greater increase in housing costs for those who spend less on housing.10 Assuming relatively recent adoption, they also transfer costs from existing to future residents and older to younger generations, which also may have a regressive effect in terms of income redistribution (Altshuler and Gómez-Ibáñez 1993, 105-10). In short, connection fees serve no purpose within the scope of water policy that would make them a more attractive option than funding infrastructure expansion through taxes, bonds, or user fees that affect the entire customer base.11 Residents’ and public officials’ preferences for high connection fees only make sense in the context of their attitudes about growth.

Water connection fees therefore provide an opportunity to examine the behavior of special purpose water districts on a multidimensional policy issue. Connection fees are one of many local policy options that reach outside the boundaries of a single issue, while governance may be organized along issue lines. Functional specialization may create a challenge for public sector responsiveness to citizen preferences on multidimensional issues. If the preferences of a community are to shift the costs of growth to incoming residents, a responsive government would move to increase reliance on impact fees to fund expansion of the many public facilities needed to serve new development, including schools, parks, roads, and water and sewer facilities. In a functionally fragmented system, this requires separate revenue policy

---

9 Impact fees could be designed to reflect the marginal cost of providing service. For example, lot size is one of the most important determinants of water consumption and cost of water service, so connection fees based on lot size have the potential to promote conservation and economic efficiency. Variable impact fees based on cost of service are rare in practice, however, and the impact fees that do exist may be no more efficient than alternative forms of financing (Baden et al. 1999, 43-44; Speir and Stephenson 2002, 67).

10 Ihlanfeldt and Shaughnessy (2004) challenge assertions about effects on affordability as representing the “old view” on impact fees, which predicted that the fees have a direct effect on the price of housing. They argue instead that higher home prices reflect the value that home buyers attach to the new infrastructure financed by the fee, and thus represent a capital gain for home buyers that is not regressive in effect. Regardless, impact fees cannot be seen as more equitable than alternative options for distributing the costs of infrastructure expansion. Ihlanfeldt and Shaughnessy do find support for the contention that impact fees are an effective anti-sprawl policy by slowing the rate at which agricultural land gets converted for residential use.

11 In California, property taxes have not been a viable alternative for funding infrastructure improvements since the passage of Proposition 13 in 1978. The equivalent revenue source is Mello-Roos bonds, authorized by the 1982 Mello-Roos Community Facilities Act that allows local governments to establish community facilities districts with a two-thirds vote of district residents and to issue tax-exempt bonds for infrastructure with repayment by special taxes. The taxes are borne by all district residents, making them equivalent to property taxes for the purpose of my analysis.
Distributing the Costs of Growth

decisions by numerous specialized governments, none of which is designed to respond to citizens’
atitudes about growth. The city or county government that does have jurisdiction over growth has no
control over the facilities required to serve new development. If water districts adhere closely to the
boundaries of their functional jurisdiction, they will not rely on connection fees to fund the costs of
infrastructure expansion, so as not to intrude on the functional responsibility of general purpose
governments. Heavy reliance on connection fees, conversely, is evidence that special districts do
consider their constituents’ preferences on issues outside of their responsibility when making policy
decisions on multidimensional problems. A broad scope on the part of special districts may improve or
impede intergovernmental coordination on complex policy issues.

The analysis that follows considers the effects of special district governance on water connection
fee reliance. The academic literature on impact fees has focused largely on their effects, examining the
impact on housing and land prices (Dresch and Sheffrin 1997; Evans-Cowledy et al. 2005; Ihlanfeldt and
Shaughnessy 2004; Singell and Lillydahl 1990; Yinger 1998), housing supply (Brueckner 1997; Mayer and
Somerville 2000), and capital investment (Clarke and Evans 1999).12 The determinants of impact fees
have received less attention. Altshuler and Gómez-Ibáñez (1993) and Weschler et al. (1987) identify
factors contributing to the overall growth in impact fees and exactions, but they do not consider variation
among governments in reliance on this revenue source. Results from the few studies that have looked at
determinants of fee adoption are inconclusive, especially in the area of water connection fees. A 1986
survey conducted in nine southeast states revealed that the factors contributing to water and sewer fee
usage were all specific to individual localities; variation in state institutional arrangements had no effect
on adoption of impact fees (Kaiser et al. 1988). The study found that fee adoption was a function of local
demand and the government’s capacity to innovate and coordinate water and land use planning. A 1985
national survey of cities and counties showed a strong positive relationship between a community’s
growth rate and the likelihood of impact fee adoption (Purdum and Frank 1987, 143). Landis and his

12 For recent reviews of this literature, see Evans-Cowley and Lawhon (2003), Ihlanfeldt and Shaughnessy (2004),
and Been (2004).
Distributing the Costs of Growth

colleagues (1999) had little success identifying the determinants of impact fee adoption by California localities, concluding that fee adoption decisions are ad hoc (47-49). Jeong (2004) has conducted the most detailed analysis, examining the adoption of six types of impact fees by Florida counties, but he excludes water and sewer fees from his analysis.

All of these previous studies have focused on impact fee adoption, ignoring the steady rise in fee levels over time that demonstrates increased reliance on this revenue source. Local governments might adopt impact fees as a policy innovation or to meet a short-term revenue shortfall without substantially shifting the burden of paying for infrastructure improvements. Factors contributing to the decision to create an impact fee might not explain the marked growth in fee levels during the 1990s. Moreover, surveys of impact fee usage have focused on cities and counties only, general purpose governments that clearly have a multidimensional policy perspective; we know nothing about the diffusion of this policy tool among special districts.\footnote{Landis and his colleagues (1999) collected data on the full package of impact fees—those imposed by special districts as well as the city or county—in their sample of jurisdictions, but they did not distinguish between fees charged by different governments.}

Jeong’s (2004) comparison of reformed and unreformed counties in Florida suggests that governing structure might have an influence on fee usage, but his results are mixed and they do not address the larger difference between special districts and more traditional forms of local government. The analysis presented here aims to improve our understanding of impact fee usage by explaining the explosive growth in levels of water connection fees during the 1990s and exploring how the structure of local governance contributes to this policy outcome. It shows that governmental structure can interact with local conditions in influencing how a community chooses to finance growth.

Special Districts and the Politics of Growth

One of the attractive features of special districts is the flexibility of their geographic boundaries, allowing establishment of a new district to address problems whose effects spill over multiple city and county jurisdictions. This feature may allow special districts to provide public goods with greater efficiency and effectiveness (Ostrom et al. 1961; Hawkins 1976). Special districts are less flexible than...
traditional cities and counties with respect to their functional responsibilities, however, which creates challenges when addressing problems whose effects spill over functional boundaries. Multidimensional legislatures are well-equipped to address complex problems that involve multiple issues; the committee systems that most general purpose governments employ to divide their labor allow the development of issue expertise without sacrificing coordination and information exchange across issue areas (see for example Cooper 1971; Rosenthal 1990; Pelissero and Krebs 1997). Autonomous special districts with limited functional responsibility face high transaction costs in coordinating with other local governments, and district officials may have few incentives for making the effort. Fragmented authority for multidimensional issues allows each government to escape blame for inaction; thus we might expect special districts to show little interest in policy goals that lie outside of their functional jurisdiction.

Fragmentation of governance along functional lines could pose a particular challenge to policy efforts to control and manage residential population growth. Growth disputes in the United States typically cast developers, landowners, and the business community against neighborhood and environmental groups who seek to slow the pace of development. According to the influential growth machine hypothesis (Logan and Molotch 1987; Molotch 1976), the default position for most local governments is to join economic interests in pursuit of growth. Individuals and businesses who stand to profit from land use decisions will invest substantial time and money to influence local officials who make those decisions. They also will take advantage of long-standing and persuasive symbolic arguments about the positive benefits of growth for a community. Residents who seek to protect the “use value” of land that comes from neighborhood attachment face collective action problems in organizing against growth (Schneider and Teske 1995) and systemic conditions that predispose local officials to ally themselves with the growth machine (Stone 1980). The interests of those who oppose growth are more diffuse than those of the “rentiers,” and they have fewer resources to invest.

While planning for growth is decidedly a function of cities and counties, it requires the cooperation of special districts that provide services to the areas proposed for new development. Special districts are an important part of the battleground over growth in communities nationwide. They can hold
up construction on specific projects by refusing to provide public services, or they can promote growth by extending services to previously undeveloped areas. In some regions, special districts act essentially as a financing tool for new development, established and controlled by developers with full support from municipal government (Perrenod 1984; Porter, Lin, and Peiser 1987; Thomas and Murray 1991). In other contexts, districts are set up deliberately to make an end run around local land use restrictions (Popper 1981, 11). A district may be formally responsible only to provide the public with water, sewers, or roads, but its decisions about where to extend those services have inescapable implications for land development. Moreover, in deciding how to distribute the cost of expanding infrastructure to serve new residents, special districts may help or hinder a community’s efforts to control and direct its growth.

Despite the myriad interrelationships between service delivery decisions and growth, it is rare for special district officials to acknowledge or embrace their role in land use planning. In their public statements and campaign literature, special district officials consistently defer to city and county authority over growth decisions. District officials may have private preferences about growth that influence their decisions, however, or they may seek to build support for future political office through policy choices that have implications for controversial local growth issues. Special districts also are likely to receive more attention and lobbying from residents and interest groups when their decisions touch on issues of growth and development. Despite public stances that they will stay out of land use politics, special districts often make policy choices that have strong implications for battles over growth.

Such is the case with water connection fees. Reliance on connection fees is a policy choice that responds to community calls to slow growth. The spread of connection fees occurred in the past few decades, revealing explicit decisions by water utilities to make growth pay its own way, typically in the face of firm opposition from developers and large landowners. The choice to increase reliance on connection fees is a choice to shift the cost burden of new development and perhaps to slow down its pace. Analysis of connection fee levels can reveal the conditions under which water districts extend their scope to consider questions about growth and how they respond to the interests positioned on either side of a growth debate.
The metropolitan reform theory of local governance would predict that most special districts will not pursue connection fees as a revenue source, due to special districts’ narrow functional scope and their pro-development bias. Reformers criticize the single-issue focus of special districts, arguing that it leads to fractured decision making that does not consider the complex tradeoffs necessary for effective metropolitan governance. Bollens (1957) argued that the limited focus of special districts had the potential to create problems in other issue areas:

This piecemeal, unintelligent attack on the problems of government, and the lack of overall administrative and policy planning which grows out of the proliferation of governmental units, hinder the orderly development and sound utilization of the resources of an area. The approaches of different governments to a common problem often conflict and work at cross purposes, thus dissipating needed energies. A special district that handles only one aspect of a many-sided problem may do so with harmful results. Far too often has a special district tried to alleviate one difficulty and has simply succeeded in creating another (255).

Jones (1942) predicted that proliferation of special districts would result in “the further disintegration of authority and dispersion of control, the increase of ruinous competition for available tax resources, and continued uncoordinated planning of governmental services” (xxi). Reformers assume that the citizen specialists likely to serve on district boards will not look at issues outside their area of expertise when making policy decisions. This issue focus is inherent to the design of special districts, but reform theory contends that it has negative effects, especially in the area of land use planning: “Emphasizing one service without coordinating it with others and without exercising needed regulation and controls, [special districts] foster poor fringe development which is expensive to undo in the future” (Bollens 1957, 114). Scholars working in the reform tradition do not expect that special districts will expand their focus to consider the effects of their decisions on issues of growth and development, thus making them less likely to rely on connection fees to fund infrastructure expansion.14

Special districts also might limit their use of connection fees if they are biased in favor of promoting growth, as many analysts suggest. Developers frequently play a critical role in establishing special districts as a means to finance public facilities in areas that existing municipalities cannot or will

---

14 New regionalists are somewhat more optimistic about the potential for regional special districts to coordinate with one another on growth issues (Downs 1994; Altshuler et al. 1999; Pagano 1999).
not serve. Burns (1994) argues that developers institutionalize their preferences when they establish a new district, creating a policy venue in which the progrowth agenda rarely faces challenge. Case studies of special district operations have provided some evidence that special districts are vulnerable to capture by developers and landowners, providing infrastructure to support growth even in the face of resource scarcity and financial risk (Perrenod 1984; Porter, Lin, and Peiser 1987; Thomas and Murray 1991; Gottlieb and FitzSimmons 1991; Foster 1997). If special districts indeed demonstrate a progrowth bias, we should not see them choosing to impose high connection fees, a policy instrument that developers strongly oppose.

We can develop a competing set of arguments for why special districts might be more reliant on connection fees than a water utility operated by a city or county government. Although some researchers have found special districts to be hospitable venues for developers and progrowth interests, it is cities that should see a greater benefit in promoting growth. The traditional perspective on growth is that attracting new residents—especially high-income residents—can stimulate economic development and expand the community’s tax base. This attitude is no longer dominant as more cities come to believe that the public costs of growth outweigh its benefits, but cities still should see greater advantage in expanding the tax base than do special districts, and therefore they should be less likely to adopt a policy that creates disincentives for new development. In addition, there is the public choice counter to the earlier argument about developer influence. Scholars in the public choice tradition argue that large, consolidated governments provide an institutional advantage to interests with resources to invest in monitoring and lobbying (Bish 1971; Ostrom, Bish, and Ostrom 1988). If that is the case, then developers should be more successful in their efforts to fight connection fees in city and county venues. Special districts will be more responsive to the diffuse majority preference among their constituents to shift the costs of growth to future residents.

As we shall see from the analysis that follows, neither of these hypotheses is wholly correct, because they fail to take into account the importance of issue salience in conditioning the effect of governing structure. The debate over connection fees typically positions a diffuse majority in favor of the
policy against a smaller group that adamantly opposes it and has greater resources to spend—in this case, a group composed of developers and landowners. I argue that the difference across local governing structures in their responsiveness to these opposing groups varies with the salience of the issues at stake.

I test two different mechanisms by which issue salience might operate to influence the relationship between structure and outcomes. First, if water utilities use connection fees strictly as a revenue policy and not as a response to growth preferences, then we should see the salience of water issues condition the effect of special district governance on connection fee levels. On unidimensional policy issues, functional specialization can increase responsiveness to majority opinion when the issue has low public salience (Mullin 2004). Citizens base their vote for city and county officials on other, more highly salient issues, allowing actors with a concentrated interest in the low-salience issue to lobby and gain an advantage in general purpose venues. In contrast, special district officials always have an incentive to pursue policies preferred by the majority in the single issue area they oversee. Unbundling a low-salience issue from other dimensions of local policy making can therefore reduce the typical bias in responsiveness that favors actors with greater political resources. Salient policy issues rise to the agenda of cities and counties, shrinking and even reversing the relationship between specialization and responsiveness. If connection fees are simply a water revenue policy, we should see this effect for the salience of water issues.

If water systems do use connection fees as a means to address growth issues, on the other hand, then it is the salience of growth that should influence the relationship between structure and policy outcomes. Here the strategic behavior of organized minorities becomes operative. Developers and landowners recognize the important role of special districts in creating conditions for new development, and they dedicate more attention to influencing special district decisions as growth becomes a more contentious issue. Special districts are willing to dabble in issue areas outside their formal jurisdiction when the issues receive little public attention. As the issues gain salience, however, cities and counties become more engaged, and pressure from interest groups and general purpose governments persuades special districts to narrow their focus.
Testing these two hypotheses, I find that the salience of growth conditions the relationship between governing structure and reliance on connection fees. This finding supports previous research suggesting that connection fees are foremost a growth policy. It also indicates that despite formal limitations on the scope of their authority, special districts do consider issues outside their functional jurisdiction when making policy choices.

**Reliance on Water Connection Fees**

The remainder of this paper presents an analysis of connection fee levels among a sample of California public water utilities during the period 1991-2003. The observations are utilities in a given year, and the analysis compares utilities operated by special water districts with those operated by a city or county.

**Data Sources**

Data on connection fees come from a series of biannual, odd-year utility surveys conducted by the consulting firm Black & Veatch. The surveys document one-time connection fees charged to new customers to cover the cost of facilities necessary to serve new development; the fees do not include on-site costs that may apply for service lines, meters, and meter installation. Black & Veatch collects data by utility and municipality; if a water district’s connection fee varies across municipalities in its service area, the value of the dependent variable is the average of fees charged by the utility. Fees for all years are in constant 2000 dollars.

Previous research on impact fees has treated their presence as a dichotomous variable; it seeks to explain why local governments do or do not impose a per-unit fee on new residences. By focusing on levels rather than the simple existence of connection fees, I can test the extent to which governments rely on these fees as a revenue source to cover infrastructure expansion. Nominal fees will have little effect on the obligation of existing residents to pay for growth or on developers’ calculations about plans for
Distributing the Costs of Growth

new construction. They also might not attract much opposition if developers have confidence that the fees will stay low. High fees reveal a commitment to shifting the costs of growth to new residents.

Moreover, focusing on levels shifts our attention to the marked growth in connection fees that occurred during the 1990s. The average connection fee in 1991 among the public utilities in my dataset was $1,668, nearly three times the average level of water impact fees in the San Francisco Bay Area in 1982 (Weschler et al. 1987, 24). After dipping slightly between 1991 and 1993, average fees steadily rose throughout the 1990s, reaching $2,338 in 2003. Of the 189 utilities in my analysis with fully balanced panels, 74 percent already had adopted a connection fee by 1991. Fee levels among those early adopters grew an average of 61 percent over the next 12 years, showing that later adopters and later entries into the panel do not fully account for the increase. Connection fees have come to play a larger role in infrastructure financing, and this analysis seeks to explain why local governments vary in their reliance on this tool. Since my primary interest is in the effects of governing structure, a variable that shows no change during this period, the dependent variable is measured as levels rather than change.15

Conducting the analysis only on utilities located in California has some disadvantages for external validity. National surveys indicate that California communities are most likely to adopt land use exactions, but it is not clear that connection fee levels are any higher than in any other states (Weschler et al. 1987, 25-27). In addition, water and growth are both likely to be more highly salient throughout California than in many other states. There still exists substantial intrastate variation in the salience of these issues, however, and focusing on California allows me to control for state-level legal and regulatory factors that might affect water pricing decisions. It also provides the opportunity to include control variables in the analysis that are not measurable when using a nationwide dataset. Many of the variables that I would expect to influence water pricing decisions are characteristics of a utility’s customer base that might affect their water demand and their preferences about fees and services. Unfortunately, demographic and political data are unavailable at the special district level, which prohibited me from

15 No utilities in my sample change between special district and general purpose governance during the period of analysis, so the power of my analysis comes from between-unit rather than within-unit variation. See the discussion of models below for more detail.
including these variables in earlier models that I tested on nationwide datasets. Focusing on an individual state allowed me to include some of these additional controls in my model of connection fee reliance.

Assembling data on the characteristics of water district constituencies was a complex task. Using geographic information systems software, I aggregated demographic and political data collected at the level of Census blocks and block groups up to the boundaries of the cities and water districts in my sample. I also overlaid climate maps onto the maps of government jurisdictions in order to obtain values for some climate variables. A detailed explanation of the data aggregation process appears in the appendix, and descriptive statistics and sources for all variables appear in Table 1.

Variables

The key explanatory variables are governing structure and measures of issue salience. In most cases, I was able to assign values for the dummy variable measuring special district governance based on knowledge of general enabling legislation for water districts in California and the name of the utility in the Black & Veatch dataset. I consulted the Census of Governments, local government financial data from the state controller’s office, and utility Web sites to rule on questionable cases. The deciding factor for determining utility governance is whether the decision making body for the utility is a city council or county board of supervisors, as is the case with dependent special districts, or a separate and autonomous board of directors. Only districts in the latter category were coded as independent special districts; all others were coded as examples of general purpose governments.

Testing the interaction between water governance and issue salience required salience indicators for both water and growth. I use objective measures of local conditions to evaluate issue salience.\(^\text{16}\) We

---

\(^{16}\) This treatment is consistent with public opinion and voting behavior studies that measure issue salience using responses to a survey question that asks about the most important problem facing the nation. It applies a concept of salience that encompasses both issue importance and perceptions about conditions. Wlezien (forthcoming) finds that using this conceptualization, it is perceived problem status more than issue importance that accounts for variation in measured salience. Wlezien argues in favor of distinguishing between importance and problem status in analyzing the effects of issue salience, a task that lies outside the scope of this project.
Table 1. Variable Descriptions, Sources, and Summary Statistics.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Description</th>
<th>Source</th>
<th>Mean</th>
<th>Std. Dev.</th>
<th>Min.</th>
<th>Max.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dependent Variable:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water connection fee</td>
<td>Connection fee for a single family residence, in 2000 dollars</td>
<td>Black &amp; Veatch Water Charge Surveys</td>
<td>1,986.28</td>
<td>1,942.77</td>
<td>0</td>
<td>12,970.48</td>
</tr>
<tr>
<td>Special District</td>
<td>Governance: 1 if special district, 0 if city/county</td>
<td>Coded by author</td>
<td>.37</td>
<td>.48</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td><strong>Climate Variables:</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>Mean daily maximum temperature, 1961-90: index scored 1 (lowest) to 8 (highest)</td>
<td>National Climatic Data Center</td>
<td>4.23</td>
<td>1.11</td>
<td>1</td>
<td>7</td>
</tr>
<tr>
<td>Precipitation</td>
<td>Mean annual total precipitation, 1961-90: index scored 1 (lowest) to 9 (highest)</td>
<td>National Climatic Data Center</td>
<td>3.20</td>
<td>1.26</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Temperature departure</td>
<td>Departure from divisional normal mean daily temperature, two-year lag measured in degree standard deviations across divisions</td>
<td>NOAA-CIRES Climate Diagnostics Center</td>
<td>.39</td>
<td>.77</td>
<td>-1.64</td>
<td>1.89</td>
</tr>
<tr>
<td>Precipitation departure</td>
<td>Departure from divisional normal mean daily precipitation, two-year lag measured in inch standard deviations across divisions</td>
<td>NOAA-CIRES Climate Diagnostics Center</td>
<td>.01</td>
<td>.86</td>
<td>-1.52</td>
<td>1.85</td>
</tr>
<tr>
<td>Drought index</td>
<td>Statewide Palmer Hydrological Drought Index, two-year lag: index scored -7 (drought) to 7 (wet)</td>
<td>National Climatic Data Center</td>
<td>.16</td>
<td>2.57</td>
<td>-2.91</td>
<td>4.12</td>
</tr>
</tbody>
</table>

(continued, next page)
**Demand Variables:**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Income</td>
<td>Median income, in 2000 dollars</td>
<td>Census SF3 files, 1990 and 2000</td>
<td>46,999.56</td>
<td>17,829.55</td>
<td>17,292.00</td>
<td>115,380.50</td>
</tr>
<tr>
<td>Home value</td>
<td>Median home value</td>
<td>Census SF3 files, 1990 and 2000</td>
<td>208,792.70</td>
<td>137,391.20</td>
<td>49,700.00</td>
<td>970,100.00</td>
</tr>
<tr>
<td>Urban</td>
<td>Proportion urban</td>
<td>Census SF1 files, 1990 and 2000</td>
<td>.62</td>
<td>.47</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Democrat</td>
<td>Proportion Democratic vote in top-ticket race of previous election</td>
<td>California Statewide Database</td>
<td>.51</td>
<td>.14</td>
<td>.18</td>
<td>.93</td>
</tr>
<tr>
<td>Housing age</td>
<td>Median home age</td>
<td>Census SF3 files, 1990 and 2000</td>
<td>32.54</td>
<td>8.19</td>
<td>10.50</td>
<td>64.00</td>
</tr>
<tr>
<td>Renters</td>
<td>Proportion renters</td>
<td>Census SF3 files, 1990 and 2000</td>
<td>.39</td>
<td>.12</td>
<td>.05</td>
<td>.91</td>
</tr>
<tr>
<td>Multi-unit housing</td>
<td>Proportion residences in multi-unit households</td>
<td>Census SF3 files, 1990 and 2000</td>
<td>.25</td>
<td>.13</td>
<td>0</td>
<td>.77</td>
</tr>
</tbody>
</table>

**Utility Variables:**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Water charge</td>
<td>Total monthly residential water charge, based on a 5/8 inch meter and 1,500 cubic feet of water, in 2000 dollars</td>
<td>Black &amp; Veatch Water Charge Surveys</td>
<td>25.66</td>
<td>11.44</td>
<td>6.13</td>
<td>105.38</td>
</tr>
<tr>
<td>Water debt per capita</td>
<td>Per capita debt attributable to water activities, fiscal year 1998-99</td>
<td>California Office of the State Controller</td>
<td>.30</td>
<td>.85</td>
<td>0</td>
<td>8.48</td>
</tr>
<tr>
<td>Population served</td>
<td>Log, city/district population</td>
<td>Black &amp; Veatch Water Charge Surveys</td>
<td>10.21</td>
<td>1.45</td>
<td>6.11</td>
<td>15.16</td>
</tr>
<tr>
<td>Surface water</td>
<td>Surface storage as dominant source of water supply: 1 if yes, 0 if no</td>
<td>Environmental Protection Agency</td>
<td>.52</td>
<td>.50</td>
<td>0</td>
<td>1</td>
</tr>
</tbody>
</table>
can expect an issue to have greater salience where actual conditions are worse; the public will respond to local circumstances and pay more attention to issues that pose real challenges to the community. I measure the salience of water issues using climate variables that influence water supply and demand in an area. In hot, dry climates, water resources are under stress due to both limitations on supply and high per capita water consumption. Water scarcity is an important problem on the public agenda. Attention to water issues might wane during wet periods that replenish water supplies and reduce household water consumption for landscaping and other outdoor uses, but it rises again during periods of drought. Residents of wetter, cooler climates are likely to take their water supplies for granted and pay less attention to water issues overall. I evaluate how cross-sectional and over-time variation in climatic conditions influences the relationship between governing structure and policy choice. Cross-sectional variation in climate conditions is likely to be a poorer measure of salience in a California-specific dataset, because the state’s reliance on large, surface water projects may create incongruity between local conditions and availability of supply. Lacking a better alternative, however, I measure climate variation across jurisdictions using an index of mean total precipitation and mean daily maximum temperature, computed for the period 1961-1990 and available in banded CLIMAPs from the National Climatic Data Center (NCDC). Higher scores on the index indicate higher temperatures and precipitation levels.

Panel data on connection fees also allowed me to test the effects of changes in issue salience over time. In 1991, California was in the final year of a four-year drought that raised public awareness about water scarcity and the fragility of the state’s long-term water supply. Public attention was focused on water issues, as many utilities adopted rate increases and voluntary conservation programs in response to shortages. A few utilities even imposed mandatory usage restrictions. As California came out of the drought and the economy boomed during the 1990s, public interest in water issues waned. The analysis tests whether special districts responded differently to these changes in water salience than utilities operated by cities and counties. I constructed time-variant measures of water salience using divisional
climate data from the NCDC and the NOAA-CIRES Climate Diagnostics Center.\textsuperscript{17} For each of California’s seven regional climate divisions, I collected data on means and standard deviations of annual temperature and precipitation for the period 1971-2000. I then calculated annual departure from those means, measured in numbers of standard deviations. Positive values are hotter and wetter than normal, negative values cooler and dryer. I assigned utilities to the region in which the largest area of the utility’s jurisdiction lies. The results presented here use a two-year lag in the divisional departures from normal temperature and precipitation in order to provide time for a policy response to changes in water salience.

The final measure of water salience is the Palmer Hydrological Drought Index (PHDI), a meteorological drought index used to assess the long-term severity of dry or wet spells of weather. I included this measure to capture large-scale variation in issue salience that might not be evident in the more detailed indicators. The PHDI was developed to quantify hydrological impacts of drought such as reservoir and groundwater levels that take longer to develop and rectify. Possible values on the index range from -7 to 7; zero represents normal conditions, and negative values indicate drought. Measured at the statewide level, this indicator varies only across time, not by utility, and the model includes values for a two-year lag.

The measure of growth salience is simply the rate of population increase between 1990 and 2000, aggregating block-level Census data to the jurisdiction. As in the case of water, it is not ideal to operationalize issue salience with an indicator that measures the objective importance of that issue. No alternative is available for assessing opinion about growth and water issues at a local level, however, and the error this introduces is likely to operate in both directions. Just as some communities are experiencing little development because growth is a contentious, highly salient issue, others are growing at a high rate because growth is uncontested. These unusual cases will balance one another out. In general, growth has greatest salience in communities that are rapidly expanding. Existing residents grow concerned about the effects of growth on their quality of life and resist subsidizing the expansion of public facilities to provide

\textsuperscript{17} Annual climate data were only available only at the level of California’s seven regional climate divisions, not in the more detailed CLIMAPs that show long-term averages.
Distributing the Costs of Growth

for new residents. True growth rates also reveal the level of developer activity in the community. In areas of rapid growth, developers have an ongoing presence in the community and will likely learn more about the configuration of governments that oversee service delivery. They attain a better understanding about the importance of decisions made by low-profile special districts in shaping the context for new development.

Control variables fall into two general categories: demographic and political features of the constituency that might prompt demand for growth control, and financial and operations characteristics of the utility. Antigrowth efforts have often been characterized as movements by wealthy homeowners to protect their home values and create exclusionary communities. Thus I include in the model median income and median home value, both aggregated to the utility jurisdiction from block group data drawn from 1990 and 2000 Census SF3 sample files. Urban, liberal populations also are perceived to be more likely to demand growth control. I control for the effects of location with a variable measuring the proportion of the jurisdiction located in a Census-designated urban area. For political ideology, I use the proportion of voters in the jurisdiction who cast ballots for the Democratic candidate in the top-ticket race of the previous year’s election. To construct this variable, I obtained block-level vote returns from the California Statewide Database and aggregated them to the boundaries of the jurisdiction. Since connection fees are a policy that shifts costs from existing to future members of the community, I control for the stability of the community with variables measuring median house age and the proportion of households in the jurisdiction that are renter-occupied. These were aggregated from Census data collected at the block and block group level. I also controlled for the proportion of the jurisdiction’s housing units that are in buildings with multiple residences, since many residents of multiunit buildings do not pay their own water bills and thus would likely have no reason to favor higher connection fees, dissipating constituent demand. Finally, I expect the rate of population growth to have a direct positive effect on connection fees in addition to a possible interaction effect with governing structure.

On the side of the utility, I control first for the level of a utility’s water prices, since utilities that already charge high water rates might have greater incentive to shift the cost of infrastructure expansion
Distributing the Costs of Growth

away from existing customers. The Black & Veatch surveys include a measure of total monthly residential water charge, which is a sum of the service charge and commodity charge calculated using the inside city rate. Data were collected based on a standard meter size and usage level, and thus are not dependent on true water consumption. The charges for all years are in constant 2000 dollars. I also include the amount of debt per capita that is attributable to the government’s water provision activities. A utility with a high level of debt might be more likely to use connection fees as an alternative to issuing more bonds. Data on indebtedness come from the annual reports on local government finances produced by the California State Controller’s Office for fiscal year 1998-99. To capture the effect that economies of scale might have on the financial decisions of utilities, I control for the log of the city or special district’s population, as reported by the utility in the Black & Veatch surveys. Since the source of a utility’s water supply is an important influence on the cost of water provision, I include a dummy variable indicating whether the utility obtains its water primarily from surface sources. Information on water sources comes from the Environmental Protection Agency’s Safe Drinking Water Information System. Finally, if utilities use connection fees in an attempt to promote water conservation, these efforts should be captured in the direct effect of the climate variables in the model.

Results

Analysis of simple bivariate relationships reveals that despite their strong implications for land use policy, water connection fees are not just a tool used by cities and counties that have land use authority. Figure 1 shows average connection fee levels by year for the special districts and general

---

18 I attempted to find an instrument for this variable to account for the possibility that water charges are determined endogenously. None of a variety of possibilities—including age of the local government, its financial characteristics, and whether it has a contract with one of the state’s major water projects—proved to be an effective instrument.

19 The financial reports on special districts organize the section on long term indebtedness by district activity, making it easy to determine what portion of a multifunction special district’s debt is attributable to its water activities. The city and county reports do not separate debt by activity, but they do typically indicate the purpose of bond issues and state-financed construction. It is possible that this measure underreports water debt for general purpose governments, however, if portions of unspecified or general purpose bonds have been dedicated to water activities.
Figure 1. Average Connection Fees among California Water Utilities, 1991-2003.


purpose governments in the sample. Not only do special districts use water connection fees, they appear to rely on them more heavily than their general purpose counterparts. The differences in means are all significant at the p<.05 level.\(^{20}\)

In order to examine the interaction between utility governance and issue salience and to control for other factors that might affect connection fee reliance, I turn to multivariate analysis. My dataset is an unbalanced panel of California public water utilities, 313 utilities in total, observed biannually for seven periods between 1991 and 2003.\(^{21}\) Since my main explanatory variable of interest, utility governance, is time-invariant within the sample, I primarily seek to explain between-unit differences in connection fees rather than dynamic change over time. Panel data still provide some advantage over simple cross-sectional analysis: a panel analysis assures that observed relationships persist longer than the single moment in which we collect data for a cross-sectional analysis, and it allows covariates to vary over time, capturing dynamic change in other factors that contribute to fee levels. In particular, it allows me to test if variation in the salience of water issues both cross-sectionally and over time interacts with governing

\(^{20}\) The differences are significant at p<.001 for all years except 1993.

\(^{21}\) The dataset expands to 316 utilities for the between-effects model. The findings are robust when restricting the dataset to a balanced panel of 189 utilities.
structure to influence connection fee reliance. Pooling panel cross-sections also can produce more efficient effect estimates than looking at a single cross-section alone (Stimson 1985). Nevertheless, pooling panel data introduces a number of methodological problems, including heteroskedasticity and serially correlated errors. Customary solutions for these problems are not appropriate for this analysis: first differences and fixed effects are not an option when time-invariant explanatory variables are an important element in the model, and including a lagged dependent variable focuses attention on short-term dynamics and may produce biased estimates that understate the influence of substantive independent variables (Achen 2001).

The estimates presented below are from a Prais-Winsten generalized least squares regression that corrects for first-order autocorrelation.\(^\text{22}\) The model includes year dummies to absorb any remaining time dependence. Standard errors are adjusted for the clustering of observations by utility. In addition, I present estimates from a between-effects regression on the average values of all variables for each utility over time. By focusing exclusively on differences between units, the between-effects method loses some of the information contained in a panel dataset, but I show the estimates to demonstrate the robustness of my results. The between-effects model does not include year dummies or the lagged climate variables.

Table 2 reports the results. Note first that a relationship between special district governance and connection fee reliance holds up after introducing control variables. That relationship is not unconditional, however; its form is determined by the rate of growth in the utility’s jurisdiction.\(^\text{23}\) Figure 2 shows the differences in predicted connection fee levels imposed by special districts and general purpose governments at different growth rates, using estimates from the Prais-Winsten regression and holding control variables at their true values. At the 25\(^{\text{th}}\) percentile growth rate in the sample,

\(^{22}\) The Prais-Winsten procedure is similar to the Cochrane-Orcutt method but maintains the first observation for each unit (Greene 2003, 273).

\(^{23}\) The estimated effect of a jurisdiction’s growth rate is not significant in either model, but the interaction passes a null hypothesis test with a high degree of confidence and specification tests indicate that the two variables are jointly significant. This indicates that we cannot reject the hypothesis that growth has no effect on connection fee levels when the governance variable is scored zero, i.e. for city and county utilities. The coefficient on the interaction term does pass a standard test of significance, demonstrating that growth does have an effect on fee levels imposed by water districts.
Table 2. Effects of Special District Governance on Water Connection Fee Levels.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Prais-Winsten Estimates</th>
<th>Between-Effects Estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special District</td>
<td>520.62 (264.98)**</td>
<td>486.88 (239.90)**</td>
</tr>
<tr>
<td>Climate Variables:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Temperature</td>
<td>62.57 (88.36)</td>
<td>132.27 (98.10)</td>
</tr>
<tr>
<td>Precipitation</td>
<td>196.21 (88.61)**</td>
<td>206.72 (83.45)**</td>
</tr>
<tr>
<td>Temperature departure</td>
<td>96.78 (53.49)</td>
<td></td>
</tr>
<tr>
<td>Precipitation departure</td>
<td>-51.91 (61.93)</td>
<td></td>
</tr>
<tr>
<td>Drought index</td>
<td>-91495.99 (889.49)***</td>
<td></td>
</tr>
<tr>
<td>Growth</td>
<td>390.25 (440.81)</td>
<td>-57.69 (609.34)</td>
</tr>
<tr>
<td>Special District * Growth</td>
<td>-1641.32 (657.19)**</td>
<td>-1591.11 (757.39)**</td>
</tr>
<tr>
<td>Demand Variables:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Income</td>
<td>.02 (.01)</td>
<td>-.00 (.01)</td>
</tr>
<tr>
<td>Home value</td>
<td>.00 (00)</td>
<td>.00 (00)</td>
</tr>
<tr>
<td>Urban</td>
<td>-29.48 (177.35)</td>
<td>97.76 (285.46)</td>
</tr>
<tr>
<td>Democrat</td>
<td>51.15 (441.70)</td>
<td>2195.92 (779.89)***</td>
</tr>
<tr>
<td>Housing age</td>
<td>-38.99 (10.63)***</td>
<td>-73.83 (14.07)***</td>
</tr>
<tr>
<td>Renters</td>
<td>-382.94 (1008.74)</td>
<td>-511.09 (1330.67)</td>
</tr>
<tr>
<td>Multi-unit housing</td>
<td>-1873.18 (957.46)</td>
<td>-2467.89 (1187.91)***</td>
</tr>
<tr>
<td>Utility Variables:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Water charge</td>
<td>20.60 (6.62)***</td>
<td>32.96 (8.87)***</td>
</tr>
<tr>
<td>Water debt per capita</td>
<td>210.73 (114.66)*</td>
<td>249.15 (106.04)**</td>
</tr>
<tr>
<td>Population served</td>
<td>152.12 (51.62)***</td>
<td>214.47 (88.60)***</td>
</tr>
<tr>
<td>Surface water</td>
<td>546.88 (175.89)***</td>
<td>345.96 (189.19)*</td>
</tr>
<tr>
<td>Constant</td>
<td>-199836.40 (2210.84)***</td>
<td>-791.08 (1346.31)</td>
</tr>
</tbody>
</table>

Number of observations          | 1,902                   | 1,921                    |
Number of groups                 | 313                     | 316                      |
\(R^2\) (overall)                | .17                     | .28                      |
\(R^2\) (between)                | .35                     |                          |

*Connection Fees Data Source:* Black & Veatch Water Charge Surveys. Standard errors in parentheses, clustered by utility for the Prais-Winsten estimates. Year fixed effects in the Prais-Winsten model not shown.  *** \(p < .01\), ** \(p < .05\), * \(p < .10\)

representing a seven percent population increase between 1990 and 2000, municipal water utilities are expected to charge a connection fee of $1,852, more than $400 less than the $2,258 charged by water districts. Municipal connection fees remain fairly constant at all growth rates, rising to just $1,930 at the
75th percentile rate of 27 percent growth. In contrast, connection fees imposed by water districts are lower in communities experiencing higher levels of growth. In jurisdictions with growth rates in the 75th percentile, the model predicts that water districts will charge $2,008, just $78 more than cities and counties. Thus as growth rates increase, the differences between governing structures in their policy choices diminish; where a community’s population increased by a third between 1990 and 2000, the model predicts no difference in connection fees charged by special districts and municipal utilities.

The existing literature on connection fees predicts that higher growth rates will increase the likelihood of impact fee use, but these results provide no support for a positive relationship between growth and connection fees. Previous research on impact fee adoption has focused on general purpose governments responsible for both land use and water. Among these governments, I find that growth has no significant effect on water connection fee levels. This analysis departs from earlier literature by extending the focus to special districts that have no authority over decisions about growth. We might expect these special districts to be less reliant on connection fees, but my results indicate that in fact they
charge higher fees than cities and counties under most circumstances. Moreover, for special districts the effect of growth rates on fee reliance is negative; districts charge lower rates where population is rapidly increasing.

The dynamics of functional specialization and the response of interest groups to the incentives it creates can account for these patterns of policy choice. We can assume that connection fee increases will receive the diffuse support of a majority of constituents and concentrated opposition from developers and landowners with resources to invest in lobbying. We also can assume that the developers and landowners typically operate in city and county venues, since it is general purpose governments that have responsibility for land use decisions. Where population growth is low, special districts are respondent to the preferences of their constituents to shift the cost of water system expansion to new customers. Constituent preferences are likely to be motivated by attitudes about growth, not water service, but water districts respond anyway by setting high connection fees. Water districts appear not to define their responsibilities so narrowly that they ignore demands for policies with multiple dimensions, counter to a concern of metropolitan reform theory. Developers have greater success in controlling connection fee levels in city and county venues, because they monitor the activities of those governments and can take advantage of existing relationships with city and county officials. This result is consistent with findings about the effects of governing structure on unidimensional policy choices; there, creating specialized governments can reduce the bias in favor of concentrated minority interests if the policy issue has low salience (Mullin 2004).

In communities experiencing high levels of population growth, special districts attract more attention from developers and become more important venues for growth politics. More developers will be active in high-growth communities, allowing them to spread their influence to the special district venues that provide services to new development. High levels of growth increase the risks that special districts will deny service, due to lack of capacity or responsiveness to constituent backlash against growth. Developers will invest more resources in lobbying special districts in order to secure cooperation with service provision, and therefore they will be better positioned to prevent district actions to increase
connection fees. Cities and counties themselves also might lobby special districts to keep fee levels low if growth is a high priority for the jurisdiction. These efforts will balance constituents’ more diffuse calls for higher fees. Thus we see that in special districts, connection fee levels decline with growth.

Growth salience does not have the same effect for general purpose governments that have responsibility for water service. For city and county officials, growth and land use are a central responsibility. As Peterson (1981) describes, “Urban politics is above all the politics of land use” (25); land use captures the attention of local residents because it affects home values, quality of life, and the community’s potential for economic development (see also Fischel 2001). Officials recognize that they always will be evaluated for their positions on growth issues. City and county venues receive the attention of developers and interested citizens regardless of current growth pressure, and they may turn to connection fees as a compromise position that allows new development to take place but shifts the costs to incoming residents (Altshuler and Gómez-Ibáñez 1993). As growth rises in salience, connection fees imposed by municipal utilities stay constant or rise slightly while those imposed by water districts fall, closing the gap in policy outcomes between governing structures.

There is no support for a similar interaction between specialized governance and water salience. Variation in the salience of water both cross-sectionally and over time, as measured by climate and drought conditions, had no conditioning effect on the relationship between governing structure and fee levels.24 The model provides some evidence that water scarcity exerts a direct influence on policy decisions regarding connection fees, but that influence applies equally to water districts and general purpose governments.25 The large and highly significant coefficient for the lagged drought index variable suggests that all local water agencies respond to periods of drought by raising connection fees. The effect for lagged regional departures from normal temperature is weaker, but it similarly suggests that

24 I tested this hypothesis by including in the model interactions with all climate variables both individually and jointly; none had an effect that approached significance. These interactions are omitted in the final model to avoid the multicollinearity they introduce.
25 I tested for nonlinear relationships between the climate variables and connection fee levels, but there was no improvement in model fit.
connection fees are in part a response to conditions of water scarcity. The null findings for cross-sectional climate variation are not surprising given the centralized nature of California water supply.²⁶

Among control variables, features of the utility’s financial health and water source have more influence on connection fee levels than demographic and political characteristics of the jurisdiction. Only two of the demand variables have a significant effect in the time-series model. Median house age has a negative relationship with connection fee levels, providing further support that connection fees are a response to recent growth in a community. The proportion of a jurisdiction’s homes that are in multiunit buildings also has a negative effect by dissipating constituent demands for connection fees.²⁷ The results provide no support for hypotheses that connection fees will be higher in wealthier, urban communities. The one substantive difference between the Prais-Winsten and between-effects models is for the effect of political ideology. Democratic vote proportion in the previous election has no effect in the pooled model; isolating only the cross-sectional variation in the between-effects model, however, we see that more liberal communities are much more likely to impose high connection fees. All the utility variables have significant effects. Connection fees are higher among large utilities, and there is evidence that water systems use connection fees as a means to overcome financial constraints. Fee levels are positively associated with surface water reliance, per capita water debt, and the level of residential water bills.

Conclusion

Specialized policy venues offer the opportunity to dedicate greater expertise and attention to a single issue, but many policy decisions require tradeoffs and position taking among multiple issue areas. Critics of special districts have assumed that these expert governments will not extend their scope to consider how policy actions in their own functional arena might affect other issues. As a consequence, these critics argue, decision making on inherently multidimensional issues such as growth planning will

²⁶ I would expect wetter weather only to reduce connection fees by minimizing stress on a water system, and thus I interpret the finding of a positive effect for precipitation as a failure to reject the null in a one-tailed hypothesis test.
²⁷ The effect for proportion of households in multiunit buildings falls just outside the boundary of a conventional significance test in the pooled model (p=.051).
be fractured in communities that rely on special districts, creating opportunity for developers to dominate the policy process.

The analysis in this paper reveals that the focus of special districts is less narrow than critics fear. Special district officials do consider the preferences of their constituents on issues outside of their own functional jurisdiction, and they will even take policy actions that developers firmly oppose. Focusing specifically on water connection fees, a revenue policy whose effects are more closely tied to growth planning than to water, I find that under most circumstances special districts are more willing than cities and counties to use this tool, despite opposition from developers and landowners. As there is no clear justification for connection fee reliance from a water policy perspective, this pattern reveals a willingness on the part of special districts to use their oversight of individual local services in order to pursue growth management goals.

Special districts may typically be more reliant on a policy tool that developers oppose, but this does not mean that they are invulnerable to pressure from special interests. Instead, districts show the greatest willingness to use this tool where developers are least likely to be paying attention. Where growth rates are low and developers restrict their attention to the city and county governments responsible for land use, special districts impose the highest connection fees and governing structure has the greatest effect on connection fee levels. Districts act outside their area of functional jurisdiction in order to respond to calls from their constituents to shift the cost of growth to incoming residents. With higher growth rates, a community becomes more profitable and attractive to developers. Developers and landowners invest more resources in lobbying all the governments responsible for service delivery decisions in a community in order to win approval of their project proposals and maintain an atmosphere that is favorable to growth. In a high growth context, special districts must balance diffuse constituent preferences for higher connection fees with concentrated lobbying efforts by developers and landowners to keep fees low. Meanwhile, growth is likely to be a more contentious topic in rapidly growing communities, and special districts may draw criticism for acting outside their functional jurisdiction to
create an impediment to growth. Districts respond to this pressure and show less reliance on connection fees in high growth communities.

Cities and counties, on the other hand, show similar reliance on connection fees regardless of levels of growth. Growth policy is a primary responsibility for general purpose officials, and connection fees are an attractive compromise policy to balance the demands of developers and antigrowth constituents under all circumstances. For general purpose governments, growth is always salient and has little effect on revenue policy.

This analysis clearly demonstrates that functional specialization alone will not cause the neglect of multidimensional policy questions; special districts are willing and able to consider their constituents’ preferences on issues outside formal district jurisdiction, especially when those outside issues have low salience and the activities of the special district receive little attention. What is left unanswered by the analysis is whether this helps or hurts intergovernmental coordination on complex, multidimensional policies. It is impossible to determine from the data whether special districts impose high connection fees in order to cooperate with the planning goals of an overlapping city or county, or if the fees conflict with a progrowth agenda on the part of the government responsible for land use issues. Informal review of connection fee decisions by water districts and other special districts suggests that the majority of cases might be characterized as cooperative decision making, but conflict is not uncommon. Special districts have substantial influence over development conditions in a community; regardless of land use and zoning ordinances, the value of a potential development site depends on the cost and availability of public facilities. Districts can use their control over these facilities to bend growth policy without the consent of the city or county, even though doing so is likely to reduce levels of trust between institutions and raise the transaction costs of coordinating on other policy questions. The analysis suggests that there may be limited cause for concern, because districts tend to back off from issues outside their jurisdiction as those issues increase in salience. Once an issue rises to public attention, governing structure has less effect in shaping policy outcomes.
Appendix

This appendix describes the process I used to construct variables measuring the demographic, political, and climate characteristics of jurisdictions in my sample. Using ArcGIS Desktop 9.0, I aggregate data from the level of Census blocks and block groups up to the boundaries of cities, counties, and water districts for demographic and political variables. Data are available at the city and county level for all the variables in the analysis, but I constructed values for these general purpose jurisdictions using the same process as for water districts so that any measurement error resulting from the data aggregation process would be distributed among all observations in the sample. For climate variables, I used data from regional and grid climate maps.

Demographic and Political Variables

Starting with boundary shapefiles of California Census blocks and the jurisdictions included in the Black & Veatch dataset, I overlaid the block maps with the jurisdiction boundaries to identify blocks that intersect the jurisdictions of interest. For blocks that lay only partially within the jurisdiction, I calculated the percentage of the block area that is contained by the unit. I carried out this process twice, using block and jurisdiction maps from 1990 and 2000. Boundary shapefiles for cities, counties, and Census blocks come from the U.S. Census Bureau’s Topographically Integrated Geographic Encoding and Referencing (TIGER) database. Water district boundaries come from data compiled by the U.S. Bureau of Reclamation in coordination with the California Department of Water Resources; the data are stored in the California Spatial Information Library. Due to limitations in data availability, I overlaid 1990 and 2000 block shapefiles with current maps of water district boundaries, but based on the general stability of water district boundaries I do not expect this to affect my results.\(^{28}\)

Having identified the blocks and partial blocks within each general purpose or special district jurisdiction, I aggregated block and block group data up to the jurisdictional level. Variables measuring

\(^{28}\) Publication dates for the water district maps fall within 2003 and 2004. Map files can be found in the California Spatial Information Library (http://casil.ucdavis.edu/casil/usbr.gov/wat_dist/).
Distributing the Costs of Growth

population growth, urban population, renter population, and multiunit housing are all based on Census count data from SF1 files or sampled count data from SF3 files. For these, I summed the counts across blocks or block groups in the jurisdiction, weighting the counts for partial blocks by percentage of the block area contained within the jurisdiction. I then computed proportion measures based on jurisdictional counts. For variables measuring median values of income, home value, and housing age, I used median block group values as reported by the Census and calculated the jurisdictional median across block groups. Demographic data for 1991 and 1993 observations come from the 1990 Census and use 1990 boundary files; measurements for observations from 1995 on are based on 2000 blocks and data.

To measure political ideology of a jurisdiction, I used block-level vote returns compiled by the California Statewide Database (SWDB). As part of its duties as California’s redistricting database, the SWDB takes precinct-level electoral returns and disaggregates them to the Census block for each election.\textsuperscript{29} I used count data on votes cast in the top-ticket race of the previous election to capture the political leaning of a jurisdiction. I summed block-level votes by party, weighting partial block counts by area, and calculated proportion Democratic vote based on jurisdictional sums. Thus a 1993 observation measures ideology by the proportion of the jurisdiction’s voters casting a ballot for Bill Clinton the previous November, and a 1999 observation takes the proportion voting for Gray Davis in the 1998 gubernatorial election.

Climate Variables

The analysis includes measures of climate that vary cross-sectionally, over time, and across both units and time. The most location-specific data available capture only cross-sectional climatic variation. These data come from CLIMAPS, climate maps produced by the National Climatic Data Center (NCDC) that contain annual data on mean total precipitation and mean daily maximum temperature, computed for the period 1961-1990. The NCDC integrates point measurements collected at thousands of weather stations nationwide with geologic and other spatial datasets to generate these maps. The maps are

\textsuperscript{29} For detailed information on the SWDB’s methodology, see its Web site (http://swdb.berkeley.edu).
Distributing the Costs of Growth

banded, with bands representing discrete temperature and precipitation ranges; each map contains nine total ranges. To assign temperature and precipitation values to the jurisdictions in my sample, I overlaid the CLIMAPs with the jurisdiction boundaries and obtained polygons of partial cities or water districts with constant climate. After calculating the area of these partial units, I assigned index values for mean maximum daily temperature and mean annual precipitation to the jurisdictions according to the bands in which the largest portion of the jurisdiction lay.30

In order to capture annual variation in temperature and precipitation for individual water districts, I used divisional climate data from the NCDC and the NOAA-CIRES Climate Diagnostics Center. These data provide cross-sectional variation at the regional level. I obtained boundary shapefiles for California’s seven climate divisions from the Web site of the U.S. Environmental Protection Agency, and I overlaid the divisional boundary files with jurisdiction boundaries to find the climate division in which the largest portion of each city or water district lay.31 Once I assigned each jurisdiction to the appropriate climate division, I calculated annual departures from divisional normal temperature and precipitation using the process described in the text. The final climate measure, the Palmer Hydrological Drought Index, varies only by year.

30 Assigning values by a weighted average rather than the dominant temperature and precipitation range made no substantive difference in my analysis.
31 The shapefile of California’s regional climate divisions comes from the EPA’s collection of C-MAP GIS datasets (http://www.epa.gov/airmarkets/cmap/summary/sum_climdiv_sum.html).
References


Bish, Robert L. 1971. The Public Economy of Metropolitan Areas. Chicago: Markham.


Distributing the Costs of Growth


